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AGRICULTURAL ECONOMICS
at the
UNIVERSITY OF MINNESOTA
1886-1979

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Institute of Agriculture, Forestry and Home Economics
Department of Agricultural and Applied Economics
Agricultural Experiment Station

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FOREWORD

Willard Cochrane has written an unusual history of agricultural economics at the University of Minnesota. Many such surveys are little more than a litany of numbers which tell how faculty size changed over time, how graduate programs grew, and from where students and faculty came and went. Professor Cochrane has taken on the much more difficult task of relating the growth and development of the discipline to the changes in the larger school of agriculture and the university of which it was a part. He also relates that development to developments in the profession as a whole and to those in the national economy.

One of the things that makes the history he writes so fascinating is the extent to which he captures the personalities and styles of the people he writes about. This is not an easy task, for Professor Cochrane was a very important part of the history he is writing. If his text has a fault, it is his failure to give himself full credit for his own contributions to the development and evolution of the Department, where for many years he was a principal intellectual and academic leader.

Professor Cochrane was born in Fresno, California, and did his undergraduate work at the University of California, Berkeley (1937). He received an M.S. degree from Montana State College (1938), an M.P.A. from Harvard University (1942), and a Ph.D. from Harvard (1945). While at Harvard he was a Littauer Fellow in 1941-42.

Cochrane started his professional career during the years immediately prior to World War II. He worked as an economist for the Farm Credit Administration from 1939-41, the War Food Administration in 1943, and the Bureau of Agricultural Economics of the USDA from 1943-47. After the war he worked as an economist for the Food and Agricultural Organization of the UN (1947-48) and was a member of the UN Mission to Siam in 1948.

His academic career started at Pennsylvania State University, where he was an associate professor (1948-49) and a professor from 1949-51. After a sojourn as a visiting professor at the University of Wisconsin in the summer of 1951, he joined the faculty of the Department of Agricultural Economics at the University of Minnesota. He was associated with that department until his retirement in 1981.

Cochrane's academic career at Minnesota was interrupted by many outside activities. He was chairman of the Governor's Study Commission on Agriculture in 1957-58 and a visiting professor

at the University of Chicago in 1958-59. From July to November 1960, he served as agricultural advisor to Senator John F. Kennedy and traveled with him as he campaigned for the presidency. From January 1961 to June 30, 1964, he was director, agricultural economics, USDA, and economic advisor to the secretary of agriculture. During this period he was responsible for the administration of the Economic Research Service, the Statistical Reporting Service, and all program planning work in the USDA.

Professor Cochrane returned to the University of Minnesota July 1, 1964. A year later he was named dean, Office of International Programs, a position he held through June 30, 1970. In this position he was responsible for all international activities of the University.

Cochrane's career is well-laced with visiting professorships and consultantships all over the world. He may be as well known as any agricultural economist in the world. His advice, insights, and judgments have been widely sought. He was an internationalist before that was the fashionable thing to be. He has received many honors for his academic work and public service. He was vice president (1954-55) and president of the American Farm Economic Association (1959-60). He received a Distinguished Service Award from the USDA in May 1964. He was elected a Fellow of the American Farm Economic Association in 1965, received the honorary degree of doctor of laws from Montana State University in 1967, and was named Phi Kappa Phi Scholar of the Year, Minnesota chapter, 1980.

Throughout his career Professor Cochrane was a prolific and insightful writer. The core of his thinking and its evolution over time are perhaps best represented in three of his publications: (1) "Farm Price Gyration--An Aggregative Hypothesis," *Journal of Farm Economics*, May 1947; (2) *Farm Prices--Myth and Reality*, 1958; and (3) *The Development of American Agriculture: A Historical Analysis*, 1979.

Few people have received so many calls to service, and few people have responded so well. Professor Cochrane's career is one that has truly made an impact--on food and agricultural policy worldwide, on the academic department where he spent most of his career, on the profession of which he was a part, and perhaps most of all, on his colleagues and students.

G. Edward Schuh
September 1982

ACKNOWLEDGMENTS

Many people contributed to the writing of this history of agricultural economics at the University of Minnesota. G. Edward Schuh encouraged me to write it as my final activity at the University. Maxine Clapp and Clodaugh Neiderheiser of the University Archives provided many hard-to-find materials for the early years of agricultural economics at the University. Wesley B. Sundquist, Vernon W. Ruttan, Lee R. Martin, Frank J. Smith, and Selmer A. Engene each read the complete draft of an early version of the manuscript and made many valuable suggestions for its improvement. Selmer Engene was most helpful in locating photographs from bygone years, and in identifying individuals in those photos. Debbie Cran dug out most of the budgetary data referred to in the history and supervised the compilation of appendices A and B. Mary Jane Baumgart typed much of the original manuscript, and some of it several times over. Mary Strait, my long-time friend and

secretary, typed the final manuscript for reproduction. Dale C. Dahl supervised the final publication process and brought the entire effort to a final and successful conclusion. Finally, many, if not most, staff members in the Department contributed to the history by answering questions, checking facts, and by giving up secretarial time to the enterprise.

In sum, although I actually wrote the history, the entire Department, and many others, contributed to the enterprise. And we can all hope that the lives and careers of present and future staff members and students will be enriched by knowing how and by what paths agricultural economics at the University of Minnesota achieved professional eminence.

Willard W. Cochrane
May 1983

Chapter 1. THE BEGINNINGS: 1886-1900

The years of 1886 through 1888 were difficult, but exciting, years on the new Farm Campus in St. Paul.¹ In 1886, one man, Edward D. Porter, professor of the theory and practice of agriculture, was trying to do it all: operate the farm, build facilities for an experimental farm, conduct experiments, attract students, teach any students enrolled in the college, conduct institutes around the state by taking demonstrations and information directly to the farmers, and appease a group of farm leaders who were seeking to sever the agricultural work under the Morrill Act from the University of Minnesota. In some of those activities Professor Porter was highly successful. By all accounts his program for building the physical facilities at the experimental farm was well conceived and expeditiously executed, and his winter institutes for farmers around the state were so successful that the state legislature took the function away from him and created a special state agency to produce the institutes.

In other areas he was less successful. Operating the farm took much of his time, and almost no experimental work was undertaken. Much of the time he had no students to teach, and there is no record of the regularly enrolled students in agriculture during this period exceeding three in number. The costs of building the physical facilities on the experimental farm were considered extravagant by some of the regents, thus creating a strained relation between Professor Porter and the board of regents, and when he received an offer to take charge of the agricultural work at the University of Missouri he was "permitted to leave" during the winter of 1888-89.

But his greatest problem was with farm leaders and farm politicians who wanted more action out of the University in the way of helping farmers with their production and economic problems. In fact, during the winter of 1886-87 some farm organizations accused the University of diverting funds derived from the Land Grant Act for the support of agricultural work to the support of the entire University. As a result, strong pressures were generated to separate the College of

Agriculture and the experimental farm from the University of Minnesota. And it was only through the heroic efforts on the part of the new president of the University, Cyrus Northrop, and former regent and then governor, John S. Pillsbury, that the College of Agriculture was retained within the University structure. To win that battle the president and the board of regents had to agree to appoint an advisory committee of seven farmers to consult with Professor Porter on the operation of the experimental farm and to lay plans for a school of agriculture.

Professor Porter submitted a plan for the establishment of a school of agriculture in early 1887. This plan was debated and reworked through the remainder of 1887, and a final plan submitted by President Northrop was approved by the board of regents on March 6, 1888. The School opened its doors to students in October 1888. As conceived at the time, the School was neither a high school nor a college; it was a school to teach young Minnesota farm boys, and later farm girls, to be good citizens and the practice of good farming. This is made clear by the conditions (presented below) under which the School would operate, as approved by the board of regents on March 6, 1888.

1. Candidate for admission shall be at least 15 years of age and shall have a good common school education.
2. The term shall be from November 1 to April 1, with vacation from Christmas to New Year's.
3. The course shall be two years.
4. The students shall be furnished board at cost.
5. The school shall be in charge of a principal and an assistant; the building and culinary department, in charge of a steward and wife.
6. The curriculum shall be essentially as follows:
 - I. Literary and Business course:
 1. Language and composition
 2. Business arithmetic
 3. Penmanship and bookkeeping
 4. Physical geography
 5. United States government
 6. Civil government
 7. Political economy
 - II. Scientific and Manual Training course:
 1. Shop work
 2. Chemistry
 3. Mineralogy and composition of

¹The land on which the St. Paul Campus and Agricultural Experiment Station now stand was purchased in 1882 and the move to this location occurred during 1883 through 1886. See *Minnesota Science, Agric. Exp. Sta., Univ. of Minn., Vol. 31, No. 1, Spring 1975, Special Centennial Issue*, pp. 4-6.

- soils
- 4. Botany
- 5. Physiology
- 6. Natural philosophy

III. Lecture Course:

1. Farm management: a. System; b. Economy; c. Business
 2. Soils
 3. Plants
 4. Stock: a. Breeding; b. Feeding
 5. Farm hygiene
 6. Farm architecture
 7. Farm home
 8. Veterinary science
7. The instruction in I and II shall be under the direction of the specialists employed at the experiment station.
8. A summer course in practical agriculture shall be provided.²

It will be noted from the above set of conditions that a lecture course entitled "Farm Management: (a) system, (b) economy, and (c) business" was to be presented to the young students of the School during their course of study. This set of lectures was developed by Professor Porter in 1887 or 1888 and was to focus on the economic aspects of farm management--not the physical aspects of farm management. This effort would seem to represent the very beginnings of agricultural economics at the University of Minnesota. Unfortunately, this set of lectures on farm management was never delivered to the first class of students at the School of Agriculture because Professor Porter was on his way to the University of Missouri sometime during the school year, 1888-89. These early efforts by Professor Porter to work farm management into the curriculum of the School of Agriculture were not, however, completely lost. The University catalogue for the year 1888-89 lists a course in "farm accounts" to be taken by students of the School of Agriculture in both their first and second terms. There is no record of who taught these farm accounts courses in the new School of Agriculture, but it could have been Willet M. Hays, who came to the St. Paul Farm Campus with the beginning of the 1888-89 school year.

Professor Porter was a busy man in 1888. Besides bringing the School of Agriculture into existence,³ he created the modern Agricultural

Experiment Station at the University of Minnesota. The passage of the Hatch Act in 1887 provided the University with some badly needed funds to support agricultural research and experimentation. Professor Porter organized the work of the Experiment Station into five divisions: (1) Botany and Entomology, (2) Horticulture, (3) Chemistry, (4) Veterinary Science, and (5) Agriculture. And he brought in some strong men to head up the work of those divisions (the biographies of which we would present in some detail if this were a history of the Agricultural Experiment Station, but it is not).

One of these men, however, must be recognized in more than a passing way, since he played a key role in the development of agricultural economics at the University of Minnesota. He is Willet M. Hays: born October 19, 1859, on an Iowa farm and died in that state after a lingering illness in 1928. Willet Hays was a remarkable man. He was attracted to Minnesota in 1888 by Professor Porter to instruct at the new School of Agriculture and to serve as assistant agriculturalist in the Experiment Station. He, probably more than any other single man, brought scientific methods to bear on agricultural research at the University of Minnesota. He conceived the idea in the early 1890s that "There are Shakespeares among plants." Recognizing the individual plant as the unit of improvement and being cognizant of the effects of hybridization, he set out to find ways of breeding and testing large numbers of plants so that he might find those plants that had Shakespearean characteristics. In 1903 he helped found the organization which later became the American Genetic Association, and he served as its secretary from 1903 to 1913. During this period he founded the *Journal of Heredity* and served as its editor from 1910 to 1913.

But Willet Hays had other interests too. He had a strong interest in agricultural education of all kinds, hence his interest in and willingness to become an instructor in the emerging School of Agriculture. He was an early advocate of agricultural vocational instruction in rural grade schools and high schools. He believed in public service and served as assistant secretary of agriculture under Tama Jim Wilson from 1905 to 1913. In that position he helped reorganize the

²*The History of the School of Agriculture: 1851-1960* by Professor Emeritus Ralph E. Miller, University of Minnesota, Institute of Agriculture, Forestry and Home Economics, St. Paul, Minnesota, 1979, pp. 5-6.

³The School of Agriculture on the St. Paul Campus of the University of Minnesota was a non-collegiate unit designed to teach good farming methods and good home management practices to students who had not completed high school or

who did not want a collegiate degree. For many years the School of Agriculture exceeded the College of Agriculture in enrollment and visibility throughout the state. Many of the most illustrious graduates in agricultural economics from the College of Agriculture began their careers in the School of Agriculture and later transferred to the College. For a historical account of the School see, *The History of the School of Agriculture: 1851-1960* by Professor Emeritus Ralph E. Miller, University of Minnesota, IAFHE, St. Paul, Minnesota, 1979.

crop reporting service of the USDA, and most importantly, he provided much of the leadership in the drive for a national extension education service for farmers, which ultimately culminated in the passage of the Smith-Lever Act in 1914.

We, however, are interested in Willet Hays for another reason. He started farm management research at the University of Minnesota. The early 1890s was a period of deep depression in the United States and a period of extreme economic hardship for American farmers. Thus, Willet Hays, the dreamer, and Andrew Boss, the doer, set out to help Minnesota farmers through research in farm management. It was their thought that, if they could find a good crop combination for farmers at the least possible cost, they would be on their way to helping farmers solve their severe economic problems. With this approach to the problem they set out in 1894 to arrange a series of rotation plots on one field of the experimental farm to test out various systems of farming. Let us follow these pioneering efforts as Andrew Boss was able to recollect them some 40 years later.

Each system consisted of a good crop rotation, or the elements of one which represented as we thought at the time a certain type of farming. Twelve check plots and thirty-two comparative plots served as miniature farms on which to discover the merits of the respective systems. Records were to be kept of each operation on the plots so as to determine the cost of plowing, harrowing, seeding and other tillage operations which were to be offset or covered by the oncoming crop. Our thought was to make comparisons by reducing the crop yields to dollar marks as the common denominator. With this denominator we were going to measure the efficiency of the various systems and determine which one would permit the greatest profits to the farmer.

It took only a couple of years to demonstrate the fact that the overhead on these plots was clear out of proportion to the returns received. While we could check the draft on fertility analysis, and while we could record the yield of crops and find a way to reduce them to a common denominator, the results after all were very disappointing, largely because of the overhead, the artificiality of the conditions, and the meager size of the plots.⁴

Reflecting on these efforts and considering the various research alternatives open to them during the period 1896-1900 led them to the

conclusion that the only effective way to study the business of farming was to obtain records of farm production and costs from operating farms.

So that would be their next step, which we shall review in chapter 2. But the question may be asked--did this research activity in the 1890s have any influence on the teaching program in the College of Agriculture? This question is not easily answered. The University catalogue for the school year 1896-97 indicates that senior-level students in the College of Agriculture were required to take a course that carried the name, Farm Economics. But there is no course listed under the heading "Courses of Instruction" that bears that name; there is only a suggestion that the Agriculture Division in the College offered some lectures on the topic of "Agricultural Economics." The University catalogue for the school year 1899-1900 again indicates that senior-level students in the College of Agriculture were required to take a course that carried the name, Farm Economics. By this time, however, there is a course listed under the heading "Courses of Instruction" which bears the name "Farm Economics." The catalogue description of that course reads--"Field management, rotation, weeds, labor, prices, purchases and sales, farm finances, the permanent farm investment, agricultural pedagogics." This course looks like it could have developed out of the research experience in farm management in 1894 to 1896 in which the central focus was on the discovery of an optimum cropping system.

But to an important degree the question of whether any farm management, or farm economics, was being taught in the College in the 1890s is an empty question. There were only 5 students in the College of Agriculture in 1890-91, some 10 students in 1895-96, and 23 students in 1899-1900. Most of the teaching on the Farm Campus in the 1890s was done in the School of Agriculture, where student enrollments in the summer term approximated 70, and enrollments in the winter term ran around 300. And students in the School of Agriculture were regularly offered a course entitled "Farm Accounts" during the 1890s. Andrew Boss also states that it was not long after the farm management rotation experiments were begun in 1894 before the results of that work were used by instructors giving courses in agriculture in the School of Agriculture.

These, then, were the beginnings of agricultural economics at the University of Minnesota. It was conceived by men with a general agricultural background--by men who today would be called agronomists; it was fragmentary, and the results were not too promising. But work was under way by 1900.

⁴ *Highlights in My Way Thru*, an unpublished manuscript written by Andrew Boss, 1936.

The First Strand: Farm Management

The man who more than anyone else shaped the direction and content of farm management work at the University of Minnesota and did the actual work as well, both teaching and research, during this period was Andrew Boss. Andrew Boss, too, was a remarkable man. He was born in Wabasha County, Minnesota, on June 3, 1867, of Scotch immigrant parents and died in St. Paul on January 13, 1947. His whole professional life was spent at the University of Minnesota. He graduated from the School of Agriculture in 1891 in one of the first graduating classes; he became foreman of the experimental farm in 1891; instructor in 1892; assistant professor in 1894; associate professor in 1902; professor and acting chief of the Division of Animal Industry in 1905; professor and chief of the Division of Agronomy and Farm Management in 1909; vice-director of the Experiment Station, professor and chief of the Division of Farm Management, Agronomy, and Plant Genetics in 1917; vice-director of the Experiment Station and professor in 1927; retired in 1936; and then returned as acting associate director of the Experiment Station for six months in 1944.

Andrew Boss was Minnesota's own pioneer in agriculture--especially agricultural research. His interests were broad and, in spite of his meager collegiate training, his thinking was at the forefront of the development of scientific agriculture. He did pioneering work in the study of meats--their preparation, grading, and grades in relation to live animals. He was actively engaged in plant breeding and very early saw the possibility of applying genetic principles to the production of hybrid corn. Later he became interested in applying these same genetic principles to the breeding of farm animals. Finally, and of direct interest to us, he was a pioneer in the field of farm management--particularly farm cost accounting; through this kind of research activity he hoped to bring to light the factors that lead to profitable farming.

Sometime in 1901 Hays and Boss hitched a team of horses to a platform wagon and headed for Northfield to find a group of dairy farmers who would give them data on their crop production operations. They interviewed some 45 farmers in the Northfield area and found 15 farmers who agreed to provide the University with data on their cropping operations *every day*. The collection of farm data was to begin on January 1, 1902, and the plan called for a fieldman to visit each

farm each day to secure records on the cropping operations from the previous day. A college student by the name of E. C. Parker became the first fieldman in the Northfield district. Thus, the first farm-business analysis or cost-accounting route in the United States was established.

In the spring of 1902, another route was opened at Marshall representing a diversified farming area, and a third at Halstad in a small-grain belt of the Red River Valley. Each of these routes was serviced by a fieldman working for the Division of Agriculture in the College of Agriculture, who was probably a student in either the School or the College taking leave from his studies to earn money to continue his studies. The data collected on these routes on a daily basis were regularly forwarded to the Division of Agriculture in the College for editing, tabulation, and analysis. The data flowing from these three routes became the foundation upon which farm management work--really, farm business analysis work--at the University was built.

No information secured from the farmer-cooperators was returned to them. Moreover, the fieldmen were specifically instructed not to advise the cooperating farmers with respect to their cropping operations or to provide them with any management information, although the fieldmen admitted that they found it difficult to follow these instructions as they became friendly with the cooperating farmers. The pressure to use the cost and production data collected to plan more profitable operations by the cooperating farmers existed from the very beginning of these farm management routes. But the principal purpose of the farm management routes was to generate data that would provide a representative economic picture of agriculture in Minnesota *as it operated at that time*.

This farm management route work was organized in cooperation with the Bureau of Statistics of the U.S. Department of Agriculture. The USDA provided consultation and \$600 per year to help cover the expenses of the field work.

As experience was gained in the analysis of those records, it became evident that restricting the cost records to crops and crop operations limited the usefulness of the results. Except in the Red River Valley, most of the products marketed from the farms involved took the form of livestock products. Thus, in 1904 the scope of the study was widened to cover the entire farm

business, including the operation of the household.

To compensate for this expanded activity, the number of farm-cooperators per route was reduced from 15 to 8 or 9. The route fieldman was no longer to board with one family as was done previously; in the new plan of work each fieldman was to live at each of the eight farms three days each month maintaining an office-room at each farm. During the three-day stay at each farm, the fieldman was to record, with simple equipment, the amount of feedstuffs fed to each animal, the yield of milk, and the percent of butterfat from each cow in the herd. In addition, each farm on the route was to be visited each weekday, as was done previously, to obtain the labor record from the previous day.

When the project was expanded in 1904, a small payment was made to some family member to record household expenses and the amount of farm produce consumed by the family. The fieldman continued to submit the farm production and cost data, collected on a regular basis, to a central office in the Division of Agriculture on the St. Paul Campus. In this office student clerks maintained a set of double-entry accounts for each farm; all editing, posting, summarization, and analysis was done at this central office.

The first results of this major undertaking, at least for that day, were published in Minnesota Agricultural Experiment Station Bulletin No. 97 in October 1906 under the title *The Cost of Producing Farm Products*; the bulletin was authored by Willet M. Hays and Edward C. Parker of the Division of Agriculture. They argue in support of their work as follows:

Although agriculture is the largest industry in the United States and is pursued by 35 percent of our workers, it must be admitted by anyone who has closely observed the progress of agriculture that system and good business management are not as highly developed in agriculture as in our other great industries. The success and prosperity of the American farmer are due to the unbounded fertility of the soils, the cheapness of farm lands, and the privilege of utilizing modern inventions in machinery rather than to systematic organization and efficient farm management. Appreciation in land values has not been met in most instances by a corresponding increase in the efficiency of farm managers. Land which bears a high rent is often tilled by men whose managing ability is more in accord with cheap land than high-priced land, as a result the actual productiveness of the land does not correspond with the theoretical productiveness as shown by land values. In some instances a realization of this discrep-

ancy between land values and actual productiveness leads men to sell the high-priced land and move to cheaper lands, where profits may be secured with less managing ability. This apparent anomaly between rents and actual productiveness in some instances is caused by the pressure of population upon land, by land speculation, and a lack of realization, by the tiller of the soil, of the relation of rent to net profits. The man who has purchased land for \$10 an acre is slow to realize that when land values have appreciated to \$50 an acre the value of the product above the cost of production must be nearly five times as great to yield the same rate of profit. Fifteen bushels of wheat per acre at 70 cents per bushel of \$10 land will return a profit of 60 percent on the investment, but the profit is diminished to 6 percent on the \$50 land.... The day of cheap productive lands is coming to a close in the United States. The possibility of disposing of high-priced lands in well-settled communities and purchasing equally productive land at a lower price in the West will soon be at an end. System and more efficient management must enter the realm of agriculture if reasonable profits are to be extracted from the soil and its fertility be conserved for the use of future generations.¹

The overall cost-of-production information by crops and by area developed in this study for the period 1902 through 1904 is presented in table 1.

The route at Marshall, Lyon County, was discontinued in 1910; the route at Northfield, Rice County, was discontinued in 1912. A new route west of Minneapolis in Wright County, an important dairy area, was started in 1913; and the route in Norman County in the Red River Valley was continued through 1917. All farm business analysis studies based on data collected on the field routes were discontinued at the end of 1917 because of the entrance of the United States into World War I. The method of collecting farm input and cost information, the accounting procedures used, and the type of analysis leading to estimates of the costs of producing farm products in Minnesota did not change appreciably between 1904 and 1917. A complete list of those cost-accounting, business-analysis-type studies published between 1904 and 1918 is presented in table 2.

¹*The Cost of Producing Farm Products*, Minn. Agric. Exp. Sta. Bul. No. 97, October 1906, pp. 9 and 10. For the interested reader the bulletin contains lists of the fieldmen, cooperating farmers, farm layouts, maps, and detailed cost information costs.

Table 1. Total Cost per Acre of Producing Field Crops (averages for 1902, 1903, and 1904)

Crop	No. of Table Which Shows Detailed Cost	Northfield (Rice County)	Marshall (Lyon County)	Halstad (Norman County)	Minnesota Experiment Station	Large Farm, Northwestern Minnesota
Barley--spring plowing	XIV	\$ 9.135	\$ 8.576	\$ 6.410	\$ --	\$ 5.967
Corn--ears husked from standing stalks	XV	11.770	9.956	--	--	--
Corn--cut, shocked, and shredded	XVI	14.745	--	--	--	--
Corn--cut, shocked, and hauled in from field	XVII	--	11.020	--	--	--
Corn--grown thickly and siloed	XVIII	--	--	--	18.212	--
Flax--thrashed from windrow	XIX	9.828	--	6.871	--	6.139
Flax--unbound, stacked, thrashed	XX	--	8.861	6.727	--	--
Flax--bound, shocked, stacked, and thrashed	XXI	--	9.260	--	--	--
Foddercorn--cut and shocked in field	XXII	10.526	--	8.076	--	7.518
Foddercorn--cut, shocked, and stacked	XXIII	12.197	--	--	--	--
Hay (timothy and clover), two cuttings	XXIV	6.966	--	--	--	--
Hay (millet)	XXV	9.184	8.162	5.973	--	--
Hay (wild grasses)	XXVI	5.850	5.179	2.872	--	2.286
Hay (timothy)	XXVII	--	--	--	--	3.302
Mangels	XXVIII	--	--	--	34.081	--
Millet--cut for seed	XXIX	9.383	--	6.584	--	--
Oats--fall plowing	XXX	9.837	8.829	6.314	--	5.878
Oats--disked corn stubble	XXXI	9.002	--	--	--	--
Potatoes--garden cultivation	XXXII	24.925	26.890	25.494	--	80.488
Rye--spring sown	XXXIII	--	--	--	--	6.090
Timothy--cut for seed	XXXIV	5.957	--	--	--	4.079
Wheat--fall plowing	XXXV	--	7.890	6.262	--	5.824

Source: *The Cost of Producing Farm Products*, Willet M. Hays and Edward C. Parker, Minn. Agric. Sta. Bul. No. 97, Oct. 1906, p. 40.

Notes: The figures are for the most part from well-tilled fields where the crops are given a chance to produce good average yields, somewhat better than statistics show for the entire State of Minnesota. Farmers who secure smaller yields usually expend less for labor and other items of expense than was used on this land. Whenever comparisons between the costs of production for various crops are to be made the statistics should be used from the same section of the State and not from different sections. This is necessary to make a just comparison, as land rental, machinery cost, and labor vary with the different sections in which the statistics were gathered.

Using the figures in this table as a basis for computation, the average annual net value of the products in a given rotation of crops may be determined. For example, a popular five-course rotation in Minnesota is: First year, corn, cost, \$9.956; second year, wheat, cost, \$7.090; third year, hay, cost, \$6.617; fourth year, pasture, cost, \$3.452; and fifth year, oats, cost, \$8.829. The cost of production per acre for these five crops (as taken from the statistics gathered at Marshall, in southwestern Minnesota) is therefore \$35.94, or an average of \$7.19 per acre per year. This last-named sum subtracted from the gross average annual value of the crops would give the average annual net value or net income.

The cost of producing wheat per acre as entered in this computation has been reduced by 80 cents because the figures in table 1 are for wheat on fall plowing, whereas the wheat grown in the rotation names is sown on disked corn stubble. The cost of the seed for the hay and pasture crops has likewise been placed on a two-year basis to fit this particular rotation instead of a three-year basis. Rental value of land for the hay crop produced at Northfield has been made the same as for the corn and grain crops produced at Marshall.

The average net profit per year from this rotation is shown by the difference between \$7.19 and the cash value of the average gross product per year. The comparative value of various successions of crops should be measured in net value of product or net profits.

Table 2. Printed Bulletins Based on Cost Accounting Studies, 1902-1917

Bulletin Number	Pages	Year Issued	Years Covered	Title	Authors
97	86	1906	1902-04	<i>The Cost of Producing Farm Products</i>	Hays, W. M. and Parker, E. C.
117	64	1910	1902-07	<i>The Cost of Producing Minnesota Farm Products</i>	Parker, E. C. and Cooper, T. P.
*	10	1911	1904-10	<i>The Cost of Horse Labor</i>	Cooper, T. P.
124	188	1911	1904-09	<i>The Cost of Producing Minnesota Dairy Products</i>	Cooper, T. P.
125	96	1912	1899-1910	<i>Farm Management--Organization of Research and Teaching</i>	Hays, W. M., Boss, A., Wilson, A. D., and Cooper, T. P.
145	48	1914	1908-12	<i>Cost of Producing Minnesota Farm Products</i>	Peck, F. W.
157	55	1916	1905-12	<i>Labor Requirements of Crop Production</i>	Cooper, T. P., Peck, F. W., and Boss, A.
161	43	1916	1905-12	<i>Labor Requirements of Livestock Production</i>	Boss, A., Peck, F. W., and Cooper, T. P.
162	31	1916	1905-14	<i>The Cost of Living on Minnesota Farms, 1905-1914</i>	Peck, F. W.
19+	12	1918	1908-16	<i>The Cost of Milk Production</i>	Peck, F. W., and Boss, A.
173	36	1918	1908-16	<i>The Cost of Milk Production</i>	Peck, F. W., and Boss, A.
30+	8	1918	1913-17	<i>Factors of Cost in Pork Production</i>	Peck, F. W.
179	42	1918	1913-17	<i>The Cost of Producing Minnesota Field Crops, 1912-17</i>	Peck, F. W.

Source: *The First Sixty Years of Farm Management Research in Minnesota, 1902-1962*, Report No. 283, Department of Agric. Econ., Univ. of Minn., St. Paul, Minn., July 1965, by G. A. Pond et al.

**Minnesota Farmers Library*, Vol. 1, No. 4, March 1911 (apparently due to an error in printing the numbers duplicate Vol. 1, No. 4, April 1910).

†Printed by the Agricultural Extension Service; all others were Agricultural Experiment Station bulletins.

Since the studies were designed to determine, or depict, the state of farm costs and returns for some area and some period of time in Minnesota, and this they did reasonably well, the rhetorical question might be asked--why should their research procedures and approach have changed? But a more significant question may be asked--in what way did these studies help the average, or representative farmer? That is a difficult question to answer. The researchers gained in knowledge. The cooperating farmers probably gained new insights into their farming operations and thus were able to plan future operations more effectively. But what was the meaning of these average costs estimates for a select group of farmers published two to five years after the fact for the average farmer? For the average farmer these studies probably had no meaning at all.

But the experience gained from the conduct of these studies and the research results produced did flow directly into the teaching of farm management and farm economics in the School of

Agriculture and in the College of Agriculture. Thus, Willet Hays was able to make a statement at the meeting of the American Association for the Advancement of Science in St. Louis in December of 1903 which was reported as follows:

Attention was called to the various factors operating for the development of scientific agriculture and increasing farm production, and thus making the business of farming more attractive from a financial standpoint. The problem of arranging a rotation of crops and making combinations of profitable crops was discussed in considerable detail. The methods followed at the Minnesota Agricultural College in teaching farm management were described, in which the students are required to prepare plans for the laying out and management of their home farms, with the proposed crops for a period of ten years in advance. The preparation of these plans in a definite form necessitates a careful consideration of all the

practical problems of farm management, as applied especially to each individual's farm. The adoption of a definite system of farm management, with a simple system of bookkeeping, it was urged would enable farmers to estimate accurately the profits derived from various lines of work, and to abandon the production of unprofitable crops.²

And in the general catalogue of the University of Minnesota for the school year 1905-06 a course entitled "Farm Management" is listed under the offerings of the Division of Agriculture that reads like the prospectus for the cost-accounting research project. The course description of that course reads as follows: "In this course are considered the planning of farms, crop rotations, tillage, and systems of farming. Special attention is given to revising and drafting farm plans and to arranging economic crop rotations and applications of business methods to farm operations."

In the same year, 1905-06, the Division of Agriculture offered a course in agricultural economics. That course concerned itself with "Labor, farm finances, markets, rentals, agricultural statistics, production, exports, wages, land laws, ownership, taxes, organizations." It would appear that the Division of Agriculture in 1905-06 was on its way to the development of a subdivision to deal specifically with the subject area, agricultural economics.

By the school year 1910-11, the Division of Agriculture had moved further along the road to creating a subdivision of farm management and agricultural economics. In that year the Division of Agriculture offered 12 courses in total, and four dealt with farm management and agricultural economics. The farm management courses were taught by Andrew Boss and staff from the Division of Agriculture and continued to emphasize the systematic arrangement of crops in rotation, to drafting and revising farm plans, the science of accounting, practical methods of farm cost-keeping, and the development of year-end financial statements of the farm business. The courses in agricultural economics were offered by Thomas P. Cooper, a recent graduate of the College of Agriculture at the University of Minnesota, and emphasized the history and development of modern agriculture, rural institutions, farmers' movements and organizations, governmental rules and regulations, and contractual arrangements.

In the bulletin of the University of Minnesota for the school year 1912-13, any and all references to agricultural economics in the list of courses offered in the Division of Agriculture had been eliminated. The teaching of agricultural

economics, or rural economics, had been transferred to, or centered in, the Department of Economics in the College of Science, Literature and the Arts. But the teaching of farm management in the Division of Agriculture had expanded to four courses by 1912-13. The course numbers, titles, instructors, and descriptions of those courses are listed below:

7. Farm Management Mr. Boss

Three credits (three hours per week); second semester. Required of seniors in Agricultural Course. Prerequisite, Agr. 11.

This course is offered with a view to emphasizing the business side of farming. It includes the choice of farms; the comparison of types of farming; the adjustment of crops to location, markets, and livestock; the systematic arrangement of crops in rotation; the effect of cropping systems on soil productivity and crop yields; the regular employment of capital, and the employment and distribution of labor. Special attention is given to the reorganization of farm plans. Each student is required to draft a plan of a farm in which he is interested where some specialized type of farming is followed; to submit a business statement of the fixed and operating capital employed, together with the cost of operation, the revenue, and the net profit.

11. Farm Management Mr. Peck

Three credits (six hours per week); first semester. Required of seniors in Agricultural Course.

A course of lectures combined with text-book and practical work in the science of accounting and in kindred subjects, designed especially for students expecting to become farm managers, farm superintendents, or farm management fieldmen. Consideration is given to the various forms of commercial paper, the relation of credit institutions to the farm and to business methods in common practice. Emphasis laid upon methods of cost keeping and the drawing up of yearly statements which show the condition of the farm business.

15. Advanced Farm Management Mr. Boss

Six credits (minimum). Open to graduate students who have had Agriculture 1, Elementary Economics, Agriculture 6, or equivalent, Farm Management 7.

16. Farm Management Surveys Mr. Boss

² *Experiment Station Record*, Vol. XV, No. 5, January 1904, p. 423.

Credit, six hours (minimum). Prerequisites, Elementary Economics, Agricultural Economics, Courses 11 and 7 (Agron. and Farm Management) or equivalents. May be chosen as a major or minor subject. (For graduate students).

Special work in making farm management surveys of the farms of a certain territory or of special types of farming. Studies of the cost of producing certain farm products may also be undertaken in connection with the statistical route work of the Division.³

Early in the fall of 1912 Andrew Boss submitted a proposal to President Vincent to institute a field course in farm management. In his letter to the president, Andrew Boss argues as follows:

...It is not sufficient for us to graduate men in Farm Management from the class-room only. We have no way of determining in the class-room whether or not these men can succeed when given the responsibility of operating a farm. We have frequent calls for farm managers who are trained for the work and I would like very much to develop some plan by which we can determine whether or not a man is qualified. I have had under consideration during the past year, at different times, plans of University ownership of farms and of sending out the students to accredited farmers for work. Neither of these plans meets the needs of the case and I believe that a system of cash rented farms, where the student can be given and made to assume the entire financial responsibility, offers the best plan of working out the problem, yet proposed.

Many of the details of the course are incomplete and can be specified only in the contracts which the University would need to make with the farmer and with the student who undertakes the operation of the farm.

I have discussed the proposed course with Dean Woods, Doctor Freeman and others of our faculty and they appear to be quite favorable to it....⁴

After much discussion and the tying down of the financial details, the regents on December 10, 1912, approved "...the general plan of leasing for experiments in Farm Management not more than three farms...."

The *Bulletin of the University of Minnesota* for the school year 1913-14 does not reflect the adoption of the Boss proposal by the addition of a field course in farm management. In fact, the bulletin for the school year 1913-14 shows no changes in the titles or the descriptions of farm management courses in that year from 1912-13. But the name of the Division changes, and changes significantly. In the bulletin for 1913-14 the old Division of Agriculture becomes the Division of Agronomy and Farm Management.

The University bulletin for the school year 1914-15 indicates an important restructuring of farm management courses in the Division of Agronomy and Farm Management including the offering of a course in field work in farm management. The course numbers, titles, descriptions, and instructors of farm management courses in the University bulletin in 1914-15 are as follows:

4. Field Work in Farm Management. A course in the actual management of a farm under the supervision of the staff of the Division of Farm Management. Boss.
101. Farm Management I. Textbook and practice work in the art of record keeping, accounting, and kindred subjects. Designed especially for students expecting to become farm managers or farm-management fieldmen. Peck.
102. Farm Management II. A course in which the business side of farming is emphasized. Special attention is given to farm organization, equipment, and operation. Boss.
105. Farm Management Seminar. An advanced course including a study of farm practices, farm equipment, cost of production, and efficiency of labor. Boss.⁵

It is clear from the above discussion and course materials that Andrew Boss was the leading figure in farm management work at the University of Minnesota during the years 1912-1917.

The basic structure of farm management course offerings in the Division of Agronomy and Farm Management does not change through the school

³The *Bulletin of the University of Minnesota, College of Agriculture, 1912-1913*, Vol. XV, No. 9, July 1912, pp. 40-41.

⁴A letter to President G. E. Vincent dated October 10, 1912.

⁵The *Bulletin of the University of Minnesota, College of Agriculture, 1912-1915*, Vol. XVII, No. 1, July 1914, pp. 26-27.

year 1917-18. And those courses continue to be offered by Andrew Boss and Francis W. Peck.

During the period 1912-1918 farm management extension work at the University of Minnesota got under way. Selmer A. Engene learned from conversations with George Pond and Andrew Boss that a project was initiated in 1912, or shortly thereafter, to locate successful Minnesota farms, collect information on those farms (in less detail than on the farm management routes), tabulate and analyze that information and use it in extension work with other farmers. Two men were employed on this project: Spencer B. Cleland, a recent graduate of the College of Agriculture at the University of Minnesota, and William L. Cavert, a recent graduate of the College of Agriculture at Cornell University. Cavert was also the recipient of one of the first master's degrees in agricultural economics conferred by the University of Minnesota (see appendix B). But apparently the project was not successful for it was dropped without any written trace.

Farm management extension work at the University of Minnesota did not come to an end with that project. By 1914 both Cleland and Cavert carried the title of farm management demonstrators and they were out in the field collecting farm records, summarizing those records, giving talks, and preparing articles to be carried in local newspapers. Cavert in his report for 1915 states that he collected records from 62 farmers in Dakota County. From his analysis of those farm records, Cavert emphasized to farmers in that county the need for "...(1) more profitable livestock, (2) better crop yields per acre, (3) a business of larger size especially as measured by amount of productive work provided and (4) the diversity of the farm business as measured by percent of receipts from livestock or crop acres per animal unit."

On the basis of his analysis of farm records in Dakota County, Cavert planned a series of five articles to be published by local papers in the winter of 1915-16. The titles of the proposed articles were:

- (1) Farm Profits in Dakota County
- (2) Size of Business and Labor Income
- (3) Better Livestock Means More Money
- (4) Diversified Farms Pay Best
- (5) Some Essential Factors for Profitable Farming in Dakota County

Cavert and Cleland had similar extension programs under way in Washington, Kandiyohi, Renville, Crow Wing, Clay, Stevens, Pope, Jackson, and Ottertail counties in 1914 through 1916. To facilitate this work Cleland and Cavert prepared in 1914 a farmer's account book that provided for an opening and closing inventory, a record of receipts and expenses, and a summary of the year's business that would enable the farmer to

figure his annual labor income. According to Engene, this farm account book, after many revisions, is still being used in Minnesota. Thus, farm management extension work was well established in Minnesota by 1916 and making a significant contribution to the farming community.

The Second Strand: Agricultural Economics

The board of regents in November 1911 voted to establish a unit to be called the Bureau of Research in Agricultural Economics in the Department of Agriculture.⁶ The new bureau opened for business on February 1, 1912; the director of this bureau was Assistant Professor C. W. Thompson. Although this research bureau carried the name, agricultural economics, in its official title, its primary mission was to investigate the marketing problems confronting Minnesota farmers at that time. This position is made clear in the President's Report for 1911-12. It reads:

While the name, Agricultural Economics, suggests in a general way the scope of the work to be undertaken by the Bureau, a more definite outline of the investigations contemplated is submitted below. Because of the peculiarly pressing problem presented by external economies affecting the value of products from the time they leave the farm until they reach the consumer, immediate attention is being devoted to certain aspects of the marketing and distribution of farm products with a view of studying the comparative value of different agencies performing middlemen functions in their relations to the returns of the farmer.... We are taking up the problems connected with the distribution and sale of all the important farm products such as fruits, vegetables, milk, butter, eggs, meats, cattle, and hogs, and the leading grains produced in Minnesota.⁷

A secondary mission of the new bureau was that of investigating the farm credit situation in Minnesota. The new bureau was to gather up all the information available regarding the various facilities for providing credit to farmers in other parts of the world and place that information before the farming community of Minnesota. It was also to investigate systems of registering titles of land, methods of land transfer, and means of acquiring land.

Two things happened to the Bureau of Research in Agricultural Economics in 1912. Its name was changed to the Division of Research in

⁶The present Institute of Agriculture, Forestry, and Home Economics was called the Department of Agriculture until the early 1950s.

⁷Pages 80-81.

Agricultural Economics; in title, at least, this made the new unit concerned with agricultural economics similar to the other subject matter units of the Department of Agriculture. Secondly, after a brief tenure as director, and later chief of the Division, C. W. Thompson left the University to join a newly formed economics unit in the U.S. Department of Agriculture. He was replaced as chief by Dr. L. D. H. Weld, who transferred into the Division of Research in Agricultural Economics from the Department of Economics--College of Science, Literature and Arts--on the Minneapolis Campus. L. D. H. Weld held a Ph.D. degree in economics from Columbia University.

O. B. Jesness, in an unpublished manuscript written in 1974 or 1975, states that soon after the above changes occurred, arrangements were made to transfer the teaching of Principles of Economics from the Department of Economics on the Minneapolis Campus to the Division of Research in Agricultural Economics on the St. Paul Campus, and that two graduate assistants, H. Bruce Price and W. W. Butler, were employed to teach those courses. Perhaps this transfer of teaching function occurred on an informal basis, but there is nothing in the President's Report or the University bulletin to indicate that it occurred. In its first years of operation, the Division of Research in Agricultural Economics was viewed by the University administration as a purely research unit.

As a research unit, the Division of Research in Agricultural Economics produced its first product in 1913; the results of an egg marketing study were published in two forms in that year: as an Agricultural Experiment Station Bulletin No. 132 with the title *Studies in Egg Marketing*, and as an Extension Bulletin No. 36. These publications were authored by C. W. Thompson.

The state government took an action in 1913 which had a major impact on the research activities of the Division of Research in Agricultural Economics. The legislature passed a law in 1913 directing the University to assemble statistics and information regarding the operations of cooperative associations in the state of Minnesota, and to disseminate that information to farmers. The work of surveying the cooperative associations in Minnesota was assigned to the Division of Research in Agricultural Economics. A survey questionnaire was developed and mailed out to all the cooperative associations for which there was any record. The returns were tabulated and analyzed and published in 1914 in the Agricultural Experiment Station Bulletin No. 146, entitled *Statistics of Cooperation among Farmers in Minnesota*. This bulletin was authored by L. D. H. Weld, but Dr. Weld acknowledges "the valuable assistance" that he received from O. B. Jesness, an assistant in marketing in the Division, in the preparation of the statistical material in the bulletin.

Since this was a path-breaking effort in surveying farm business organizations, a brief quotation from the summary would seem to be in order:

Although the figures in the accompanying table are largely estimated, they are sufficiently accurate to give a clear idea of the great volume of business transacted by cooperative organizations in Minnesota, which in this respect leads all other states of the Union. Although there is still much to be accomplished in rural organization, these figures indicate that the farmers of this State are more thoroughly organized than is generally realized.

In general, the figures for the number of organizations apply to January 1, 1914, and those for the annual business to the calendar year 1913, although many companies reported for fiscal years ending during 1913, or early in 1914. The figures for cooperative elevators, for example, were largely for fiscal years ending in the summer of 1913, and covered the operations connected with marketing the crop of 1912.⁸

Number and Summary of the Annual Business of Cooperative Organizations in Minnesota (Partly estimated)

	Number	Annual Volume of Business
Creameries	614	\$21,675,252
Elevators	270	24,000,000
Stock-shipping associations	115	6,000,000
Stores	120	4,250,000
Fire insurance companies	154	696,732
Telephone companies	600	900,000
Cheese factories	34	637,224
Potato warehouses	20	100,000
Miscellaneous	86	2,500,000
Total	2,013	\$60,760,000

By 1914 the Division of Research in Agricultural Economics was engaged in various other research activities, most of which focused on the marketing of farm products. Those activities included: a survey of two rural communities, a study of the marketing of grain at Minneapolis, a study of the cooperative marketing of potatoes, and a highly detailed study of the marketing of Minnesota butter. The latter study was done in cooperation with the Office of Markets of the

⁸ Minnesota Agricultural Experiment Station Bulletin No. 146, December 1914, pp. 3-4.

USDA and O. B. Jesness served as one of the principal investigators on the project.

L. D. H. Weld published a second technical bulletin in 1915 dealing with farmers' cooperative activity. This bulletin was entitled *Farmers' Elevators in Minnesota*,⁹ and it went into considerable detail on how to organize a farmers' cooperative to ensure its success, as well as the most desirable management and financial practices to follow.

During this period Dr. Weld also completed work on a book entitled *The Marketing of Farm Products*; the volume was published by Macmillan in 1916. This book, together with the other marketing work done by Dr. Weld, attracted national attention, and Yale University made him an offer in 1915 which he felt he could not turn down. Thus, he resigned from the University in the summer of 1915. The position of chief of the Division of Research in Agricultural Economics was again filled by a staff member from the Department of Economics on the Minneapolis Campus: this time by E. Dana Durand. Dr. Durand served as chief of the Division from 1915 to 1917. Dr. Durand continued the research work of the Division along the lines described earlier, with heavy emphasis on the marketing of farm products and the role of cooperative associations in the marketing structure.

Evidently the heavy emphasis on research on cooperative organization and cooperative marketing in the Division of Research in Agricultural Economics as well as the promotion of cooperative organization by other divisions¹⁰ of the College of Agriculture created problems for the University in the small towns of Minnesota. In late 1915 the University of Minnesota felt compelled to issue a formal statement outlining its position regarding farmers' cooperative activity and the small town. On November 1, 1915, A. F. Woods, dean and director of the Department of Agriculture, transmitted the following statement to the president of the University, George E. Vincent, for public distribution. How widely the statement was distributed is not known. The statement reads, in part, as follows:

The Department of Agriculture of the University of Minnesota is frequently asked as to its policy regarding agricultural organization and cooperation. The following answers to specific questions indicate the policy as concisely

⁹ Minnesota Agricultural Experiment Station Bulletin No. 152, August 1915.

¹⁰ T. H. Haecker, head of the work in dairying at the University of Minnesota, was actively promoting cooperative creameries during this period.

as possible. We stand for cooperation in cases where a careful study of the problems to be solved make it perfectly clear that the cooperative system of organization furnishes a more economical and efficient means from the standpoint of the country, of doing the things necessary to be done.

A. F. Woods,
Dean and Director
Department of Agriculture,
University of Minnesota

1. DOES THE DEPARTMENT OF AGRICULTURE OF THE UNIVERSITY OF MINNESOTA ENCOURAGE ORGANIZATION AMONG FARMERS?

Yes, because organization is as necessary for farmers as it is for merchants, bankers, or any other class of business men.

2. WHAT FORMS OF ORGANIZATION ARE ENCOURAGED?

For General Community Purposes The Farmers' Club, corresponding to Civic, Commercial and Womens' Clubs in the cities. Our ideas regarding farmers' clubs are presented in our Extension Bulletin No. 46, from which I quote:

"A Farmers' Club is an organization of the people in any community for the improvement of themselves, their homes, and their community. It should include in its membership the whole family; men, women, and children."

"We believe in the farmers' club because it develops people. It tends to bring out the best there is in a community and to get people ready to act concertedly for their own betterment. It is an ever-ready means of taking up and studying [sic] independently any matter of importance to the community."

For General Business and Educational Purposes.

County Farm Bureaus and Development Associations uniting all forces in the county in the interest of better agriculture, better business, better homes, better schools and churches and better living.

Live Stock Associations, local, county and state, with various specialized groups such as Dairymen's Associations, Cattle Breeders' Association,

Swine Breeders' Associations,
Poultrymens' Association, etc. etc.

Horticultural and Agricultural
Societies, state, county and local,
with various specialized groups.

Cow Testing Associations for im-
proving the producing efficiency of
the herd.

Egg Selling Associations to secure
uniform grading and establish reputa-
tion for quality.

Live Stock Selling Associations,
to secure uniform grading and shipment
in carload lots and to obtain the best
market prices at lowest cost.

Cooperative Creameries, to promote
the growth and improvement of the
dairy industry, to secure uniform,
sanitary, and improved methods of
manufacturing, grading, and marketing
the product so that in quantity and
quality it can compete successfully
in the best markets, to reduce the
labor connected with the dairy manu-
facture in the farm house.

Fruit and Vegetable Growing and
Marketing Associations to secure uni-
form product of high grade in carload
lots, through centralized grading and
packing, to secure established repu-
tation for quality, to keep in close
touch with markets and to secure the
best returns for products marketed,
to reduce the overhead cost of
marketing.

Farmers' Elevators in localities
where necessary to provide proper
storage and cleaning facilities for
grain and to reduce cost of marketing
by stimulating established elevators
to greater efficiency.

Potato Warehouses for receiving,
grading, storing, and marketing
potatoes and utilizing waste potatoes.

Cooperating Laundries for Rural
Districts to reduce the labor of the
farm home.

Cooperating Credit Associations, to
emphasize the importance of personal
worth and reliability and good farming
as a basis of credit, to secure better
established credit for the members, to
see that money borrowed through the
association is used wisely for produc-
tive purposes, thus reducing the cost

on the part of the money market in
watching loans, to promote the pur-
chase of farms and farm equipment
by competent young men with small
capital through the amortization
system of payment of long time loans.

3. DO YOU ENCOURAGE THE ORGANIZATION OF
COOPERATIVE STORES?

So far as we have been able to deter-
mine, the cooperative store does not,
as a rule, sufficiently reduce the
cost of supplying merchandise to its
members to warrant the risk and trouble
involved. We recommend against the
organization of such stores, therefore,
except in cases where the need is
plainly evident. Such stores may
sometimes serve as a stimulus to im-
prove the efficiency and cooperative
spirit of existing stores....

4. IS THE UNIVERSITY ANTAGONISTIC TO THE
DEVELOPMENT OF THE TOWN?

Every effort is made to show the impor-
tance of the town as the community
center and to develop interest in in-
creasing its efficiency as such.

The progressive business men of the
majority of towns realize that other
forms of business are dependent, in a
large measure, on a contented, effi-
cient, and prosperous farming community.

Prosperity in a farming community
invariably results in prosperity in the
villages and towns where there is a
proper spirit of cooperation and good
feeling....

6. DOES THE UNIVERSITY ADVOCATE COOPERATIVE
PURCHASING?

Yes, when it results in economy and
efficiency, not otherwise.

We always urge that purchases be
made locally or through local agencies,
keeping business at home as much as
possible. It is frequently far more
advantageous to the farmer as well as
to the merchant to order goods in a
large quantity at one time. The pres-
ent high cost of distribution is due
partly to the carelessness of the
consumer in ordering very small quanti-
ties.

7. DOES THE UNIVERSITY DO ANYTHING TO HELP
THE COUNTRY MERCHANT?

Yes. It conducts short courses designed

to help him to reach the greatest efficiency in his business.

It promotes successful farming upon which the success of mercantile business, in a considerable measure, depends.

It promotes civic interest which builds up the community.

8. IS NOT THE FARMER SATISFIED WITH PRESENT CONDITIONS? IF SO, WHY SHOULD THE UNIVERSITY MEDDLE IN THE SITUATION?

Ninety per cent of the farmers are not satisfied with the returns from farming. The majority of farmers believe that business interests in general are organized against them. Strong movements have been organized among farmers to "fight the interest" and this is their right and duty whenever there is anything to fight. Many abuses of organized power can be reached in no other way. When the business of agriculture is as efficiently organized for business and social purposes as other forms of business, the clashing will cease and there will be a general improvement in all forms of business. The established acts and laws require the United States Department of Agriculture and the Agricultural Colleges of the several states to promote the general welfare by promoting the development of Agriculture and rural life affairs in every way.

9. DO COOPERATIVE MOVEMENTS TEND TO KILL OFF THE SMALL TOWN?

Apparently they do not. The towns in Minnesota where cooperation is most general, such as Lakefield, Hutchinson, Hayfield, Litchfield, Dassel, and Pelican Rapids, are apparently as progressive and as much alive as any other towns of similar size.¹¹

The above statement is unusually clear and forthright in defense of the University policy of promoting cooperative organization in rural areas. One can only speculate with regard to its reception. The small town merchants probably were hopping mad. But the farming community had sufficient political clout in 1915 to protect and support the University in the state legislature. Thus, the Department of Agricultural Economics at the University of Minnesota has a long history of

¹¹From a mimeographed release of the Department of Agriculture, University of Minnesota, October 1915.

working closely with farmers' cooperative organizations.

The research activities of the Division of Research in Agricultural Economics paid off with three technical bulletins in 1917; it is interesting to note that all three dealt with some aspect of farmers' cooperative organization. The three bulletins were:

- (1) *Coöperative Creameries and Cheese Factories in Minnesota* by E. Dana Durand and Frank Robotka, Minn. Agric. Exp. Sta. Bull. No. 166, March 1917.
- (2) *Coöperative Buying by Farmers' Clubs in Minnesota*, by E. Dana Durand and H. Bruce Price, Minn. Agric. Exp. Sta. Bull. No. 167, June 1917.
- (3) *Coöperative Stores in Minnesota*, by E. Dana Durand and Frank Robotka, Minn. Agric. Exp. Sta. Bull. No. 171, October 1917.

With the resignation of E. Dana Durand in 1917, the position of chief of the Division of Research in Agricultural Economics once again became open. And again the position was filled by a staff member of the Department of Economics on the Minneapolis Campus transferring into the vacant position. This time the position was filled by W. W. Cumberland, who had earned a Ph.D. degree in economics from Princeton University. Dr. Cumberland was trained as a general economist, but his Ph.D. thesis work dealt with the operations of the California Fruit Growers Exchange. Thus, his doctoral research experience brought him into contact with the marketing problems of farmers and the place of farmers' cooperative associations in dealing with those problems--exactly the kind of research experience that would have been of immense value to an incoming chief of the Division of Research in Agricultural Economics in the state of Minnesota. Unfortunately, Dr. Cumberland served as a chief of the Division for only two years, 1917 to 1919, and during much of that time he was away from the University on wartime assignments. Thus, the highly qualified man, Dr. W. W. Cumberland, had little impact on the work of the Division.

In the fall of 1918, John D. Black, with a Ph.D. in agricultural economics from the University of Wisconsin, joined the staff of the Division of Research in Agricultural Economics with a rank in the University of an assistant professor. Dr. Black was the first staff member to join the Division who was trained in agricultural economics. And since Dr. Cumberland was on leave during much, if not all, of the school year 1918-19, John D. Black was acting head of the Division almost from the first day of his arrival on campus.

It is difficult to discover in the year 1981 how much teaching was actually done in the

Division of Research in Agricultural Economics between 1912 and 1918. The bulletin of the University of Minnesota makes no mention of a course of study in agricultural economics before the school year 1915-16. But in that year a course of study in agricultural economics for the sophomore, junior, and senior years is described in the bulletin. *However, no courses in agricultural economics are listed under the division heading of Agricultural Economics.* Under the heading Agricultural Economics in the University bulletin for the school year 1915-16 may be found a printed line which reads "see Department of Economics (page 51)." And when one turns to page 51 one discovers that E. Dana Durand, chief of the Division of Research in Agricultural Economics, is listed as a member of the staff of the Department of Economics, and three courses concerned with agricultural economics:

- 18. Principles of Agricultural Economics
- 19. Marketing of Farm Products
- 251-252. Seminar in Agricultural Economics

are included in the list of courses that are taught in the Department of Economics. This practice of listing the teaching faculty in agricultural economics and all courses in agricultural economics under the Department of Economics in the College of Science, Literature and Arts continues through the school year 1917-18.

Whether the courses in agricultural economics were actually taught on the St. Paul Campus cannot be discerned from the bulletin. It seems likely that, as the number of students in the College of Agriculture taking a course of study leading to a degree in agricultural economics increased, the physical function of teaching courses in agricultural economics would have been transferred to the St. Paul Campus. But it is clear that there were pressures from somewhere in the University, perhaps from the Division of Agronomy and Farm Management, perhaps from the Department of Economics, to withhold the function of teaching the subject matter of agricultural economics from the Division of Research in Agricultural Economics between 1912 and 1918.

In 1918 there was a course of study in agricultural economics recognized in the College of Agriculture; there was a Division of Research in Agricultural Economics in the Department of Agriculture; but the teaching staff in agricultural economics and the courses in agricultural economics were listed under the Department of Economics in the College of Science, Literature and Arts. That was the anomalous situation that existed at the University of Minnesota in 1918.

The subject area, agricultural economics, continued to develop in two separate strands, as it had done in the previous period. Work in farm management continued in the Division of Agronomy and Farm Management under the leadership of Andrew Boss and Francis W. Peck with George A. Pond playing an increasingly important role as the period unfolded. With this continuity in leadership the work in farm management did not undergo any radical changes in the period 1918 through 1928. But changes in the objectives, methodology, and philosophy of the research work in farm management were evolving during this period. And as Selmer Engene argues, some of these changes were fundamental.

The work in agricultural economics, which prior to 1918, for all practical purposes, consisted of farm marketing research, continued in the Division of Research in Agricultural Economics. But with W. W. Cumberland on leave during the school year 1918-19, and his resignation in 1919, the Division came under new leadership. John D. Black arrived at the University of Minnesota in the summer of 1918, served as acting chief of the Division of Research in Agricultural Economics from that date until January 1, 1920, at which time he was appointed chief of the Division. Under his leadership the Division literally exploded--and it exploded in all directions. It continued its work in farm marketing and cooperative organization, but it moved into, either further developing or developing from nothing, such areas as: land tenure, farm credit, production economics, consumption economics, price analysis, and farm policy.

We will explore this amazing development of the discipline of agricultural economics at the University of Minnesota under the leadership of John D. Black later in this chapter. But let us first turn to the farm management strand of development.

Steady Growth in Farm Management

The cost accounting studies done on the St. Paul Campus, including the farm route work and the tabulation and analysis of data collected on the routes, were discontinued at the end of 1917 because of the entry of the United States into World War I. Plans to resume that work were made in 1919, and it got under way in 1920. Except for an occasional study based on a mail survey, these route studies had been the backbone of farm management work at the University of Minnesota since 1902 and they would continue to

be through the early 1950s. But in this period the objective of these studies changed from determining costs to obtaining data for farm planning, and the method changed from cost accounting to detailed accounting studies to facilitate farm planning.

As previously noted, Andrew Boss had provided the overall leadership in farm management work at the University since Willet Hays had gone to the USDA in Washington in 1905, and he would continue to do so up until 1928. Under the general direction of Boss, Peck was directly in charge of the cost accounting studies on the St. Paul Campus from 1912 to 1919, and he would continue to provide leadership and guidance over these studies, from near and far, over the next three decades. Francis W. Peck was one of the many agricultural leaders produced by the School of Agriculture of the University of Minnesota in the first decades of the twentieth century.¹ From the School of Agriculture he moved on to the College of Agriculture at the University of Minnesota, receiving a B.S. degree from the latter institution in 1912. He became an instructor in agronomy and farm management in 1912, an assistant professor in 1915, and an associate professor in 1918. In 1917 he earned a master's degree in the area of cost accounting and farm management. From January 1, 1920, to July 1, 1921, he worked in the Office of Farm Management in the U.S. Department of Agriculture in Washington, D.C. Except while on leave as commissioner of the Bank for Cooperatives in Washington, D.C., in 1933 through 1935, "Frank" Peck served as director of Agricultural Extension at the University of Minnesota from 1921 to 1938. He was president of the Federal Land Bank in St. Paul from 1938 to 1945. From 1945 to 1953 he was managing director of the Farm Foundation in Chicago, and from 1953 to 1960 he served as a member of the Federal Farm Credit Board. "Frank" Peck was a leader in farm management and farm finance at state and national levels for nearly 50 years.

It is appropriate at this time to introduce the man who followed Peck as the director of the farm management route studies on the St. Paul Campus; that man was George A. Pond. George Pond graduated from the School of Agriculture in 1913 and received a B.S. degree from the University of Minnesota in 1917. As a student he worked under

¹Others include Victor Christgau, Rudolph Froker, Sherman Johnson, George Pond, Thomas P. Cooper, Elmer Starch, and Arthur True.

Peck on the cost accounting project on the St. Paul Campus from 1915 to 1918. He spent some time in the military in 1918-19 and returned to the St. Paul Campus in 1919 to continue his graduate studies and to work once again on the cost accounting project. And when Peck left for Washington in 1919, George Pond became the leader of the cost accounting project on the St. Paul Campus.

George Pond was no newcomer to the state of Minnesota or its agriculture. His grandfather, Samuel Pond, came to Fort Snelling in the Minnesota Territory in 1834 from Connecticut as a missionary to the Sioux Indians. George Pond grew up on a farm near Shakopee, Minnesota, and after earning his Ph.D. from Cornell University in 1928 spent the remainder of his professional life teaching and doing research in the farm management area at the University of Minnesota.

Three men, then, Boss, Peck, and Pond, guided and directed the farm management route studies at the University of Minnesota from 1920 to 1928. And, although these men were of the firm view that detailed accounting studies should constitute the central core of farm management research at the University, they recognized in 1920 that some changes in the conduct of those studies were necessary as a result of changing economic and physical conditions. Improved transport involving better roads and the substitution of the automobile for horses meant that route procedures could and should be modified to improve the efficiency of the operation. The plan of 1920 called for an increase in the number of farmer cooperators per route--an increase to 20 or more per route. Most records--inventories, cash accounts, and feed records--were kept by the cooperators under the guidance and direction of the fieldman.

Another procedural change from the early studies--the studies prior to 1917--was that each cooperator was supplied tabulated information on the operations of his farm along with the group average. And the fieldmen, as well as extension agents, were encouraged to work with the farmer-cooperators in planning their future operations and checking their results. In the earlier studies the emphasis was on providing a general economic picture from area averages. The emphasis after 1920 was on an analysis of the factors that determined, or conditioned, the financial success of the farm as a whole. Every effort was made after 1920 to use the findings on the farms supplying the information as a guide to better management on those farms, as well as other farms.

To make these accounting studies more effective instruments in the farm planning process, publication policy was changed after 1920. Up to that time all results from the cost accounting studies were published in printed bulletins long after the farm data had been collected. But it became publication policy after 1920 to provide

the tabulated data to interested parties in processed reports as soon after the production period as was possible. Crop data were tabulated and published by, or before, the end of each production year, and livestock costs and farm earnings data were made available early in the following year.

Related to the procedural changes noted above, but more important than the procedural changes themselves, was a change in the philosophy underlying this research. Selmer Engene describes that change in philosophy as follows:

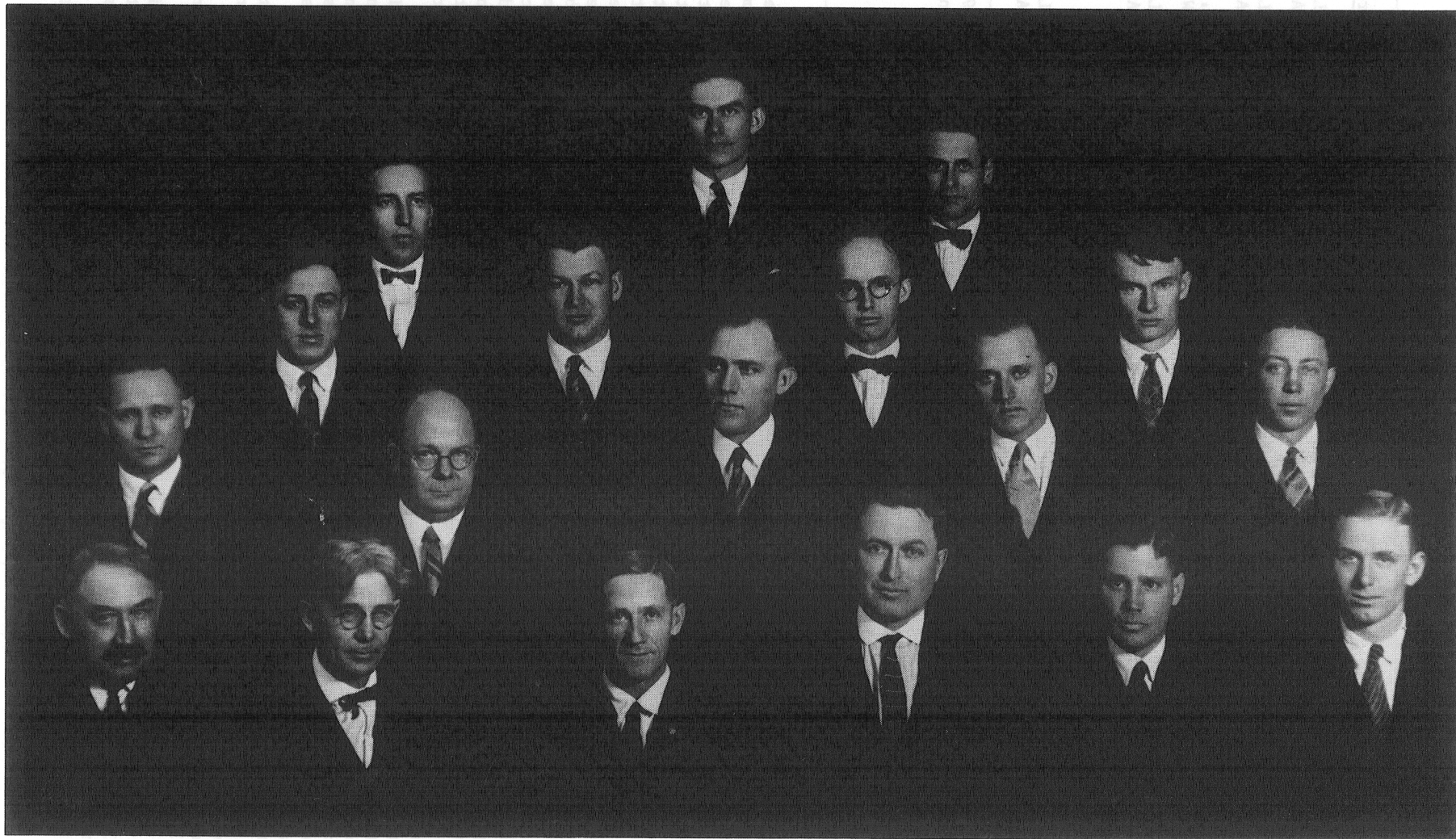
...The prior concentration upon determining the costs of production was de-emphasized. Costs were now to be calculated and presented primarily for the benefit of the cooperating farmer in the publications that were prepared as soon as possible after the data were gathered. These costs were of some benefit to the farmers, and the presentation of the individual input data in comparison with those for other farmers gave them an opportunity to compare their operations with others as a standard. In the printed bulletins that appeared later, in extension work, and in teaching the emphasis was upon the use of these data to understand the nature of the farm operation, and to make realistic plans as to future improvements in the operation of the farm.

As a part of this emphasis on farm planning came the development of the concept of "substitution budgeting" as a means for planning for future changes in the operation of the farm. This involved the preparation of budgets showing inputs, costs, outputs and returns for each of a series of alternative courses of actions. Accurate data on inputs and outputs were needed in order that these budgets might correctly reflect the advantages or disadvantages of each alternative. These budgets included estimates only for those items of input or output that varied from one alternative to the other; in other words, the emphasis was upon the variable costs, with fixed cost omitted from the analysis.²

In addition to the processed reports made available to the cooperating farmers, six printed bulletins were published between 1920 and 1928 from analyses of the detailed accounts provided by the farm management routes. The titles of those bulletins are listed in table 3.

Mail survey studies and studies based on

²In a memo from Selmer Engene to the author in the preparation of this history.



Division of Agronomy and Farm Management, ca. 1928. *Front row:* A. D. Haedecke, L. B. Bassett, C. L. Alexander, F. J. Stevenson, G. A. Pond, A. T. Hoverstad. *Second row:* F. W. McGinnis, H. K. Hayes, F. H. Steinmetz, Floyd Higgins, V. J. Olson. *Third row:* H. E. Brubaker, Olaf Aamodt, L. F. Garey, Ronald Mighell. *Back row:* _____, Curtis Mumford, A. C. Army

Table 3. Printed Bulletins Based on Farm Management Route Studies, 1920-1928

Bulletin Number	Class*	Pages	Year Issued	Years Covered	Title	Authors
62	Ext.	8	1922	1920	<i>Lessons in Economical Hog Production</i>	Cavert, W. L., and Pond, G. A.
64	Ext.	8	1922	1920	<i>The Dairy Cow as a Market for Labor</i>	Cavert, W. L., and Pond, G. A.
205	E.S.	135	1923	1920-22	<i>A Study of Farm Organization in Southwestern Minnesota</i>	Pond, G. A., and Tapp, J. W.
89	Ext.	16	1924	1920-23	<i>Farm Management Principles for Southeastern Minnesota</i>	Cavert, W. L., and Pond, G. A.
44	Tech.	108	1926	1920-24	<i>A Study of Farm Organization in Southeastern Minnesota</i>	Pond, G. A.
112	Ext.	16	1926	1920-24	<i>Profitable Dairying</i>	Cavert, W. L., and Pond, G. A.

Source: G. A. Pond et al., *The First Sixty Years of Farm Management Research in Minnesota, 1902-1962*, Report No. 283, Department of Agricultural Economics, Institute of Agriculture, St. Paul, Minnesota, July 1965.

Note: The USDA was the cooperating agency for all publications.

*Ext. = Agricultural Extension; E.S. = Experiment Station; Tech. = Technical.

personal interviews played the same role in farm management research at the University of Minnesota during the period between 1918 and 1928 that they did in the earlier period between 1900 and 1918, namely, a supplementary role. Mail surveys were employed to identify factors that contribute to success or failure in farming, or to deal with particular topics such as farm tenancy or timber management. But they were not employed at Minnesota, as they were at Cornell, to provide the basic data on farm operations and production.

The teaching function in the Division of Agronomy and Farm Management changes very little over the period 1918 to 1928. In almost every year of that period, four courses were offered in the subject area of farm management: (1) a lower division course in farm record keeping and farm practices; (2) a middle-level course dealing with the organization of the farm; (3) a middle-level course dealing with farm operations; and (4) an advanced seminar course. In most years, Andrew Boss offered the advanced seminar; either "Frank" Peck or George Pond offered the elementary course in record keeping; and Boss, with assistance from his staff, offered the two intermediate-level courses. That was the pattern that held over the 10-year period. It should be noted in passing, however, that the subject matter content of these courses was based in large measure on the findings of the detailed accounting studies. Farm management teaching, as well as research, at Minnesota was a product of the farm management route studies.

Farm management extension work in the early 1920s continued to be conducted by two men: W. L. Cavert and S. B. Cleland. But the content of that work had changed importantly from that of 1914 to 1916. We note from table 3 that Cavert had teamed up with Pond in producing extension bulletins based upon the research results of the farm management route studies. And Cavert's annual report for 1922 indicates that he and Cleland conducted 109 farm business schools in that year with a total attendance of over 5,000 farmers. They were assisted in these schools by Professors Boss, Peck, Pond, Garvey, and Engberg. Thus, the practice of relying heavily on the resident teaching staff in extension work at the University of Minnesota began in the early 1920s.

The purpose of these schools was to induce the farmer participants to analyze their own business operations in the context of the existing economic situation. This was achieved by asking the farmer participants to prepare estimates of the cost of producing some of their leading products such as butterfat, pork, potatoes, wheat, and corn. After these estimates were prepared, the instructors would work with the farmers in considering alternative product combinations that would increase their net returns, given the resources of their individual farms, possible technological improvements, and the prospective price-cost situation. This was elementary budgeting, and it was popular with the farmer participants because they needed help as the farm depression of the 1920s engulfed them.

The Explosion in Agricultural Economics

John D. Black, the propelling force of the explosion, was born on a small Wisconsin farm on June 6, 1883. After completing high school he saved enough money to attend Oshkosh Normal School for two years (1903 to 1905) and then for another two years taught high school algebra, botany, and geography and coached athletic teams. In 1907 he went to the University of Wisconsin at Madison to take a degree in English. After graduating from Wisconsin in 1909, Black remained at Madison another year to earn an M.A. degree. That helped him decide that he did not want to do further graduate work in English. Since other members of the Black family needed financial help with their education he returned to teaching. He spent one year at Western Reserve University in Cleveland and four years at the School of Mines at Houghton, Michigan, instructing in English literature and composition. By this time he had become deeply interested in economic and social issues and often required fledgling engineers to write on economic and social questions as well as technical matters.

In the fall of 1915 he returned to the University of Wisconsin to work on a doctorate in economics. He was then 32 years old. He credits H. C. Taylor with getting him interested in agricultural economics. Of his teachers in economics, John R. Commons impressed him most, but he never became a slavish follower of Commons and the Wisconsin School of Institutionalists. For his economic content he turned primarily to Alfred Marshall and John Bates Clark. Black wrote his doctoral thesis on "Land Tenure in Wisconsin." Armed with a fresh Ph.D. and strong recommendations from his Wisconsin professors, Black took his first professional job in economics at the University of Minnesota in the fall of 1918.

J. K. Galbraith sums up Black's progress at the University of Minnesota as follows:

...Young men, measuring their progress upward through the academic hierarchy, should use Black's rate of movement as a norm. At Minnesota he was an assistant professor for six months, an associate professor for two years, and the acting head of the division of agricultural economics from the beginning.

In the next seven years, subject only to a qualification on behalf of the late George F. Warren at Cornell and Edwin G. Nourse at Iowa State College, Black established himself as the most influential economist in the United States dealing with the problems of agriculture. There was virtually no faculty in agricultural economics when Black arrived at Minnesota, but soon there was one of the best in the

country. Within a few years C. L. Holmes, H. B. Price, Holbrook Working, Warren Waite, and A. G. Black had been added to the staff. The group of graduate students increased from three to the largest on the St. Paul Campus, and included a remarkably large number of those who were to be leaders in the field in the next 25 years. All of this meant, of course, a marked expansion in the teaching curriculum. New graduate courses and seminars were added, covering what would now be considered the conventional subdivisions of the field, and undergraduate instruction in agricultural economics was so developed that by 1927 it was one of the most popular of the undergraduate majors.³

The above account of the Black years at Minnesota is a glowing one. Is it a fair appraisal? Let us see.

The budget of the Division of Research in Agricultural Economics for the school year 1918-19 lists only one professional position, and that was filled by W. W. Cumberland. In fact, Dr. Cumberland was on leave during most of the year, so John D. Black was probably paid from the monies allocated to that one professional position. The total budget of the Division for the school year 1918-19 was \$5,200.⁴ In 1919-20 the budget of the Division lists two professional positions, which were supposedly filled by W. W. Cumberland and John D. Black; but again Dr. Cumberland was on leave. The budget of the Division in that year totaled \$10,580. The budget for the Division of Research in Agricultural Economics in the school year 1927-28 lists seven positions at the assistant professor level or above, and the total budget of the Division had risen to \$34,530. The budget of the Division increased almost 600 percent over the nine-year period.

As Galbraith has indicated, the names of people who were involved in the Division of Research in Agricultural Economics, which became the Division of Agricultural Economics on June 17, 1920, reads like the Who's Who of Agricultural Economics prior to World War II. Besides Black himself those names included: C. L. Holmes, H. Bruce Price, Holbrook Working, Mordecai Ezekiel, Warren Waite, A. G. Black, E. C. Johnson, Edwin W. Gaumitz, B. A. Holt, G. C. Haas, and Frank Robotka.

³This appraisal is from "John D. Black: A Portrait" in the volume *Economics for Agriculture*, edited by James Pierce Cavin (Cambridge, Mass.: Harvard University Press, 1959), p. 10.

⁴This figure and the following budget figures in this paragraph are taken from the printed budget of the University.

The enrollment of undergraduate and graduate students by divisions in the pre-World War II years is not available to us. But Sherman Johnson, a graduate student in agricultural economics at the University of Minnesota in 1921-22, states that Black was exceedingly popular with both undergraduate and graduate students at that time. Johnson writes that "...He (Black) usually ate his lunch in the college cafeteria where he would be accompanied by one or more of his graduate students."⁵ And it certainly would have taken a large enrollment to fill out the courses listed under the heading, agricultural economics, in the bulletin of the University of Minnesota for the school year, 1926-27. That list of course numbers, titles, and descriptions is presented below:

AGRICULTURAL ECONOMICS

1. Principles of Economics I.
2. Principles of Economics II.
6. Economic History of Agriculture. The evolution of the economic organization with special reference to agriculture. The development of methods of agricultural production and marketing, types of farming and tenure systems.
8. Rural Economics. An economic analysis of a number of the important social problems of agriculture, including rural organization, tenancy, farm incomes, rural population and standards of living, agricultural policy.
25. Principles of Accounting. Same as Economics 25 but credit is allowed without the completion of Economics 26.
60. Farm Finance. The mechanism of exchange with special reference to the financing of the production and marketing of farm products.
90. Agricultural Statistics. Statistical method applied to agricultural data.
110. Economics of Agricultural Production I. The principles of production economics applied to agriculture, a special emphasis being placed upon comparative advantage and localization of production. (Includes old Course 7. Economic Geography of Agriculture).
111. Economics of Agricultural Production II. Continuation of Economics 110.
126. Economics of Consumption. Nature of human wants; standards of living; costs of living; income, administration of income; nature of demand; demand and price; relation of consumption to the population problem.
130. Prices of Farm Products. Past and probable future trends in prices of important farm products. Adjustment of production to price changes, foreign competition, Price stabilization.
131. Market Prices. Manner in which prices are determined in the market place. Local, wholesale, and retail prices. Price fluctuation and speculation. Prices and market grades. Market quotations.
135. Methods of Forecasting Prices. Statistical methods for the study of the forces determining prices, forecasting price changes, and determining "established prices." Survey of research work in the field.
140. Principles of Marketing Organization. The principles of organization of the market and of marketing enterprises, both proprietary and cooperative, applied especially to non-perishables.
141. Marketing Organization: Semi-Perishables.
142. Marketing Organization: Perishables.
- 145-146. Marketing Management. Principles of organization, management, and accounting applied to the details of managing the important types of proprietary and cooperative business units.
161. Advanced Farm Finance.
170. Land Economics. Land as a factor of production; rural and urban utilization; rents and land values; land classification; land exchange.
171. Land Tenure. Property in land; tenancy; farm labor; evolution of the tenure classes. See also courses in Economics.⁶

⁵Sherman Johnson, *From the St. Croix to the Potomac: Reflections of a Bureaucrat*, Big Sky Books, Montana State University, Bozeman, Mont., 1974, p. 64.

⁶*Bulletin of the University of Minnesota, College of Agriculture, Forestry and Home Economics*, Vol. XXIX, No. 25, May 8, 1926, pp. 46-47.

The preceding list of course offerings is not too far from what one would expect to find in a good department of agricultural economics in the post-World War II era. The main fields, or subject areas, of the discipline of agricultural economics are covered in the listing. But the road to this comprehensive coverage was not easily traveled. When the name of the Division was changed to the Division of Agricultural Economics in 1920 to make it comparable to the other subject matter divisions of the Department of Agriculture, a clear, clean teaching responsibility was not given to the Division. The listing of courses in agricultural economics in the bulletin for the school year 1920-21 continued to be made under the Department of Economics, which by now had been made a part of a school of business, and the listing of the faculty in agricultural economics continued to occur in the Department of Economics. Whether degrees in agricultural business and agricultural economics were conferred by the College of Agriculture or the School of Business is not known. For the convenience of the students, many, if not most, of the courses that were clearly identifiable as agricultural economics courses were physically offered on the St. Paul Campus. This arrangement continued through the 1922-23 school year.

The bulletin of the University of Minnesota first lists the faculty of, and the courses in, agricultural economics under the heading of Agricultural Economics for the school year 1923-24. Why it took the Division of Agricultural Economics 11 years to become fully recognized as a teaching, as well as a research, unit within the University organizational structure is not clear from the vantage point of 1981. But it did.

The explosion on the research side was every bit as powerful as that which took place on the teaching side. Research on the marketing of farm products was continued and expanded, as was the emphasis on cooperative organization. The first bulletin authored by John D. Black, with Frank Robotka, at the University of Minnesota described the cooperative effort of farmers in Minnesota from 1913 to 1917 and set forth the essentials of successful cooperation.⁷ During the next eight years, the Division would publish 11 technical bulletins dealing with some aspect of marketing farm products. In the main, these were descriptive studies based upon field surveys; H. Bruce Price authored five of the 11, either solely or jointly.

The field of price analysis (now commonly referred to as econometrics) was pioneered by Holbrook Working at Minnesota in the early 1920s. This field had been opened up by Henry Moore

⁷Farmers Cooperation in Minnesota, 1913-1917, Minn. Agric. Exp. Sta. Bul. No. 184, Univ. of Minn., August 1919.

somewhat earlier at Columbia University.⁸ But Dr. Holbrook Working, in a bulletin published in 1922 entitled *Factors Determining the Price of Potatoes in St. Paul and Minneapolis*,⁹ was the first in the land-grant college system to identify and measure the factors determining the price of a farm product, and to derive a demand curve for that product, namely, potatoes. That original demand relationship, as published by Holbrook Working in 1922, is shown in figure 1. Following in the footsteps of Working in this field were his brother E. J. Working and Warren Waite; in their researches they continued to expand the field of price analysis at Minnesota.

In his teaching program at Minnesota, John D. Black developed a course in the economics of agricultural production in which he stressed the economic theory of the firm and the application of that theory to practical problems of agricultural production. This course formed the central core of his teaching program at Minnesota and became extremely popular with both undergraduates and graduates. The reputation that he gained in this course resulted in a request for him to develop a similar course stressing the theory of the firm for students in the School of Business Administration. To assist him in this latter assignment, Black, with the help of his advanced graduate students, prepared and published in 1926 the volume *Introduction to Production Economics*.¹⁰ This was a path-breaking book in its day, and graduate students in agricultural economics in the 1980s who take the time to review the concepts and ideas contained in it might well gain some new insights into the field of production economics.

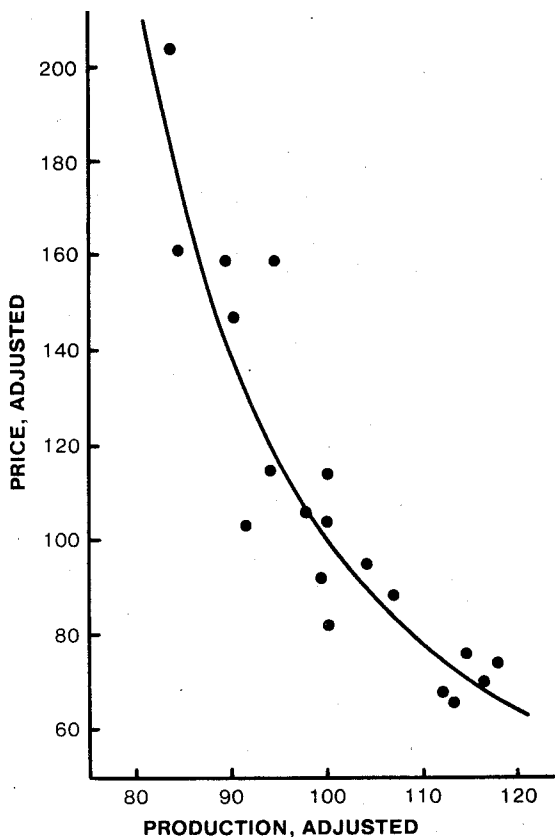
Many building blocks were used in the construction of the book *Introduction to Production Economics*. Black drew heavily on the work of F. M. Taylor in his *Principles of Economics*. H. R. Tolley and Mordecai Ezekiel from the Bureau of Agricultural Economics helped him develop applications from the field of agriculture. And on the concepts of capacity, efficiency, and comparative advantage he borrowed from H. C. Taylor and the classical economists. But Black was the one

⁸See Henry Ludwell Moore, *Forecasting the Yield and the Price of Cotton*, The Macmillan Co., New York, 1917 (reprinted in 1967 by Augustus M. Kelley Publishers). This early work by Moore is described and appraised by George J. Stigler in the essay, "Henry L. Moore and Statistical Economics," from the volume by George Stigler entitled *Essays in the History of Economics*, University of Chicago Press, 1965.

⁹University of Minnesota Agricultural Experiment Station Technical Bulletin 10, October 1922.

¹⁰John D. Black, *Introduction to Production Economics* (New York: Henry Holt and Company, 1926).

Figure 1. From: *Factors Determining the Price of Potatoes in St. Paul and Minneapolis, Minn.* Agric. Exp. Sta. Tech. Bull. No. 10, Oct., 1922



Relation Between Price and Production

When price and production are adjusted to remove, as far as possible, the effect of other factors influencing the price, the relation between price and production becomes clear. The curve may be looked upon as a demand curve. Its equation is $y = 1 - 174.4 + 2.749x$

who wove all those different idea strands together in one meaningful book focusing on the producing firm in agriculture. *Introduction to Production Economics* may be viewed as one of the finest examples of Black's talent for "opening up a field."

In the early 1920s, John D. Black pushed into a field of study, consumption economics, which was considered then, and is to some extent considered today, the private domain of the home economists. But this invasion of a province then generally avoided by professional economists was perfectly reasonable from the viewpoint of Professor Black. He was interested in the counterpart of production economics, namely, *the choice of things used in the household*--the way things were organized and put together in the consumption process to produce satisfaction. And since neither the home economists nor his colleagues, the professional economists, were exploiting this area of inquiry, he simply added it to his widen-

ing sphere of activities. And he induced Warren Waite to work in this field of consumption economics long after he had left Minnesota for Harvard.

The beginnings of the idea of consumption adjustment wherein the household, like the firm, experiments with different combinations of inputs as a means of maximizing its goal--satisfaction--emerges in Black's volume, *Introduction to Production Economics*. He writes in that volume as follows:

Improving consumption is therefore almost as important from a social point of view as improving production. Improving consumption may be interpreted (a) as reducing the amount that must be produced, and hence providing more leisure, (b) as making it possible to support a larger population from the same quantity of labor and natural resources, (c) as making greater saving possible, and hence the accumulation of more capital goods to aid in further production, or (d) as making it possible to satisfy more wants from the same income. Thus if a family manages its affairs so as to use less of its income for fuel and rent, it will have more to spend on better food, or books or education, or travel. An important use that can be made of left-over income is in self-improvement and education of children....¹¹

At Minnesota John D. Black teamed up with the rural sociologist, Carle C. Zimmerman, to discover how farm families in Minnesota used their income--what choices were made, what goods and resources were combined and used in what ways--to provide satisfaction in the farm home. They authored three bulletins seeking to find answers to the basic questions noted above. They were:

- Zimmerman and Black, *How Minnesota Farm Family Incomes Are Spent*, Minn. Agr. Exp. Sta. Bul. No. 234, June 1927.
- Black and Zimmerman, *Family Living on Successful Minnesota Farms*, Minn. Agr. Exp. Sta. Bul. No. 240, Nov. 1927.
- Zimmerman and Black, *Factors Affecting Expenditures of Farm Family Incomes in Minnesota*, Minn. Agr. Exp. Sta. Bul. No. 246, July 1928.

Finally, John D. Black, like every leading agricultural economist of the 1920s, succumbed to the siren's call of the farm policy debate. Farm prices fell disastrously in 1920-21 and remained low through the 1920s. And the McNary-Haugen

¹¹ Ibid, pp. 907-8.

legislation with its plan for "Equality for Agriculture" was debated every year in Congress from 1923 to 1928. In 1924, the American Farm Economic Association made "An American Agricultural Policy" the theme of its annual program. In that forum Professor Black published his first paper on agricultural policy. The title of his paper was "The Role of Public Agencies in the Internal Readjustments of the Farm." In that paper he argued (1) that the economic troubles of farmers at that time were largely due to maladjusted production and (2) that in achieving the needed readjustments "There must be nothing resembling public control of acreage." The latter position he gave up before too many years had passed, but the need for production adjustment was the central core of his policy proposals throughout the remainder of his professional career.

Following the presentation of his policy ideas to the American Farm Economic Association in 1924, hardly a year passed that Black did not present a paper before some forum on American agricultural policy until he retired from Harvard University in 1956. His views on agricultural policy were in strong demand and he was ready and willing to supply the market with policy ideas.

Extension work in the general area of agricultural economics was not limited to farm management extension. The annual report for 1923 of E. C. Johnson, marketing specialist, indicates that some work in marketing extension was under way. His report indicates that he spent two months and that B. A. Holt spent four months working on marketing extension projects. Those projects dealt with egg marketing, general problems of cooperative marketing, creamery organization and management, and various other activities.

The names of E. C. Johnson and B. A. Holt both show up on the faculty listings for the Division of Agricultural Economics in the middle and late 1920s. Thus, it seems probable that these two men only worked part-time on marketing extension projects in this period.

John D. Black resigned from the position of chief of the Division of Agricultural Economics on September 20, 1927, to accept a professorship at Harvard University. Although Black had enjoyed a great run at Minnesota, he was not entirely loathe to leave. Besides the challenge of developing the field of agricultural economics at Harvard, "...The phenomenal expansion in agricul-

tural economics--and multiplication of both faculty and students--had not gone unremarked on the St. Paul Campus, and it had not been everywhere viewed with enthusiasm. The discontent of some of the other departments was probably shared by a few of the college officers...."¹² In building his own reputation and expanding the domain of his division he had bruised more than a few egos among his peers and brought pain and discomfiture to some of his college and university administrators. One of those administrators wrote in early 1927, "...Personally, I think Dr. Black is a good economist, but he spoils much of his prestige by his domineering and egotistical attitude on most of those questions..." So all was not peace and light on the St. Paul Campus with regard to the now established Division of Agricultural Economics. Thus, when the "opportunity" of a professorship at Harvard came along in the fall of 1927, Dr. Black sensed that it was time for him to leave Minnesota and the University administration did not work too hard to hold him.

H. Bruce Price was named acting chief of the Division of Agricultural Economics for the remainder of the school year, 1927-28. On April 3, 1928, Dean Coffey recommended to President Coffman that the work of farm management and agricultural economics be combined into one division to be called the Division of Farm Management and Agricultural Economics. This recommendation was approved by the regents on April 11, 1928, to take effect on July 1, 1928. What precipitated this action at that time is not clear from the perspective of 1981. Perhaps it resulted from a change of leadership in the Division of Agronomy, Farm Management, and Plant Genetics, in which Andrew Boss stepped down as chief of the Division sometime in 1927-28 and Herbert K. Hayes became the new chief. Perhaps it resulted from Black's leaving for Harvard, reducing the friction between the two divisions involved. But whatever the reason, the two strands of work in agricultural economics which had been in separate divisions in the College of Agriculture at the University of Minnesota since 1912 were brought together in one division in the spring of 1928.

¹²From "John D. Black: A Portrait" in *Economics for Agriculture*, edited by James Pierce Cavin (Cambridge, Mass.: Harvard University Press, 1959), p. 12.

O. B. Jesness arrived at the University of Minnesota in the fall of 1928 to become chief of the newly combined Division of Farm Management and Agricultural Economics, which officially became the Division of Agricultural Economics in April, 1930. Dr. Jesness was chief, or head, of the Division for 29 years, from 1928 to 1957. To understand developments in the Division over that long period, one must understand the role played by Jesness in the Division, for he was not only the head of the Division, he was the dominant actor in it.

Oscar Bernard Jesness was born in Stevens County in western Minnesota of a pioneer family on February 4, 1889. As he was fond of saying, he "was weaned on a pitchfork," and early in life he came to the view that most personal problems, as well as social problems, could be solved by hard work. He earned all his academic degrees (B.S., M.S., and Ph.D.) at the University of Minnesota, and in a period before the University had gained national prominence in economic analysis and theory. He had a forceful, even driving, personality that commanded the respect, even awe, of his peers. And he gave the appearance of never doubting for a moment that he knew what was best for his students, his staff, his university, and his nation. His ideological position left little or no room for dissent. Those who did not share his ideological views found him to be a harsh critic and a tough adversary. But those persons in basic agreement with him found Jesness to be a strong intellectual leader, a scintillating spokesman for their politico-economic views, and a boon companion. There were at least two sides to O. B. Jesness: one a man of wit and charm, the other a man who rode roughshod over anyone who would let him.

Dr. Jesness often consulted with Division staff members on a bilateral basis, but the important policy and personnel decisions of the Division he made unilaterally. Key decisions in the Division (the "Department" after January 1, 1953) were made by Jesness alone. This kind of leadership had some distinct advantages. The professional staff did not waste any time with search committees, curriculum committees, and lengthy staff meetings.¹ Research productivity,

for certain types of research, was high. And the teaching function for both undergraduates and graduates was given a high priority. But the Jesness type of leadership had certain disadvantages; for the faculty member not in tune with the Jesness philosophy, life could be extremely difficult. Such a pattern of leadership would not be accepted by a University faculty in the 1970s and 1980s; it would result in a departmental revolution.

The Research Function

Between January 1929 and June 1957, the Department of Agricultural Economics published 78 bulletins based on research in the Department.² Of the total number of Experiment Station bulletins (i.e., excluding the technical bulletin series) published during this period, the Department of Agricultural Economics published almost 40 percent. And in one year, 1931, the Department published seven research bulletins. Thus, in terms of the total quantity of research product produced, the record was very good.

When the farm management research work was combined with the agricultural economics work at the University of Minnesota to form the Depart-

ing with his wife. Cochrane accepted the offer in early spring 1951 and did not see Minnesota until July when he visited St. Paul to find housing. It is true that Jesness had known him briefly in a professor-student relationship some 12 years earlier. But it is also true that Cochrane had not had any contact with him during that 12-year period.

To further illustrate his administrative style: Jesness expected Cochrane to teach the exact same courses--same hours, same titles--that Warren Waite, the man being replaced, had taught. But Jesness did not make even the slightest suggestion as to what should be the content of those courses. Cochrane was completely free to teach them as he thought they should be taught. He did remind Cochrane, however, to be on time to classes and be in his office from 8 to 5 except when there was a good reason to be away from the office.

¹To illustrate: Jesness made Willard Cochrane a firm offer as a full professor in his first letter describing the job opening at Minnesota. There was no search committee involved, no visits to Minnesota, no seminars, and no visit-

²This number can vary by one or two depending on the definition of authorship used. Where more than one author was involved, if the senior author or the majority of authors came from the Department of Agricultural Economics, it was counted as an agricultural economics publication.

ment of Agricultural Economics,³ the research work in farm management changed only gradually. The research continued to be based primarily on information and data gained from records kept by farmers. The detailed accounting studies that were resumed in 1920 were continued until 1953. But, as indicated in chapter 3, the purpose of these studies changed in the 1920s from determining costs of production to "An analysis of factors affecting or conditioning a farmer's earnings. Physical elements of cost were presented both as a basis for checking the efficiency of current operations and for planning profitable farm organizations."⁴ In somewhat more modern terminology, the principal objective of the farm management route studies changed to that of gathering data on input-output relationships.⁵

In 1928 a route with a more simplified set of records was started. This route emphasized financial records along with information on crop production and feed utilization; the time-consuming labor records were omitted. The objective of this work was to determine if farm records of this type would be of value to the cooperating farmers as well as a source of data for research. About 150 farmers in six southeastern Minnesota counties enrolled for the years 1928, 1929, and 1930. At the end of this study the farmers found this type of record keeping and analysis to be of sufficient value to them that they wanted to continue and to share a part of the cost. This was the beginning of the Southeastern Minnesota Farm Management Association. Farmers in southwestern Minnesota asked for a similar association; the latter one was started in 1940. Both of these associations have continued into the 1980s with the farmers assuming an increasing share of the cost, and the Agricultural Extension Service and the Minnesota Agricultural Experiment Station covering the remaining costs. The fieldmen in both associations hold a regular extension appointment. Each member of the two associations was, and continues to be, furnished with the type of information designed to bring out the strengths and weaknesses in his own farming operation. Each year the records are brought to the Department of Agricultural Economics for final summary and analysis by the research staff in Agricultural Economics. And the summarized results are

published in processed reports. Thus, the accounting studies at Minnesota, which began in 1902, were continued through the Jesness era and continue to play a role in farm management research and extension in the present day. The printed bulletins based on the farm management route studies between 1928 and 1953 may be seen in table 4.

Although research at Minnesota was based primarily upon detailed accounting data collected from cooperating farmers, Dr. Pond and his associates tried hard between 1920 and 1950 to use those data in ways other than the computation of the cost of producing different products. The annual mimeographed reports were used to bring information to farmers about the average operations of all the cooperators and thereby enable each farmer to evaluate his own operation against the average and so help him plan his future operations. But there was considerable criticism of the Minnesota research techniques in farm management circles in the Midwest in the late 1940s and early 1950s;⁶ these criticisms surfaced at two farm management workshops sponsored by the Farm Foundation. It was argued that the methodological base at Minnesota was primarily descriptive, resting exclusively on empirical and inductive procedures. The end research product, it was argued, was basically a classification and summary of raw data, describing "what existed" with little guidance emerging from the studies for improving resource use. In part this criticism was true; but in part it overstated the case. Some useful budgeting studies were undertaken at Minnesota during this period that did provide guidance for improving resource use on individual farms.

Outside the farm management area a wide variety of research projects were undertaken in the Jesness era. These studies dealt with such varied topics as marketing, transportation and processing (with emphasis on dairy product processing), taxation, farm credit, land tenure, types of farming, farm prices and incomes, the consumption of food products, and the export market. But, although the topics researched varied widely, the research approach taken did not. Very often the approach involved first a survey, second an institutional description, third a statistical summary of the data collected, and fourth some suggestions for improving the situation. Study after study followed this general format.

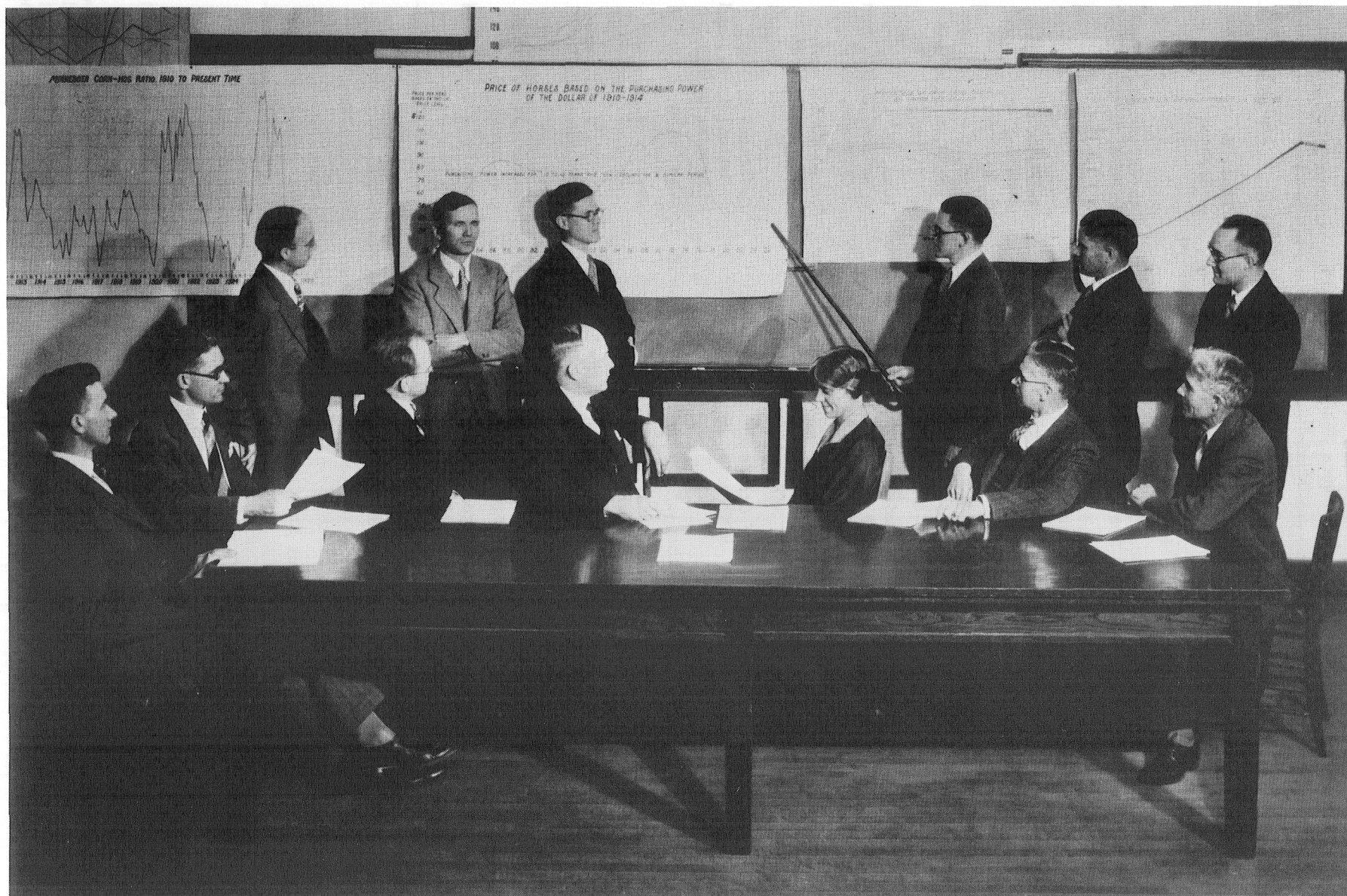
Where some analysis was undertaken, as it sometimes was in the marketing and processing studies, that analysis was usually a business-type

³The official name after 1953 in the Jesness era, and the name which will be used hereafter in this chapter.

⁴G. A. Pond et al., *The First Sixty Years of Farm Management Research in Minnesota, 1902-1962*, Report No. 283, Dept. of Agric. Econ., Univ. of Minn., July 1965, p. 13.

⁵The detailed labor records obtained in these farm management route studies, with the associated financial records, are preserved for the most part in the University of Minnesota Archives.

⁶This criticism applied to certain other states as well--Illinois, in particular. But this is a history of agricultural economics at the University of Minnesota, hence criticism aimed at farm management research in other states will not be considered here.



Division of Agricultural Economics, 1930. *Seated:* Arnold Hinrichs, Percy Lowe, A. G. Black, O. B. Jesness, Dorothea Kittredge, H. Bruce Price, L. B. Bassett. *Standing:* Lewis Garey, George Clarke, George Sulerud, W. P. Ranney, G. A. Pond, George Sallee.

Table 4. Printed Bulletins Based on Farm Management Route Studies, 1928-1953

Bulletin Number	Class*	Pages	Year Issued	Years Covered	Title	Authors
270	E.S.	41	1930	1925-27	<i>Factors Affecting the Physical and Economic Costs of Butter-fat Production in Southeastern Minnesota</i>	Pond, G. A., and Ezekiel, M.
139	Ext.	16	1931	1925-27	<i>More Profitable Farming in Northeastern Minnesota</i>	Cavert, W. L., and Pond, G. A.
279	E.S.	24	1931	1920-24	<i>Relation of the Farm Home to the Farm Business</i>	Studley, L. A.
282	E.S.	110	1931	1926-28	<i>An Economic Study of Crop Production in the Red River Valley of Minnesota</i>	Pond, G. A., Sallee, G. A., and Crickman, C. W.
283	E.S.	58	1931	1926-28	<i>An Economic Study of Livestock Possibilities in the Red River Valley of Minnesota</i>	Sallee, G. A., Pond, G. A., and Crickman, C. W.
284	E.S.	84	1931	1926-28	<i>Planning Systems of Farming for the Red River Valley of Minnesota</i>	Pond, G. A., Sallee, G. A., and Crickman, C. W.
295	E.S.	104	1933	1925-27	<i>Planning Farm Organizations for the Northeast Cutover Section of Minnesota</i>	Pond, G. A., and Crickman, C. W.
301	E.S.	76	1933	1929-31	<i>Beef Cattle Production in Minnesota</i>	Crickman, C. W., Sallee, G. A., and Peters, W. H.
166	Ext.	8	1934	1932	<i>Cost of Production and Price</i>	Pond, G. A.
309	E.S.	16	1934	1920-24	<i>Suggestions to Purchasers of Farms</i>	Cavert, W. L., and Pond, G. A.
138	Tech.	80	1939	1929-31	<i>Farm Organization for Beef Cattle Production in Southwestern Minnesota</i>	Sallee, G. A., and Crickman, C. W.
396	E.S.	15	1947	1935-40	<i>Effect of an Erosion Control Program</i>	Engene, S. A., and Anderson, A. W.
416	E.S.	20	1953	1920-49	<i>Changes in the Dairy Farm Picture</i>	McDaniel, W. E., and Pond, G. A.

Source: G. A. Pond et al., *The First Sixty Years of Farm Management in Minnesota, 1902-1962*, Report No. 283, Dept. of Agricultural Economics, University of Minnesota, St. Paul, Minnesota, July 1965.

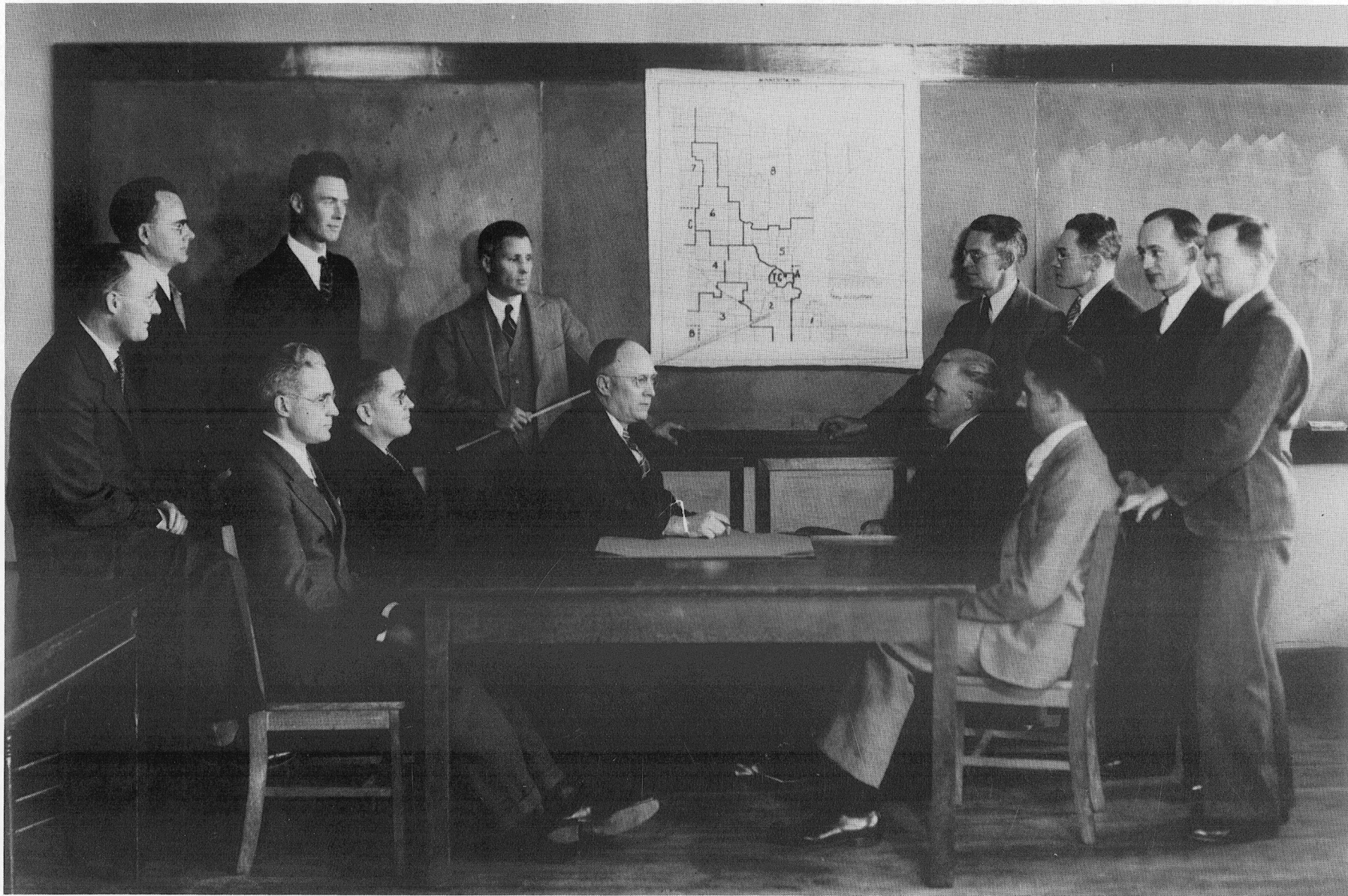
Note: The cooperating agency was USDA for all publications except Agricultural Experiment Station Bulletin 279, which was the School of Home Economics.

*Ext. = Agricultural Extension; E.S. = Experiment Station; Tech. = Technical.

analysis based on accounting data and financial statements. Economic theory played little or no role in guiding and directing research in the agricultural economics area. The leads opened up in the Black years in the fields of production, consumption, and price analysis, based on economic theory, were not pursued or exploited in the Jesness era. The economic variables in agriculture were described and the institutions were

described, but the behavior of those variables was not "explained" and the operation of the institutions was not "explained." It was a long period of research without theory.

There were, of course, exceptions to the above generalization. George Pond, George Sallee, and C. W. Crickman in 1931 did a good job of showing farmers in the Red River Valley how to replan and



Division of Agricultural Economics, 1936. *Seated:* P. M. Lowe, W. C. Waite, O. B. Jesness, E. C. Johnson, S. A. Engene. *Standing:* G. A. Sallee, H. O. Anderson, T. R. Nodland, G. A. Pond, W. P. Ranney, H. C. Trelogan, E. F. Koller, G. L. Peterson

reorganize their farming operations on the basis of farm budget analyses.⁷ A. A. Dowell, with the help of his assistant, Gerald Engelman, and Evan F. Ferrin and Philip A. Anderson from the Animal Husbandry Department tackled a real problem in the late 1940s in analyzing the advantages and disadvantages of marketing cattle and hogs by carcass weight and grade as compared with marketing them live, on-the-hoof.⁸ And in the late 1940s Warren Waite initiated a study of the potato price-support program, which was completed by Roger Gray, Vernon Sorenson, and Willard Cochrane, and which demonstrated that the potato surpluses of the 1940s were not generated by a high level of price support but rather by the elimination of price-risk in a feast or famine industry.⁹

A further point needs to be made with regard to the descriptive research studies of the Jesness era. Although many would not have won a prize for novelty or creativeness, they were well received by many members of the farming sector and by the agribusiness community in Minnesota. Some farm leaders and most agribusiness leaders were of the view that the baseline type of information provided by these descriptive studies was just what they needed. Thus, the Jesness research philosophy of giving the industry the "facts" and letting the decision makers draw their own conclusions from those facts was not an unpopular one in Minnesota in the 1930s and 1940s.

Teaching and Staffing Functions

The printed budget for the Department of Agricultural Economics for the year 1928-29, the year O. B. Jesness assumed the headship, lists 12 faculty positions at the assistant professor level and above and two instructor positions for a total number of 14 faculty positions. By the year 1930-31 the number of positions in the printed budget at the assistant professor level and above had declined to eight, and the number of instructor positions had increased to four,

⁷ *Planning Systems of Farming for the Red River Valley of Minnesota*, Minnesota Agricultural Experiment Station, in cooperation with the USDA, Bulletin No. 284, Sept. 1931.

⁸ *Marketing Slaughter Cattle by Carcass Weight and Grade*, Minn. Agric. Exp. Sta., Tech. Bul. No. 181, Feb. 1949, and *Marketing Slaughter Hogs by Carcass Weight and Grade*, Minn. Agric. Exp. Sta., Tech. Bul. No. 187, April 1950.

⁹ *Price Supports and the Potato Industry*, Minn. Agric. Exp. Sta. Bul. No. 424, Jan. 1954, and *An Economic Analysis of the Impact of Government Programs in the Potato Industry of the United States*, Minn. Agric. Exp. Sta., Tech. Bul. No. 211, June 1954.

for a total number of 12 faculty positions.¹⁰ By 1935-36, the number of positions in the printed budget at the level of assistant professor and above had declined to seven, and the number of instructor positions remained constant at four, for a total number of 11 faculty positions. Thereafter, the number of faculty positions in the Department fluctuates between 11 and 12 up until 1955-56, at which time the total faculty increases to 13.

The decline in the total number of faculty positions between 1928 and 1935 and the erosion in the number of positions at the assistant professor level and above can be explained in part by the onset of the Great Depression and a substantial decline in the state support for departmental teaching. But the heavy erosion in the number of positions at the assistant and associate professor levels between 1928-29 and 1930-31 suggests that Dr. Jesness was either ineffective as an academic bureaucrat or he was indifferent to the reduction in the number of faculty positions in his department. Whatever the reason, the size of his professional staff was reduced significantly between 1928-29 and 1930-31, and it would remain at that reduced level for almost 25 years.

As professional staff members from the John D. Black regime resigned or retired, Jesness, with one exception, filled the vacancies so created with Ph.D.s from the University of Minnesota. The one exception was Rex W. Cox, who was hired as an assistant professor in 1929 and received his Ph.D. degree from Cornell University in 1930. Rex Cox was a gentle person and a productive worker, who was ill-treated professionally by his superior, O. B. Jesness, and by the University of Minnesota. He retired in 1957 as an associate professor.

E. Fred Koller was appointed instructor in the Department of Agricultural Economics in 1934, earned his Ph.D. degree at Minnesota in 1938, and moved rapidly through the ranks during that period to become a full professor in 1946. He retired from the University in 1975.

Selmer A. Engene was appointed instructor in the Department of Agricultural Economics in 1937, earned his Ph.D. degree at Minnesota in 1940, and was appointed full professor in 1957. He retired from the University in 1974.

Austin A. Dowell was appointed professor in the Department of Agricultural Economics on April 1, 1939. He had previously served as

¹⁰ The names and positions of members of the faculty in 1930-31 and for each five-year interval thereafter may be reviewed in appendix A. Also in appendix A may be seen the names of the extension staff in agricultural economics before 1966-67.



Division of Agricultural Economics, 1940. *Seated:* Gerald Engelman, Rex Cox, S. A. Engene, W. C. Waite, Percy Lowe, A. A. Dowell, George Wilkens. *Standing:* W. B. Garver, George Toben, Ernest Baughman, O. B. Jesness, Truman Nodland, George Pond, A. W. Anderson, G. L. Peterson, E. F. Koller

superintendent of the Northwest School of Agriculture at Crookston, Minnesota. He, too, earned his Ph.D. degree at the University of Minnesota, receiving that degree in 1932. He was promoted to assistant dean for resident instruction in December, 1952, and retired from the University on June 30, 1960.

Truman R. Nodland was appointed instructor in the Department of Agricultural Economics in 1939. He earned his Ph.D. degree at Minnesota in 1942 and was appointed full professor in 1961. He retired from the University in 1976.

Thus, by the year 1950 every faculty member of the Department, with the exception of Rex Cox, had received some or all of his graduate training at the University of Minnesota.¹¹ Without question, the Minnesota-trained men in the Department of Agricultural Economics were capable. But also without question, the professional staff of the Department by 1950 was badly inbred.

The staffing pattern, however, did begin to change after 1950. Warren Waite died in November, 1950, thus severing the last faculty link with the Black regime. And with the passing of Waite, the Department probably lost its most creative, innovative mind. The Waite position was filled by Willard W. Cochrane in August, 1951. Cochrane was born and raised in California, received his B.S. degree from the University of California at Berkeley, his M.S. degree from Montana State College, and his Ph.D. from Harvard University.¹² Thus, the appointment of Cochrane marked a sharp break with the past faculty replacement policy.¹³

When Austin Dowell moved up to the College office as assistant dean for resident instruction in early 1953, a second vacancy was created. The Dowell position was filled by Philip M. Raup on

¹¹George Pond received his Ph.D. degree from Cornell University. But he graduated from the School of Agriculture in 1913 and received his B.S. and M.S. degrees from the University of Minnesota in 1917 and 1921 respectively. If there was ever a product of the University of Minnesota, it was George Pond.

¹²Willard Cochrane in his graduate student travels spent one year at the University of Minnesota, where he became acquainted with O. B. Jesness and Warren C. Waite.

¹³Why Jesness changed his staffing policy at this time, and why he hired Cochrane, who was far from being in tune with Jesness ideologically, remains a mystery. When asked about it years later, Jesness replied about as follows--"It seemed like a good idea at the time." Perhaps that was the real explanation. Other theories advanced during the cocktail hour have not made any more sense.

July 1, 1953. Raup was born and raised in western Kansas, received his A.B. degree from the University of Kansas and his M.S. and Ph.D. degrees from the University of Wisconsin at Madison.

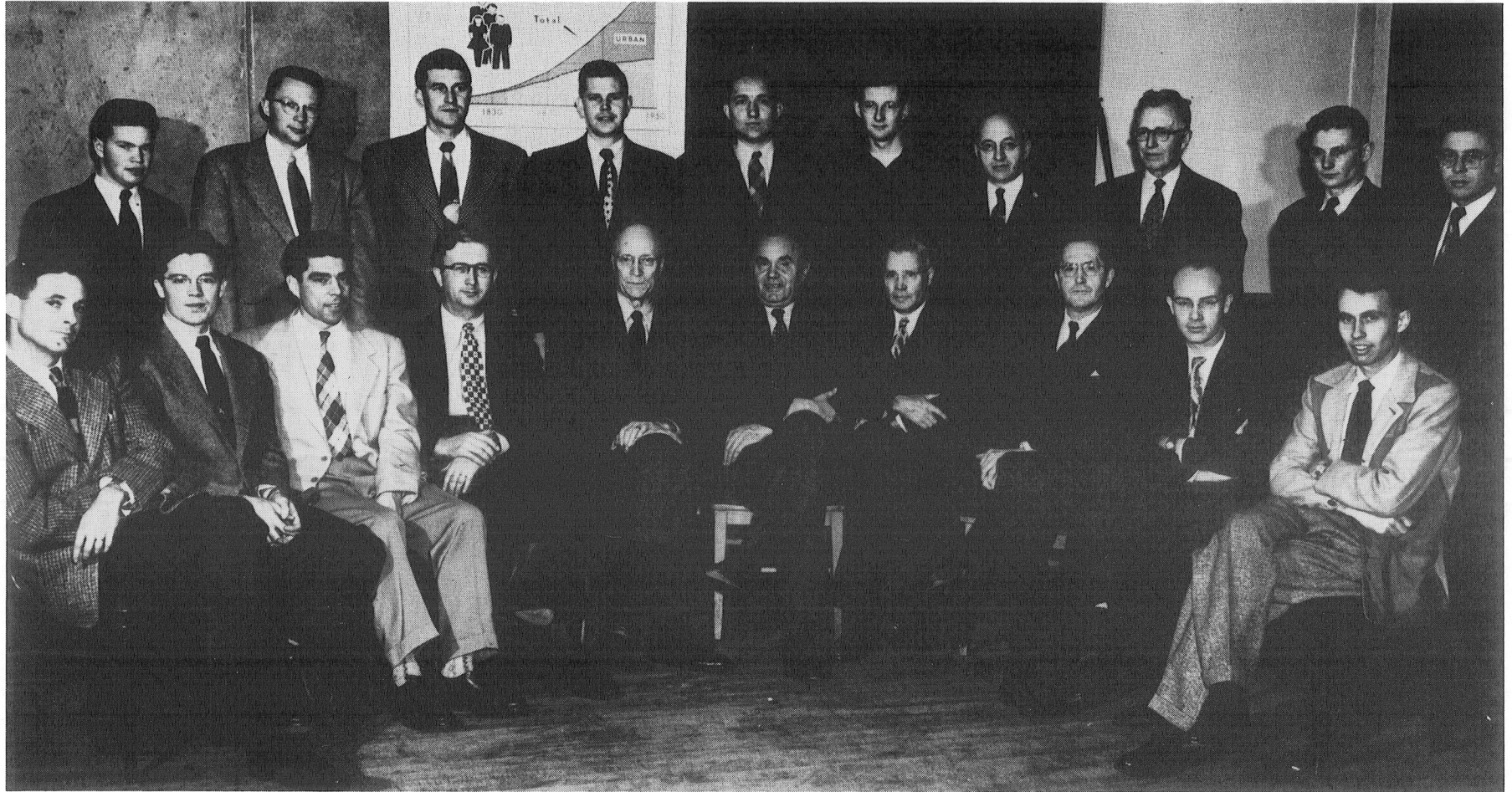
Reynold P. Dahl, who had been appointed as an instructor in the Department in 1950, was promoted to the rank of assistant professor in the school year 1954-55. This marked the first increase in the number of faculty members in the Department above the assistant professor level since the middle 1940s. But the Dahl promotion did not represent a net increase in the size of the teaching faculty; the number of instructors was reduced by one in the 1954-55 school year. Reynold Dahl had received all his graduate training at the University of Minnesota.

The teaching faculty of the Department numbered 13 in 1955-56, or one person more than it had averaged from 1930 to 1954. The additional position involved an increase in the number of instructorships by one. The complete teaching faculty in the Department of Agricultural Economics for the year 1955-56 may be reviewed in appendix A.

While the size of the teaching faculty declined in the Department between 1928 and 1930 and thereafter held constant in size until 1954, what was happening to the curriculum? A lot happened to it between 1928 and 1930.

With the transfer of the farm management work from the Division of Agronomy and Plant Genetics to the new Division of Farm Management and Agricultural Economics in the summer of 1928, the curriculum of the new division, which in 1930 became the Division of Agricultural Economics, had to grow by the number of farm management courses added to it. Compared with the course listings for agricultural economics presented in chapter 3, there were numerous other changes. An undergraduate course in the economic history of agriculture was dropped and several new courses were added: natural resources, prices of farm products, principles of marketing organization, and marketing accounting. At the graduate level three new courses, other than those in farm management, were added. They were: types of farming, cooperative organization, and advanced statistics. The list of courses presented in the University bulletin for the College of Agriculture, Forestry and Home Economics under the new heading, Farm Management and Agricultural Economics, for the years 1930-32 may be reviewed in appendix C.

On a net basis, the number of courses offered increased between 1928 and 1930. But this expanded curriculum did not involve the opening up of any new fields of study. It involved the development of more specialized courses of study in established fields. The one possible exception to the above generalization was the offering of a new course in natural resources in 1930. But



Department of Agricultural Economics, 1951. *Seated:* Roger Gray, Dale Stallings, William McDaniel, Selmer Engene, O. B. Jesness, Frank Hady, George Pond, A. A. Dowell, Travis Manning, Arnold Larson. *Standing:* Ian Keith, Robert Olson, Niels Rorholm, Reynold Dahl, Stanley Krause, James Tyvand, E. Fred Koller, Rex Cox, Arthur Wilson, Grover Chappell

this new area of study had been dropped by 1950.

After 1930, changes in the curriculum of the Department of Agricultural Economics occurred slowly. As O. B. Jesness once told the author of this history, "One of the advantages of doing graduate work at the University of Minnesota is that if a student drops out of school for a few years and then returns, he can take up his studies exactly where he left off." But the curriculum did slowly change over time. Courses offered in the Department of Agricultural Economics for the years 1952-53 may be reviewed in appendix D.

As compared with the course listings for 1930-32, the number of courses offered in 1952-53 increased significantly. But again this expanded curriculum does not really represent the opening up of new fields of study. It represents an increased specialization of study in established fields.

There was one exception to the above generalization. The international dimension of agricultural economics at the University of Minnesota was established by the development of a new course entitled "Economics of World Agriculture." A review of the course description (see appendix D) suggests that a serious effort was made to make this course something more than a travelogue.

But there was also retrogression between 1930 and 1950. As already noted, the area of study, resource economics, which had a tenuous foothold in 1930, had been eliminated by 1950. And the two-quarter course in production economics had been reduced to one quarter. Austin Dowell, who taught production economics, was trained primarily in animal husbandry and saw no need for a second quarter of study in the highly descriptive course he taught. Thus, the theoretical base for work in the production area had eroded away.

As an interesting sidelight, two courses which Cochrane took over in 1951, Market Prices and Economics of Consumption, had not changed in title or number from 1926-27, and the course descriptions had changed very little. Change, for whatever reason, was not popular in agricultural economics at the University of Minnesota in the Jesness era.

In the judgment of the writer, the list of courses offered undergraduates and graduate students in 1952-1954 was not too bad. There was perhaps too much emphasis on farm management, and within the farm management offerings too much emphasis on farm records, and too little emphasis on foreign trade and international developments in food and agriculture. The field of resource economics was completely ignored. But the list of course offerings in agricultural economics together with courses in economic theory, statistics, and other applied fields offered in the Economics Department enabled students in agricul-

tural economics at the University of Minnesota to earn strong graduate degrees and to enter their profession at a high level of proficiency. The theory offerings in the Department of Economics were particularly strong in the 1930s and 1940s as Francis M. Boddy, Frederic B. Garver, Arthur Marget, George Stigler, and Arthur Upgren made national and international reputations. The combination of theoretical and applied courses offered in the two departments and the high teaching standards, which were a tradition in the Department of Agricultural Economics, interacted to provide a strong program of training at both the undergraduate and graduate levels.

The Extension Function

Three men were engaged in extension work in the broad area of agricultural economics in the year 1929: W. L. Cavert and R. L. Donovan in the farm management area, both full time, and D. C. Dvoracek in marketing, part time. The work of the farm management specialists involved four activities: (1) presentation of outlook information, (2) operation of farm management schools for farmers in seven counties, (3) assistance to Smith-Hughes teachers in teaching farm management to high school students, and (4) preparation of news releases and the publication of *Farm Business Notes* in cooperation with the Department of Agricultural Economics.

The marketing specialist worked with the farm management specialists in presenting outlook information. He was also involved in conducting cooperative marketing schools for the managers and board members of local livestock shipping associations and creamery organizations.

Economic extension work in 1929 and 1930 was thus a direct continuation of the types of work under way in the early 1920s. But there was a dramatic change in the work of the economic extension specialists in 1933. In that year, the two farm management specialists, W. L. Cavert and S. B. Cleland, spent a large part of their time working with the wheat control program and a debt adjustment program of the Farm Credit Administration.

By 1933, there were two full-time extension specialists in agricultural marketing, W. Bruce Silcox and D. C. Dvoracek. Projects associated with the emergency programs of the federal government claimed a major portion of their time in 1933. They were involved in the debt adjustment program; much of the spring and summer was spent in explaining various provisions of the Agricultural Adjustment Act to farmers; and some four months were spent supervising the sign-up of wheat growers in the Red River Valley under the wheat section of the AAA.

By the end of 1933, all of the extension economists at the University of Minnesota were deeply

involved with federal farm programs. This would continue through the 1930s as the extension specialists in economics worked under various cooperative arrangements for the Agricultural Adjustment Program, the Farm Security Administration, the Farm Surplus Commodity Corporation, and the County Land Use Planning Program. But the federal programs did not occupy all of their time. This may be seen from the statistical summary of S. B. Cleland's days spent in the field in 1937. He spent more time with the Southeast Farm Management Service than in any other single activity (see table 5).

During the war years 1941 through 1945, Agricultural Extension at the University of Minnesota devoted its full resources to the furtherance of the war program. The most important of these programs from the viewpoint of the Extension Service was the organized effort to expand food production. Extension workers assumed full responsibility for the domestic farm labor supply; they campaigned for the fullest use of every farm practice that would ensure maximum crop production; and they worked for the most efficient utilization of those crops in animal products production. But by 1945 farmers were beginning to worry about the build-up of surpluses and low prices with the end of the war. Paul E. Miller, director of Agricultural Extension in Minnesota, spoke as follows:

...farmers have the feeling that full pro-

duction and efficient production may not be the complete answer to their basic problems in the years immediately ahead. They are genuinely concerned about what the future may have in store for them. They wonder if surpluses will again become unmanageable. They wonder whether production control will again be necessary, or at worst whether they may have to face another debacle similar to that of the 30's.¹⁴

But a farm depression did not materialize in the years immediately following World War II. Minnesota farm income reached an all-time high in 1951 of \$1.4 billion. In this economic climate there was a strong demand for the services of agricultural extension workers, particularly economic specialists, to assist farmers in the adoption of improved production and marketing practices. In this climate the number of extension specialists in the field of agricultural economics increased to nine: five in the farm management area and four in the marketing area.

As may not have been made clear to this point, Agricultural Extension, in the broad area of agricultural economics, was not integrated into the Department of Agricultural Economics during the period between 1928 and 1957. But two important

¹⁴A talk given before the Outlook Conference, Washington, D.C., December 5, 1945.

Table 5. Summary of the Field Activity of S. B. Cleland for 1937

	Field Days	Farm Visits	Meetings	
			No.	Attendance
Southeast Minnesota Farm Management Service	41 1/2	119	16	438
Rural Rehabilitation	20 1/2	22	13	217
Meeke County Farm Records	2 1/2	6	1	34
Faribault County Farm Records	4	--	3	78
Fillmore-Houston Livestock Records Association	8	18	4	82
County Agricultural Planning	10 1/2	--	11	215
Rural Youth	4 1/2	--	8	176
Farm Management-Farm Credit Meetings	8 1/2	--	11	494
Outlook	7	--	6	153
Soil Erosion	4 1/2	4	2	93
Agricultural Conservation	6	--	7	430
High School Agricultural Instructors	1 1/2	--	2	17
Other	<u>21</u>	<u>12</u>	<u>25</u>	<u>1519</u>
	140	181	109	3946

Source: Taken from S. B. Cleland's Annual Report for 1937.

points need to be made with regard to the relation of extension work to the Department of Agricultural Economics. First, the number of persons employed in extension work in the area of agricultural economics increased from two in 1930-31 to nine in 1950-51, while the number of teaching faculty in the Department of Agricultural Economics actually declined. This was a strange development in light of the increased interest in the economic problems of farmers, and the next point to be made. Second, staff members in the Department of Agricultural Economics regularly worked with extension staff members in preparing materials for the use of farmers, in arranging meetings in the field, and in participating in those local meetings. During the post-World War II years it was common practice for staff members in the Department of Agricultural Economics to participate in county meetings once or twice a week in those periods when they were not teaching, or to go on tour in the counties for several days at a time. Thus, extension work in farm management and agricultural economics by both the extension staff and the departmental staff was an important activity during the period between 1928 and 1957.

The Public Service Function

One of the most time-consuming activities of the Department from 1928 through 1957 was the public service work of its staff members. O. B. Jesness enjoyed a national reputation in the areas of agricultural policy and agricultural cooperation, and he was an excellent public speaker. Thus, he was in constant demand to speak on those subjects before farm groups, agribusiness groups, and banking groups. He was also a consultant to numerous business organizations and a confidant to Ezra Taft Benson, secretary of agriculture during the Eisenhower administration. Thus, the head of the Department of Agricultural Economics at the University of Minnesota, even before the day of crowded air travel, did a lot of traveling.

Jesness served as editor of the *Journal of Farm Economics* in 1933-35 and as president of the American Farm Economic Association in 1937.

Warren Waite, the economic analyst, was in demand by a different set of public agencies and interest groups. He was invited regularly to Washington to serve as a consultant to the Bureau of Agricultural Economics, the Agricultural Adjustment Administration, and the Food Distribution Administration. He attended the meetings of the Nutrition Committee of the League of Nations in Geneva, he served as an economic advisor to the Provincial Government of Alberta, and he served as a consultant to the city of St. Louis on the operation of its milk market. Year after year he was away from the Department from one to six months on one of these consulting jobs.

Waite also served as editor of the *Journal of*

Farm Economics from 1944 to 1948 and as president of the American Farm Economic Association in 1950.

George Pond pursued different avenues of public service. He was a charter member of Minnesota Farm Managers and Appraisers, Inc., served as its secretary-treasurer from 1931 to 1950, and as its president in 1951. He was a charter member of the International Conference of Agricultural Economics and attended its organizational meeting in Great Britain in 1928. From 1924 to 1928 George Pond served as editor of a publication entitled *Farm Management Service Notes* (which became known as the "Pink Sheet" because of the color of the paper it was printed on); the purpose of the Pink Sheet was to supply county agents, agricultural instructors, agribusiness specialists and interested farmers with the latest research findings and economic information that would contribute to improved management practices and methods of farming. After the consolidation of the work of farm management and agricultural economics in one department in 1928, George Pond became chairman of a committee to schedule and edit a revised publication entitled *Minnesota Farm Business Notes*. This revised publication, with a somewhat broader coverage than the earlier publication, he continued to edit until his retirement in 1958.

E. Fred Koller was recognized nationally for his public service work with agricultural cooperatives. For many years he served as a consultant and advisor to agricultural cooperatives in Minnesota and around the nation. He was a member of the Board of Trustees of the American Institute of Cooperation and a member of the Board of Trustees of the Cooperative Foundation of St. Paul.

In these ways then the senior staff of the Department was involved in public service--in the formulation of public policy, in the management and operation of public and quasi-public institutions, and in seeking to improve the general welfare. For the most part they found these activities both stimulating and rewarding. But those activities consumed much time and energy on the part of a small staff whose most scarce resource was time.

Overview and Appraisal

The overriding development of the long period, 1928 to 1957, or the controlling condition, was that resources in the Department--staff and research funds--did not keep pace with the expanding teaching responsibility, the expanding demand for applicable research findings, and the expanding commitment to extension work and public service. It is impossible to say with any precision, as of 1981, to what extent the failure of Department resources to keep pace with the demands on them resulted from (1) reduced funding support of the University as a result of the Great Depression, (2) the inability of Jesness to obtain the needed funding support in the bureaucratic

struggle for those scarce funds, or (3) the view on the part of Jesness that there was no great need to expand the resource base of the Department. Possibly all three reasons played a role. Certainly we know that the total budget of the University declined in the great Depression years--the total revenue of the University of Minnesota, which amounted to 11.4 million dollars in 1929-30, fell to 5.5 million dollars in 1935-36 and then rose modestly with help from the federal government to 6.8 million dollars in 1939-40.

We also know something about the shares of the teaching and research budgets received by the Department from total Institute¹⁵ budgets during the Jesness years. The Department's share of the total Institute's teaching and research budget does decline between 1928 and 1930. The Department's share of the College teaching fund base holds relatively constant in the 1930s and then declines modestly in the 1940s and the early 1950s. The Department's share of the Institute's research fund base actually increases in the 1930s, declines sharply in the 1940s, and continues to decline through the first half of the 1950s. Thus, we can conclude that, on a relative basis, there was some erosion in the teaching and research budgets over the 29-year period from 1928 to 1957, with the most pronounced declines in the first two years and in the early 1950s.

But whatever the reasons, the total resource base of the Department declined significantly between 1928 and 1935 and it did not begin to increase again until 1947. From 1947 to 1957 the total resource base of the Department approximately doubles, but a very large share of that increase in resources is consumed in salary increases and little is used to increase the size of the professional staff.

The total expenditures¹⁶ of the Department of Agricultural Economics, as defined by the printed budget of the University, are given below for the years 1928 to 1957.

<u>Years</u>	<u>Total Expenditures</u>
1928-29	\$ 55,935
1929-30	55,485
1930-31	55,235

¹⁵ Known as the Department of Agriculture until 1953.

¹⁶ These expenditures are understated somewhat in each year, since certain fund allocations by the Experiment Station for the support of research projects are not included in them. The missing allocations typically cover such things as research supplies, temporary research assistants, clerical workers, survey costs, transportation expenses, and other nonrecurring costs.

1931-32	55,485
1932-33	54,685
1933-34	46,479
1934-35	46,599
1935-36	43,384
1936-37	46,668
1937-38	41,196
1938-39	41,602
1939-40	41,422
1940-41	41,649
1941-42	41,919
1942-43	39,227
1943-44	41,085
1944-45	41,792
1945-46	45,450
1946-47	55,006
1947-48	76,104
1948-49	78,346
1949-50	84,887
1950-51	85,277
1951-52	95,203
1952-53	95,752
1953-54	99,107
1954-55	103,957
1955-56	106,945*
1956-57	109,932

*Estimated

The professional staff of the Department holds approximately constant at 12 from 1930 to 1957, in some years declining to 11 and in some years increasing to 13. At the same time, the responsibilities and commitments of the staff increased. The number of courses increased. After World War II the number of both undergraduate and graduate students increased. The extension and public service activities of the senior staff increased greatly. And the demands for more and more research concerned with the agricultural economy increased.

In this context, in the competition for pieces of faculty members' time, something had to give. But what? At Minnesota, with a long and strong tradition of effective teaching, the teaching function could not be restricted or whittled down. And the senior faculty was not inclined to reduce its public service function, because that is the way that individual members increased both their psychic and monetary incomes. Thus, the function that had to give way was research. But how could this be? We know that the volume of research product, measured in research bulletins, was relatively large for the Department. And it happens that two of the most productive years of the Department, measured in terms of bulletins published, were 1952 and 1953, when six bulletins were published in each of those years.

What happened to an important degree to the research function in the Jesness era is the following. Time was saved, or husbanded, on the part of the professional staff by undertaking descriptive type studies of various commodities, or

various sectors of the Minnesota farm economy, almost by formula. A survey was conducted. The institutions were described. The important variables, or operations, were summarized in a statistical description. In some cases a business-type analysis was undertaken. And in some cases some recommendations were made. This research approach could be executed by graduate assistants with a minimum input of supervisory time from the professional staff.

With certain exceptions noted earlier in this chapter, the research approach of the Department was in fact an intelligence gathering and refining activity. The Department gathered, on a selective basis, information and intelligence about important commodities and sectors of the Minnesota farm economy. The research activities of the Department were not aimed at discovering new relationships, or explaining the behavior of economic decision units, or in pushing back the frontiers of knowledge. The latter activities take time, and the explicit recognition on the part of both research administrators and research workers that the research endeavor could fail. Both conditions were lacking in the Department in the Jesness era. As a result, the creative quality of the research in the Department in the Jesness era was low, for the most part.

The professional staff of the Department was not lazy; to the contrary it was hard-working--by modern standards, overworked. Each professional staff member was in his office from 8 a.m. to 5 p.m. preparing class lectures, giving class lectures, advising undergraduate students, and reviewing the work of his graduate assistants,

or he was on the road somewhere to give a talk. Group sessions among faculty and students to discuss new research methods or new approaches were not encouraged. Workshops to discuss research work in progress were unheard of. And a staff member could be reprimanded for hiding in the library, or in his office at home, to read the current literature or to try to formulate some new concept or research idea. In this kind of research environment--a sort of production-line environment--the creative quality of the research had to be low, and it was. The pressure in the Jesness era was to turn out economic intelligence reports dealing with different aspects of the Minnesota agricultural economy. And that to an important degree is what was done.

There is a place for the kind of selective intelligence gathering and refining work described above. Industry groups like it and call for it. The Central Intelligence Agency does it in the international arena for the federal government. The USDA does it abroad, at the national level, and at the state level. And perhaps land-grant colleges of agriculture should do some of it too. But they should not be consumed with it. Subject matter departments in a university must be concerned with problem solving, exploring the unknown, and idea discovery. This kind of research endeavor takes time and is subject to failure. This, administrators of research in land-grant colleges of agriculture must recognize, and it was not sufficiently recognized and appreciated in the Department of Agricultural Economics at the University of Minnesota in the long period, 1928-1957.

The New Faces

The influx of new faces and new approaches becomes important in the Department in 1957 with the retirement of O. B. Jesness. But it did not begin in that year. It began in 1951 with the arrival of Willard Cochrane on the scene. In the Cochrane view of the proper relationship of agricultural economics to economics, economic theory should serve as the foundation for teaching applied courses in agricultural economics, and it should serve further to guide and direct efforts in that applied field. As a student of John D. Black's, he was eclectic in his use of theory, drawing upon mainstream neoclassical theory; the then-developing areas of imperfect, or monopolistic, competition theory; and ideas from such institutionalists as John Brewster, Kenneth Parsons, and Bushrod W. Allin. For Cochrane, institutions play an important role in determining economic behavior.

The second new face in the Department was that of Philip Raup, who arrived in 1953. Raup received his graduate training at the University of Wisconsin and brought a strong background in institutional approaches to the Department. His first major effort at the University of Minnesota was to develop the potential in land market research. In relation to this effort, he developed contacts with units of the University on the Minneapolis Campus, especially the Geography Department and the Law School. As a result of these contacts, staff members from the Law School joined Raup in offering a graduate seminar in land economics and tenure for many years. A further result of this outreach effort has been a large enrollment of students from the Minneapolis Campus in his courses in land economics and world agriculture.

In the fall of 1955, the USDA stationed Lee Day, a production economist, at the University of Minnesota. Day was an Iowa farm boy who received his B.S. and M.S. degrees from Iowa State University. He received his Ph.D. degree from the University of Minnesota and began his professional career at the University of Wisconsin. He returned to the University of Minnesota in 1955 to work on a regional dairy study dealing with needed production adjustments. He later was made an adjunct associate professor; in this capacity he was able to interact fully with staff members and graduate students on various farm management and production economics research projects. Day left the University in 1961 to join the staff of the newly created Economic Research Service in

the U.S. Department of Agriculture in Washington.

In 1957, two new assistant professors joined the staff of the Department of Agricultural Economics; they were Elmer W. Learn and Darrell F. Fienup. Fienup was born and reared in southwestern Iowa, received his B.S. degree from Iowa State University, an M.S. degree from Montana State College, and a Ph.D. degree from the University of Wisconsin. He had studied under Robert Clodius at the University of Wisconsin and was interested in market structure theory; he would seek to use that theory to guide his teaching and research at Minnesota. The Fienup position was a new position in the Department--the first in many, many years.

Elmer Learn was born and reared in eastern Pennsylvania and received his B.S., M.S., and Ph.D. degrees from Pennsylvania State University, although he did a year of graduate work at the University of Minnesota in 1954-55. Learn was a student of George Brandow and consequently was interested in such areas as agricultural prices, price analysis, trade, and policy. Learn replaced Rex Cox, who retired in 1957. He would bring strength to the Department where it was badly needed, namely in statistics, price analysis, and trade.

The most important personnel change in the Department in the 1950s resulted from the retirement of Dr. Jesness in 1957. The conservative forces, both inside the Department and out, sought the appointment of a person to the headship who would continue the Jesness policies; the liberal forces, both inside the Department and out, wanted a new head who would make some sharp breaks with the past. Although the differences in views, both ideologically and academically, of the two camps were deep-seated, and the struggle intense at times, open warfare did not break out in the Department. The process of selecting the new head proceeded, under the leadership of Dean Macy, in an orderly fashion.

As had to be the case, the man selected and appointed on July 1, 1957, to the headship of the Department was a compromise candidate. The new head was Sherwood O. "Woody" Berg. He was born and reared near Hendrum, Minnesota, in the Red River Valley. Like numerous other Department staff members with a Minnesota background, he first attended Minnesota's School of Agriculture; subsequently he earned a B.S. degree from South Dakota State College, an M.S. degree from Cornell University, and a Ph.D. degree from the University

of Minnesota in 1951.

Woody Berg did not hold strong ideological views, or if he did, he did not make them known, and he was not associated with any particular camp or school or philosophy of economics. Since he had earned his Ph.D. in agricultural economics at Minnesota and had an outstanding record as a graduate student, he was acceptable to the conservatives. Further, since he was a warm, friendly person, with a broad international experience as an agricultural attaché, he was acceptable to the liberals. And as it turned out, the choice of Berg as head of the Department was a happy one. Those staff members who wanted to continue to pursue well-established paths were encouraged to do so. Those staff members who wanted to try some new approaches found encouragement and support from the new head.

As a compromise appointee, Berg did not set out to remake the Department, or even to give it a new face. But over time he did, of course, effect changes, and some of those changes will be noted in the discussion that follows. The biggest change that Berg made did not require any official action; that change occurred in the working climate or atmosphere of the Department. Berg's style of leadership was like a fresh summer breeze. He brought the staff into the Department's decision process, and he smiled and laughed as he did it. He brought democracy to the Department, and the staff members reveled in it.

In 1958, George Pond retired and Harald R. Jensen was brought in as a full professor to replace him. Jensen was born and reared in Nebraska, received his B.A. degree from Buena Vista College, Iowa, and received his M.S. and Ph.D. degrees from Iowa State University. He was on the staff at the University of Kentucky and Purdue University before coming to Minnesota.

Jensen was well trained in economic theory, statistics, and programming and came to Minnesota because he saw it as a unique opportunity to put those tools to work in teaching and research in the general area of farm management and production economics. At Minnesota he developed an undergraduate course in farm management that made use of the basic tools of economics, and a graduate course in production economics that focused on risk and uncertainty considerations. Much of the farm management-production economics research that dealt with needed production adjustments for profitable farming during the 1960s and early 1970s was developed by Harald Jensen in collaboration with USDA employees Day, Sundquist, and Buxton.

Percy Lowe, a blind man, who had been an instructor in the Department since the middle 1920s teaching principles of economics, died during the winter of 1956-57. In 1957, his teaching duties were shuffled around among different instructors

in the Department. Sometime during the winter of 1957-58 the decision was made to hire a senior staff person to organize the teaching of "Principles," to do most of the lecturing, and to serve as the principal advisor to the undergraduates. The man hired for this position was Carroll V. Hess. He was hired at the associate professor level and assumed his duties prior to the opening of the 1958-59 school year.

Carroll Hess was born and reared in the Pennsylvania Dutch country and received his B.S. degree from Pennsylvania State University; he earned his M.S. and Ph.D. degrees in agricultural economics at Iowa State University. With the coming of Hess to Minnesota, the teaching of economic principles was upgraded and the counseling of undergraduates, as well as the undergraduate curriculum, was systematized and given leadership. Hess was also to do research in poultry and turkey marketing.

In 1958, Wesley B. Sundquist joined the Department of Agricultural Economics as a USDA employee. He was born and reared in North Dakota; he received a B.S. degree from North Dakota State University, an M.S. degree from the University of Kentucky, and a Ph.D. degree from Michigan State University in 1957. Trained as a production economist, Sundquist came to Minnesota to work on a production adjustment study for the dairy region of the United States. Later he became an associate professor at the University of Minnesota, serving without salary; in this role he served as an advisor to graduate students and interacted fully with other staff members and graduates. In 1965, he joined the staff of the Economic Research Service in Washington, D.C.

A young econometrician, Marc Nerlove, with a brilliant record at the USDA, came to the University of Minnesota in July, 1959. He had a joint appointment in the Departments of Economics and Agricultural Economics. But he did not tarry long in Minnesota; he left for Stanford University and warmer climes in June of 1960.

Between 1950-51 and 1960-61 the composition of the professional staff in the Department of Agricultural Economics changed dramatically.¹ The training, the skills, and the interests of the staff had changed. On the average the staff in 1960-61 had a more intensive training in economic theory and analysis; it had greater skills in statistics, econometrics, and programming; and its interests ranged over wider vistas than did those of the staff of the Department in 1950-51. As a result, staff members of the Department in 1960-61 sought to undertake more sophisticated analyses and analyses with greater explanatory power than did the staff in 1950-51. And the

¹ Compare the personnel of the two periods in appendix A.

graduate students in 1960-61 were pushing the professional staff more insistently to provide them with improved analytical skills than was the case in 1950-51.

But 1960-61 was not the end of the road for the Department. The pressure to improve the quality as well as the quantity of the staff continued. First some other personnel changes occurred in the Department. With the exception of two months, Willard Cochrane was on leave from the University from July 1, 1960, to July 1, 1964, serving first as agricultural advisor to Senator John F. Kennedy in the 1960 presidential campaign and second as director of agricultural economics in the USDA. Sherwood O. Berg resigned from the headship of the Department on July 1, 1963, to become dean of the Institute of Agriculture, Forestry, and Home Economics at the University of Minnesota. With scarcely a ripple, Elmer Learn succeeded Berg as head of the Department. Between 1957 and 1963, Learn had demonstrated to his colleagues that he was both a first-rate scholar and a skillful academic manager.

On July 1, 1961, Marguerite C. Burk received a joint appointment in the School of Home Economics and the Department of Agricultural Economics as a full professor. Ms. Burk received A.B. and M.A. degrees from the University of Kansas and a Ph.D. degree from the Department of Agricultural Economics at the University of Minnesota in 1948. Burk was hired to teach and conduct research in the consumption and distribution of foods. She came to the University of Minnesota from the USDA, where she had become a leading authority on the economic and social factors influencing food consumption in the United States.

W. Keith Bryant joined the staff of the Department of Agricultural Economics for the school year 1963-64. He was born in Canada, received his B.S.A. degree from Ontario Agricultural College and his M.S. and Ph.D. degrees from Michigan State University. He joined the staff at Minnesota to work in the fields of econometrics and price analysis, but upon his arrival at Minnesota, his teaching and research moved in the direction of household economics and questions of rural poverty.

Dale C. Dahl began his graduate work for the Ph.D. degree at the University of Minnesota in the fall of 1959. Prior to that, he had received B.S. and M.S. degrees from South Dakota State College. He received his Ph.D. from the University of Minnesota in 1964. He was appointed to the position of assistant professor in the Department on September 1, 1964. He was hired to teach and conduct research in the agribusiness area. In particular, he was hired to work in an area in which little was being done at the University of Minnesota, namely, the farm input supplying industries.

Meanwhile, important personnel changes continued to occur in the Department. Encouraged by Berg and Learn, and frustrated with developments in Washington, Willard Cochrane returned to the University of Minnesota on July 1, 1964. In September, 1964, Elmer Learn was offered the position of assistant to the president of the University, and he accepted it. By this action he ended his professional career as an agricultural economist and threw the Department into a state of confusion. As might be guessed, the process of selecting a new head of the Department did not go smoothly this time. The faculty could not reach agreement on most candidates, and where agreement was reached the candidate turned the Department down. Finally, after considerable effort, Vernon W. Ruttan was induced to return from the Philippines and accept the position of head of the Department. Willard Cochrane accepted the position of dean of the Office of International Programs at the University of Minnesota in the spring of 1965 and did no teaching or research in the Department over the period of 1965 to 1970.

Vernon Ruttan became head of the Department of Agricultural Economics at the University of Minnesota in September 1965. Ruttan was reared on a small dairy-potato-bean farm in northern Michigan. He received his B.A. degree from Yale University in 1948 and his M.A. (1950) and Ph.D. (1952) degrees from the University of Chicago. His first employment was with the Tennessee Valley Authority (TVA) from 1951 to 1954. He joined the Agricultural Economics Department of Purdue University in the latter year and remained at Purdue until 1963, except for leaves at the University of California (1958-59) and with the President's Council of Economic Advisors (1961-62). From 1963 to 1965 he was an economist with the Rockefeller Foundation at the International Rice Research Institute in the Philippines. He came to Minnesota in 1965.

Ruttan in a mild sort of way was an aggressive department head. He kept the Department pot boiling for the next five years. Some time ago Vern Ruttan, in a memorandum to Cochrane, outlined the goals which he set for himself when he accepted the position as head of the Department. In part, his statement of goals reads as follows:

When I came to the University of Minnesota in 1965, there were three items that stood relatively high on the agenda of things that I wanted to accomplish as department head. These included (a) expansion and strengthening of the work on agricultural development in the department; (b) diversification of the Department to include a strong emphasis on regional and resource economics; (c) a strengthening of the multi-disciplinary research linkages between the department and other agricultural science and social

science departments. Shortly after I arrived on the campus two other items occupied a good deal of my attention. The first item involved bringing about the incorporation of the extension economics unit into the Department. The second involved an attempt to modernize the graduate curricula of the Department. Let me comment on each of these items in turn.

The Department had over the previous decade or so been gradually expanding its interests and efforts in the field of international agriculture. Much of that work was oriented toward the trade dimension; however, Philip Raup had done a good deal of work in the area of land tenure. He also had a strong interest in the socialist economies of Eastern Europe. But, there was relatively little strength in the area of agricultural development for the lower income countries. One of the first efforts that we undertook was the development of a University of Minnesota contract with AID to work on strengthening the planning capacity in the Ministry of Agriculture in Tunisia. Part of the bargain that we made with the University administration in undertaking this project was that the administration agreed to fund a permanent position in the field of agricultural development.... The second major step was associated with the establishment of the Economic Development Center through resources made available from a Ford Foundation grant through the Office of International Programs. The Ford Foundation grant was complemented by USAID. Under the USAID 211(d) grant additional positions were established in the Department of Economics and the Department of Agricultural Economics.

There was a convergence of several interests in economics--rural development, natural resources and in regional economics--in the 1950s and the early 1960s that created a favorable environment for strengthening the Department's work in these areas. Resource economics had expanded from its old land economics base. Professional skills and training relevant to these fields was essentially similar to that in related agricultural economics fields. It seemed to me since my days at Purdue that there was a real opportunity to expand the base of traditional agricultural economics departments by moving as effectively as possible to staff positions in these areas. In Minnesota, we were able through a combination of experiment station funding and other sources to bring in at least four

new staff members in these areas (Lee Martin, Wilbur Maki, Uel Blank, and William Easter as a Ford Foundation staff member with adjunct status).

My experience at the International Rice Research Institute led me to feel that effective collaboration between the social sciences and the agricultural sciences depended on more structured patterns of interaction than the casual collaboration that typically exists between agricultural economics and other departments. At one stage I had the idea of adding new staff members who would take on a commitment to work with specific related departments of branch experiment stations. In retrospect the efforts to strengthen interdisciplinary relationships appear to me to have been almost a complete failure. This is in part due to the sheer size of departments in the College of Agriculture. The pressure for intra-department communication is so great that time left for interdepartmental or interdisciplinary communication is relatively limited.

Prior to my arrival at the University of Minnesota, extension specialists in most other departments had been transferred from direct extension administration to departmental administration. The move had been delayed in the case of Agricultural Economics because of lack of departmental leadership during the past year or so. The merger involved a set of very extensive discussions concerning promotion criteria, salaries and other aspects of the relationships between extension economists and the research teaching staff. An attempt was made to bridge some of the problems by working out a set of appointments where each extension specialist would carry some teaching and/or research responsibilities. We also moved to add some extension responsibilities on the part of former research teaching staff.

It became apparent to me during the first year that the Department offered relatively few graduate courses that were truly graduate in character. My definition of a graduate course in agricultural economics is one in which micro and macro theory are a serious prerequisite. Most of the courses offered at that time were 5000 level courses. Many of them had been graduate caliber earlier but the content had not kept the pace with advances in economic theory. As a result of a series of intensive committee discussions we evolved a series of 8000 level courses and established the presumption that these

courses would be necessary in order to pass the Ph.D. preliminary examinations. Another aspect of the modernization of the curriculum was the establishment of a series of departmental workshops organized around each major subject matter area (farm management and production economics; prices and marketing; resource and regional economics; trade and development). The trade and development workshop has been the most consistently active of the several workshops.

Ruttan moved with vigor during the period of 1965 to 1970 to reshape the Department of Agricultural Economics at the University of Minnesota, much as John D. Black had done during the period of 1918 to 1927. Ruttan was successful where Black was successful: in expanding staff and in pushing into new fields of activity. He was less successful in (1) fostering an attitude of cooperation among independent research workers; (2) forging a consensus among his faculty peers as to what constituted a proper program of graduate study for the Ph.D. degree, and (3) building and maintaining an effective communications bridge with the Economics Department. And he may have pushed his faculty to the limits of its patience with respect to the need for change in the Department by 1970. Perhaps he sensed that by 1970--and that was one of the reasons he stepped down as Department head. But this much can be said: he came to the position as head of the Department with a major agenda for change, and he pushed through a major portion of it.

Between July 1, 1965, and July 1, 1971, 15 new persons were appointed to the teaching and research faculty. The names of those individuals and pertinent information regarding them are provided in table 6. This did not represent a net addition of 15 persons to the staff since Ruttan replaced Learn and there were four resignations during that period; Darrell Fienup, Carroll Hess, Marguerite Burk, and Robert Evenson resigned from the University.

As can be seen in table 6, the institutions from which the 15 new staff members received graduate degrees cover a wide range both in terms of geography and economic philosophy and approach. And the interests of the individuals varied widely. Houck strengthened the capability of the Department in price analysis and trade. Abel contributed to the growing strength of the Department in development economics and trade; Purvis too would focus on development economics. Martin and Waelti supplied the resource economics dimension that Ruttan sought to achieve. Maki moved the Department into regional economics and regional planning. Hammond lent support to the traditional marketing activities of the Department. Peterson and Evenson reinforced the position that mainstream neoclassical theory was important in both teaching and research. Roe would

add to the econometric and quantitative capability of the Department, as well as do many other things. And Helmberger provided the much needed leadership in organizing undergraduate counseling, revising the undergraduate curriculum, and organizing the teaching of Principles of Economics.

On July 1, 1966, the extension staff in agricultural economics at the University of Minnesota was officially integrated into the Department of Agricultural Economics. This brought 14 new bodies into the Department in a formal sense (see table 7). There had been, of course, informal relationships between the extension staff and the teaching and research staff since 1914. In some cases that relationship was close and productive; in other cases that relationship was distant and cold. Thus, when the two staffs were officially integrated in 1966, it was easy for some extension staff members to become fully participating staff members of the Department since they had actively participated in Department affairs prior to 1966. This was the case for Martin Christiansen, Frank Smith, Kenneth Egertson, Arley Waldo, and Mary Ryan. But this was not the case for the farm management extension group which had operated, to an important degree, as an independent unit prior to 1966 and continued to do so after 1966. The effecting of a full integration of the farm management extension group into the affairs of the Department would require more than a little time and effort over the next 15 years.

The department which Vern Ruttan turned over to his successor on July 1, 1970, was a tremendously different department from the one that existed in 1960-61. The professional staff for the school year 1970-71 was composed of 40 full-time members (including the integrated extension staff, see tables 7 and 8) as compared with a department staff of 11 members at the assistant professor level or above in 1960-61. Neither count includes USDA professional employees stationed at Minnesota or USDA employees doing graduate work there. The Department also had pushed into some new fields, notably, resource economics and regional planning.

Most important of all, the Department by 1970-71 had a strong international image. Ruttan was by now focusing all his attention on the developmental problems of the less developed nations of the world. Abel would return to the Department in July, 1971, from a two-year tour of duty in India as a Ford Foundation program advisor in economics. Easter was in India at this time on a two-year tour of duty as a program advisor to the Ford Foundation in regional planning. Reynold Dahl had spent three years in Tunisia as chief of party on the AID-supported Minnesota project assisting the Ministry of Agriculture of that country to strengthen its program planning efforts; Hammond was in Tunisia during 1970-71 serving as chief of party of the Minnesota project. Houck had gained national recognition for his work on

Table 6. Individuals Added to the Teaching and Research Staff in the Department of Agricultural and Applied Economics between July 1, 1965, and July 1, 1971

Name	Highest Degree Earned	Institution Granting Degree	Date of Appointment	Rank at Time of Appointment
Vernon W. Ruttan	Ph.D.	University of Chicago	8/1/65	Professor & Head
James P. Houck	Ph.D.	University of Minnesota	8/2/65	Asst. Professor
Willis L. Peterson	Ph.D.	University of Chicago	9/1/65	Asst. Professor
Lee R. Martin	Ph.D.	Harvard University	7/1/66	Professor
John D. Helmberger	Ph.D.	University of Minnesota	7/1/66	Assoc. Professor
Robert E. Evenson ^a	Ph.D.	University of Chicago	7/1/66	Asst. Professor
John J. Waelti	Ph.D.	University of California	10/16/67	Asst. Professor
Jerome W. Hammond	Ph.D.	University of Wisconsin	1/1/68	Asst. Professor
Wilbur R. Maki	Ph.D.	Iowa State University	6/16/68	Professor
Malcolm J. Purvis	Ph.D.	Cornell University	7/1/68	Asst. Professor
Martin E. Abel ^b	Ph.D.	University of Minnesota	11/1/68	Professor
Mathew D. Shane ^c	Ph.D.	Purdue University	12/16/68	Asst. Professor
Terry L. Roe	Ph.D.	Purdue University	4/1/69	Asst. Professor
Walter L. Fishel ^d	Ph.D.	North Carolina State University	7/1/69	Asst. Professor
W. B. Sundquist	Ph.D.	Michigan State University	6/14/71	Professor & Head

^aEvenson terminated 8/8/69. ^bAbel terminated 6/10/77. ^cShane terminated 12/31/78. ^dFishel terminated 6/30/75.

commercial trade in agricultural products. Martin had spent considerable time in Pakistan on the Harvard project there, and had been overseas on numerous consulting assignments. Engene spent half of his time from 1965 to 1970 overseeing the Ford Foundation project for Argentina in which between 25 and 30 Argentinian students earned

Ph.D. degrees in agricultural economics at various universities in the United States. Raup continued his extensive travels in both Western and Eastern Europe during the 1960s, focusing his attention primarily on land use and land tenure questions. And Cochrane returned to the Department in 1970 from the Office of International

Table 7. Extension Staff Members Integrated into the Department of Agricultural and Applied Economics on July 1, 1966

Name	Highest Degree Earned	Institution Granting Degree	Date of Appointment to Extension Staff	Rank As of July 1, 1966
Harold C. Pederson	M.S.	University of Minnesota	2/16/51	Professor
Harlund G. Routhe	M.S.	University of Minnesota	8/1/52	Professor
Paul R. Hasbargen	Ph.D.	Michigan State University	9/16/57	Assoc. Professor
Martin K. Christiansen	Ph.D.	University of Minnesota	4/1/58	Instructor
Kenneth E. Egertson	M.S.	University of Minnesota	5/1/58	Instructor
Francis J. Smith, Jr.	Ph.D.	University of California	10/6/58	Assoc. Professor
Kenneth H. Thomas	Ph.D.	University of Minnesota	7/1/59	Instructor
Carole B. Yoho	M.A.	University of Minnesota	9/16/61	Instructor
Mary E. Ryan	M.S.	University of Minnesota	1/1/63	Instructor
Richard O. Hawkins	M.S.	University of Minnesota	7/1/64	Instructor
Arley D. Waldo	Ph.D.	Michigan State University	8/17/64	Assoc. Professor
Robert W. Snyder	Ph.D.	Cornell University	2/1/65	Asst. Professor
Raymond D. Vlasin ^a	Ph.D.	University of Wisconsin	12/18/65	Professor
Oscar Uel Blank	Ph.D.	Michigan State University	4/16/66	Professor

Note: Defined as any staff member who receives more than 50 percent of his or her salary from the Agricultural Extension Service.

^aVlasin terminated on 11/30/67.

Table 8. Individuals Added to the Extension Staff of the Department of Agricultural and Applied Economics between July 1, 1965, and July 1, 1971

Name	Highest Degree Earned	Institution Granting Degree	Date of Appointment to Extension Staff	Rank at Time of Appointment
Raymond D. Vlasin ^a	Ph.D.	University of Wisconsin	12/18/65	Professor
Oscar Uel Blank	Ph.D.	Michigan State University	4/16/66	Professor
John S. Hoyt, Jr.	Ph.D.	The American University	11/1/66	Assoc. Professor
Charles H. Cuyendall ^b	Ph.D.	University of Minnesota	1/1/67	Instructor
Michael H. Lynch ^c	B.S.	University of Minnesota	9/1/67	Instructor
Lyndell W. Fitzgerald ^d	Ph.D.	Purdue University	5/1/68	Assoc. Professor
Willis E. Anthony	Ph.D.	University of Minnesota	4/1/68	Asst. Professor

^aVlasin terminated on 11/30/67. ^bCuyendall terminated on 8/10/73. ^cLynch terminated on 6/30/68.
^dFitzgerald terminated on 5/28/70.

Programs of the University where he had traveled and worked primarily in the less developed world for the University, AID, and the Ford Foundation between 1965 and 1970.

Complementing the overseas activities of individual members of the Department of Agricultural Economics, an Economic Development Center was established in 1967 as a joint activity of the Departments of Economics and Agricultural Economics. The Center was organized to facilitate the research interests of graduate students and staff members in the two departments in the areas of development economics and policy. Between 1967 and 1970 the research program of the Center was supported primarily by a small budget made available to it from the Office of International Programs of the University from its Ford Foundation grant. In July, 1970, the Center received a major grant from the U.S. Agency for International Development to conduct research on the policy problems of agricultural development. The USAID grant also enabled the University to add two new staff positions in the field of development economics—one in the Department of Economics and one in the Department of Agricultural and Applied Economics. This grant enabled the Center to embark upon a much more ambitious program of research.

Perhaps by 1970-71 the Department was too involved in international activities. A few members of the Department were of that view. But whatever the judgment may be, it certainly was involved.

The Research Function

The output of research bulletins by the Department during the period between 1957 and 1971 continued at a record pace. The Department produced 39 station bulletins over this period and 17 technical bulletins. In the station category of bulletins this represented over 67 percent of the

total output of the Minnesota Agricultural Experiment Station; in the technical bulletin category it represented 37 percent of the total output of the Experiment Station. In terms of volume, the record was very good.

One explanation for this large output of research bulletins both absolutely and relatively is to be found in the very large increase in funding support from the Experiment Station during this period; it increased from approximately \$160,000 in 1956-57 to \$416,000 in 1970-71. But this is not the full explanation; the Department's share of the Experiment Station's total budget for agricultural research does not increase over the period from 1956 to 1971. Perhaps the researchers in the other departments in the College of Agriculture stopped publishing their research results in bulletin form. But even if they did, the total output of research bulletins from the Department was substantial.

More important than the volume of research bulletins produced was the improvement in quality in this period. On balance, the bulletins published after 1950 involved more economic analysis, showed greater skill in the use of tools of analysis, and had greater explanatory power than the bulletins published before that date. Research work in the Department during the period of 1957 to 1971 increasingly built on the foundation of economic analysis.

Some of the new areas of research opened up at Minnesota during the period of 1957 to 1971 included water management and irrigation under the leadership of P. M. Raup, foreign demand and foreign trade under the leadership of Elmer W. Learn and James P. Houck, the farm input supply industry under the leadership of Dale Dahl, and the potential for expanding the domestic demand for food under the leadership of Willard W. Cochran. The products of these efforts may be seen in the list of bulletins in table 9.

Table 9. Minnesota Agricultural Experiment Station Bulletins Produced in New Areas of Research at Minnesota between 1957 and 1971

Author	Title	Date	Station Number
V. P. Herrick and P. M. Raup	<i>Organizational Problems in Developing the Small Watersheds of Minnesota</i>	1/57	437
R. Andrews	<i>The Midwest Sweet Corn Industry</i>	6/59	405
J. M. Wetmore, M. E. Abel, E. W. Learn, and W. W. Cochrane	<i>Policies for Expanding the Demand for Farm Food Products: Part I. History and Potentials</i>	4/59	231
R. A. Andrews	<i>A Study of the Sweet Corn Industry in the United States</i>	6/59	232
M. E. Abel and W. W. Cochrane	<i>Policies for Expanding the Demand for Farm Food Products in the United States</i>	4/61	238
C. A. Nahu and P. M. Raup	<i>Regulation of Water Use in Minnesota Agriculture</i>	3/61	453
R. G. Long and P. M. Raup	<i>Economics of Supplemental Irrigation in Central Minnesota</i>	1965	475
J. P. Houck and J. S. Mann	<i>An Analysis of Domestic and Foreign Demand for U.S. Soybeans and Soybean Products</i>	1968	256
E. W. Learn and J. P. Houck	<i>An Evaluation of Market Development Projects in West Germany</i>	6/61	455
J. M. Wetmore, M. E. Abel, and E. W. Learn	<i>Expanding the Demand for Farm Food Products in the United States</i>	6/61	456
J. P. Houck	<i>Demand and Price Analysis of the U.S. Soybean Market</i>	6/63	244
R. C. Green and D. C. Dahl	<i>Livestock Feed Concentrate Consumption by Country</i>	11/69	270
B. G. Ganuck and D. C. Dahl	<i>Government Regulation of the Farm Supply Industry</i>	1970	492

Research work in farm management and production economics underwent a profound change during this period. Burt Sundquist describes this development as follows:

...With financial support from USDA, sample surveys were made of farmers in the major dairy and livestock belts of Minnesota. Production coefficients were developed for both crop and livestock enterprises and profitable adjustment alternatives were analyzed via linear programming. This work was coordinated with research colleagues in other states in the North Central Region and aggregate supply schedules were developed for milk, beef, and pork. In addition, some of the work done by Jensen and Buxton on economies of size in dairy farming in the 1960's still serves as a methodological guide for work in that general area.²

But all the strong research at Minnesota dur-

ing this period did not involve new faces and new approaches. E. Fred Koller did important research in dairy marketing when new technology was being rapidly infused into the system for milk collection, processing, and manufacturing. Throughout the state virtually hundreds of small local creameries were being consolidated, large tank trucks took over the collection of milk on farms, and large-volume, highly automated technology was brought into the manufacturing of cheese, butter, and milk powder. Koller's research on cost-volume relationships and his wise counsel to the dairy industry in the state paved the way for the orderly, though economically painful, adjustments which the dairy marketing system made principally during the 1950s and the 1960s.

Koller was so prolific and his studies were so well received by the dairy industry of Minnesota that it is appropriate to list the bulletins produced by him and his graduate assistants during this period (see table 10).

In this period, too, Reynold P. Dahl established a national reputation in grain marketing research, and Jerry Hammond became well known for

²In a letter to Willard Cochrane.

Table 10. Minnesota Agricultural Experiment Station Bulletins Produced by E. Fred Koller and His Graduate Assistants between 1957 and 1971

Author	Title	Date	Station Number
A. C. Knudtson and E. F. Koller	<i>Manufacturing Costs in Minnesota Creameries</i>	6/57	442
A. C. Knudtson and E. F. Koller	<i>Processing Costs of Whole Milk Creameries</i>	6/60	236
R. G. Thompson and E. F. Koller	<i>Interplant Milk Transportation Costs</i>	6/63	465
R. D. Knutson and E. F. Koller	<i>Costs and Margins on Minnesota Fluid Milk Plants</i>	4/67	483
O. G. Kirchner	<i>Economic Aspects of Flexible Dairy Manufacturing Plants</i>	1968	487
J. W. Hanlon and E. F. Koller	<i>Processing Costs in Butter-Nonfat Dry Milk Plants</i>	1969	491
J. E. Gruebele and E. F. Koller	<i>Changing Market Function of the Minnesota Dairy Manufacturing Industry</i>	1969	498
T. E. Snider and E. F. Koller	<i>The Cost of Capital in Minnesota Dairy Cooperatives</i>	1971	503

his research in fluid milk marketing and pricing.

But increasingly in the 1950s, and through the period of 1957 through 1971, staff members in the Department became involved in research that either was not supported by the Experiment Station or was not published in the traditional bulletin form. Land valuation studies have a long history at Minnesota going back to the days of John D. Black. Under the leadership of Philip Raup, land transfer data have been collected in annual surveys since 1953 to provide information on the characteristics of buyers and sellers, land use before and after the transactions, quality of land and buildings, methods of financing, as well as acreages and price. These data on land transactions have been widely used by farmers, credit agencies, attorneys, appraisers, taxing authorities, and local and regional land planning offices. Since 1968 this information on land transactions has been published in a departmental series entitled "Economic Study Reports."³

In 1958, Willard Cochrane published the book *Farm Prices: Myth and Reality*,⁴ which pulled together in one place the results of ten years of his research and thinking about farm price behavior and its policy implications. This book was brought to the attention of Senator John F. Kennedy, and this, along with some other developments, explains how Cochrane became the agricultural advisor to the Democratic presidential candidate in the campaign of 1960.

³The title of this series was changed to "Economic Reports" in 1973.

⁴University of Minnesota Press, Minneapolis, Minnesota, 1958.

Approval by Congress of the National Interstate and Defense Highway Act of 1956 created the prospect of some major, but unknown, changes in land use and the location of economic activity in Minnesota and the nation. Again under the leadership of Philip Raup and in cooperation with the Geography Department, a research contract between the University of Minnesota and the Minnesota Department of Highways was activated in January, 1958, and terminated on December 31, 1963. Under this contract the Bureau of Public Roads provided support in the amount of \$223,675 and the Minnesota Agricultural Experiment Station in the amount of \$37,558. The research results of this project were reported in ten publications, beginning with "The Economic Impact of Highway Development upon Land Use and Value" in September, 1958, and concluding with "Benefits and Costs of Modification to Interstate Highways" in September, 1963. Raup states that "...three principal contributions were achieved: (1) local communities were alerted to the need for local and regional planning to guide changes in land use; (2) appraisers and right-of-way officials were equipped with tailored procedures for land valuation; (3) an economic unit was created in the Minnesota Department of Highways and research into the economic consequences of highway development was accepted as a continuing responsibility of this department of state government."

In 1960 the Foreign Agricultural Service (FAS) of the USDA negotiated a contract with the University of Minnesota to evaluate FAS market development activities undertaken in Germany since 1955. This project was undertaken by Elmer Learn with the assistance of James Houck. They spent up to six months in Germany studying USDA market development activities on a commodity-by-commodity and a project-by-project basis. The findings of

their study ranged from positive to negative and may be found in the publication *An Evaluation of Market Development Projects in West Germany under Section 104(a) of Public Law 480*, published in 1961.⁵

The Upper Midwest Research and Development Council came into being in 1957. It was a non-profit organization financed by grants from the Ford Foundation, the Hill Foundation, private businesses, and contributed research from the Federal Reserve Bank of Minneapolis. In 1962 the Federal Reserve Bank entered into a contract with Elmer Learn, with the blessing of the University of Minnesota, to undertake a study of agriculture in the Upper Midwest. With a professional staff of two, Rex W. Cox and Richard J. Herder, Learn produced in six months Study Paper No. 6 of the Upper Midwest Economic Study entitled, *Upper Midwest Agriculture: Alternatives for the Future*, December 1962. This report dealt with the excess capacity problem in Upper Midwest agriculture, the income-resource or low-income problem, and the implications of these problems for the future. By all accounts, the report was well received by the business community involved in the Upper Midwest study.

Based on his experience as chief economist and chief planning official in the USDA from 1961 to 1964, Cochrane wrote *The City Man's Guide to the Farm Problem* on his return to Minnesota.⁶ This book was designed to tell nonfarm people what they needed to know about the farm problem and farm policy development so they could act more wisely in the farm policy decision process. Whether it did or not is for somebody else to say.

The assumption of the headship of the Department of Agricultural Economics by Vernon Ruttan in 1965 did not mean that he gave up all of his scholarly pursuits. He coauthored a textbook in plant science entitled, *Plant Science: An Introduction to World Crops*, which was published in 1969.⁷

Yujiro Hayami spent two years at the University of Minnesota as a visiting professor in the Department of Agricultural Economics. At the University of Minnesota he continued some work that he was doing that dealt with country comparisons of agricultural production and productivity, and he published a bulletin with several people in 1971 entitled, *An International Comparison of*

⁵University of Minnesota Agricultural Experiment Station, Bulletin No. 455, June 1961.

⁶University of Minnesota Press, Minneapolis, Minnesota, 1965.

⁷Jules Janick, Robert W. Shery, Frank W. Woods, and Vernon W. Ruttan, published by W. H. Freeman and Company, 1969.

Agricultural Production and Productivities.⁸ Ruttan was doing some work on induced innovation in this period and took a quarter leave in 1969 to continue that work. They combined the two strands of work into an outstanding book on agricultural development that was published in 1971.⁹

Thus, the research work of the Department moved out of traditional pathways in the period of 1957 to 1971 and into some exciting new problem areas. The research focus of the Department had widened and the research approaches had become more varied.

The Teaching Function

The tradition of good teaching was not eroded during 1957 through 1971; if anything it was strengthened as determined efforts were made first to improve the quality of teaching in the area of economic principles and to better organize the counseling of undergraduate students and second to revise and upgrade the graduate curriculum in the late 1960s.

The courses in agricultural economics offered at the undergraduate and graduate levels for the school year 1959-60 at the University of Minnesota may be reviewed in appendix E. In the 1950s some important changes occurred in the courses offered in agricultural economics, but those changes are more evolutionary than revolutionary. The farm management course offerings have undergone a substantial change at both the undergraduate and graduate levels. These changes reflect the changed economic philosophies of Jensen, Day, and Sundquist in this area of production economics and farm management. The teaching of basic statistics has shifted out of the Department; basic statistics is now being taught in a college-wide statistical unit. And a specific course in food needs, uses, and supplies has been added. These are the principal course changes between 1952-53 and 1959-60.

With the coming of so many new faces into the Department, the movement into new subject areas, and the arrival of Vern Ruttan, who we already know held strong views about the graduate curriculum, the course offerings undergo a revolutionary change between 1959-60 and 1969-70. The course offerings in the Department of Agricultural Economics at both the undergraduate and graduate levels for the school year 1969-70 may be reviewed in appendix F. A comparison of the courses offered in 1969-70 with those offered in 1959-60

⁸Yujiro Hayami, Barbara Miller, William W. Wade, and Sachiko Yamashita, Minnesota Agricultural Experiment Station Bulletin No. 277, Spring 1971.

⁹Yujiro Hayami and Vernon W. Ruttan, *Agricultural Development: An International Perspective* (Baltimore: Johns Hopkins University Press, 1971).

leads to the following conclusions: (1) the number of courses offered has greatly increased; (2) courses in 1969-70 are being offered in some completely new areas--resources, futures trading, regional economic systems, capital markets, agriculture and the law, and economic development; and (3) the course numbering system has completely changed. The graduate student who dropped out of school in 1961 and returned in 1970 to complete his studies would be amazed by the wider selection of courses, the new areas in which to study, and the changed direction of some of the courses. But would he find a higher quality of teaching and better quality course work? That is a moot question.

The returning, or incoming, graduate student would find more sophisticated techniques of analysis, particularly quantitative analysis, being taught and employed by some teachers in some courses. He would find a widening gulf between the concepts and techniques being taught in the Department of Economics and his own Department. And in the pressure to learn techniques, and how to massage data in the computer, he would fail to take, or to find, courses that helped him understand the behavior and development of the overall agricultural economy. By 1969-70, course work in agricultural economics at the University of Minnesota had become designed to produce specialists.

Thus, in the decade of the 1960s, not only did the number and content of the courses offered undergo a great change, but the philosophy of graduate training underwent a profound change. The Department, by 1969-70, was staffed, in the main, with highly trained specialists intent upon producing highly trained specialists. Increasingly, the courses, both old and new, were designed to probe and explore some particular facet of some particular area of the agricultural economy. Interest in the operation of the overall agricultural economy was on the wane by both students and instructors.

The Extension Function

The extension staff in agricultural economics grew from six in number in 1957-58 to 10 in 1960-61 and to 16 in 1970-71. So the total resources employed in extending economic information to farmers and the general public increased importantly from 1957 to 1971. Furthermore, extension programs became more institutionalized and more regularized during this period, depending less on ad hoc local meetings and more on schools, workshops, plans of study, and regular meetings. As a result, the extension function should have become more effective; that certainly was the purpose in further institutionalizing the function. In the process, however, participation by teaching and research faculty in extension functions declined.

Despite the integration of the extension staff into the Department in 1966-67, the actual participation of the teaching and research staff in off-campus extension activities probably declined. The reason for this development is not hard to find. It is the increased specialization of both the extension and the teaching-research staffs. Chasing off to make some local night meeting on the part of the teacher-researcher is not so likely to occur where the extension specialist has a tightly programmed series of meetings and where the research worker is engaged in highly specialized projects. In this kind of environment each specialist is likely to go his own way.

The annual report of Roland Abraham, director of Agricultural Extension, for the year 1967 supports the general point made above, namely, that the extension programs were becoming increasingly institutionalized. His report reads, in part, as follows:

Involvement of representative county extension agents and area agents with the extension specialists in planning series-type educational offerings changed the offerings each year to more closely meet the needs of the people throughout the state.

Two coordinating conferences each year with all extension agents by districts have developed a thorough understanding of resource help available for development of county and area programs and have provided a vehicle for the planning and development of county and area programs. The program leaders have given first-hand attention to the development of a planning procedure that has been very effective in making the greatest use of the resources available.

...Increased emphasis was placed on sequential "in-depth" educational work to meet the expressed needs of specific clientele groups. Some of these groups included commercial farmers, business and industry personnel, professional agriculture personnel, local government personnel, resource development and planning groups, low-income families, youth, young married families, older families and community leaders.

Some examples of the changed program emphasis to meet the needs of new clientele groups in the economics area are given below:

Agribusiness Finance and Management Seminars, Cooperative Director and Manager Workshops, and Fair Management Short Courses--These programs focused on various aspects of planning, directing, and control and were designed to assist managers and members of boards of directors to

determine ways of using the resources at their command more effectively. Participants in these multi-county activities represented essentially every county in the state, and in several instances, other states and Canada.

Sawmill Operators' Clinics, Lumbermen's Short Courses, and Maple Syrup Processors' Schools--The forest-product-oriented programs included: (a) team approach to problems that stressed the development of understanding among sawmill operators about the standards required in the lumber manufacturing business; (b) ways of improving the competitive position of the Minnesota sawmill industry; (c) recognition of the need for the training of personnel engaged in the merchandising of building products; and (d) methods of overcoming technical problems that impede growth of forest product industries.

Food and Nutrition Work with Low-Income Groups--Five workshops on "Food for Low-Income Families," with emphasis on food stamps and commodity distribution programs, were attended by approximately 250 persons at Willmar, Crookston, Detroit Lakes, Brainerd, and New Brighton. Cooperating agencies included county welfare departments, county health departments, county extension services, consumer and marketing services of USDA, OEO-CAP community programs, and Farmers Home Administration.

All of the work described above was not done by specialists in economics. Much of it involved specialists from other fields. These were "in-depth" extension efforts that coordinated the expertise of various specialists to deal with the economic problems of special clientele groups. As we see, the work was highly organized and institutionalized.

The Public Service Function

Public service activities in the 1950s and the 1960s held considerable attraction for many Department staff members. Philip Raup was actively engaged in public service work during these years. In 1960-61, he was in Rome, Italy, as a consultant to the Food and Agricultural Organization. During that same year he served as executive secretary for the European Commission on Agriculture, and he attended meetings of that commission as a consultant for the next five years. During the period between 1961 and 1966, he served as a member of the Committee on New Orientations in Research sponsored jointly by the Social Science Research Council and the American Agricultural Economics Association. And during the late 1950s and the 1960s he served on several different state government tax study committees.

Willard Cochrane was appointed chairman of the Governor's Study Commission on Agriculture in 1957 by Orville L. Freeman. This commission was composed of prominent farm and cooperative leaders from the state of Minnesota and its mission was to report to the governor on trends, developments, and problems in Minnesota's agriculture. A small staff working under the direction of Cochrane issued a report early in 1958 entitled "Report of the Governor's Study Commission on Agriculture."

Cochrane served as president of the American Farm Economic Association in 1959-60.

On July 1, 1960, Cochrane joined the personal staff of Senator John F. Kennedy in his campaign for the presidency. He served on the then informal transition team for agriculture in December, 1960, and January, 1961. He became the chief economist and program planner in the Department of Agriculture on January 20, 1961. When the pieces of the old Bureau of Agricultural Economics, which had been dismantled by the Eisenhower administration, had been pulled together into two services--the Economic Research Service and the Statistical Reporting Service--Cochrane was given the title of Director of Agricultural Economics, and those two services together with a small planning unit came under his direction. He held that position until June 30, 1964, at which time he resigned to return to the University.

Martin Christiansen spent a year in Washington in 1968-69 as a member of the Staff Economists Group in the Office of the Director of Agricultural Economics in the USDA.

Sherwood Berg was a popular man in Minnesota and was much sought after to speak at business, service, and social clubs on issues dealing with agriculture and international relations. After he became dean of the Institute he became a director of numerous public and private organizations, but his best known public service activity involved his appointment to the chairmanship of the National Advisory Commission on Food and Fiber in 1975. Cochrane was also a member of that commission. The commission membership was composed of business leaders, farm leaders, politicians, and academics. The mission of the commission was to report to the President of the United States on the state of America's agriculture and to recommend needed changes in agricultural policy. The commission issued its report in July 1967 under the title *Food and Fiber for the Future*. The commission under the leadership of S. O. Berg made a serious effort to be constructive, but it was so divided ideologically that it could not develop an effective policy consensus.

Vern Ruttan, with his wide-ranging interests, became much involved in public service activities. He was a member of AID's Research Advisory

Committee from 1967 to 1975. He served on the Board of Trustees of the Agricultural Development Council, Inc., from 1967 to 1973. And in the state of Minnesota, Ruttan served on the Governor's Council of Economic Advisors during the period of 1971 to 1973. He also served as president of the American Agricultural Economics Association in 1971-72.

An important area of public service work in the Department in the second half of the 1960s was foreign technical assistance. Abel and Easter worked in India under the auspices of the Ford Foundation. Reynold Dahl, Jerome Hammond, and Malcolm Purvis worked in Tunisia on an AID project. Lee Martin had assignments in Iran and the Philippines. Darrell Fienup worked in Argentina on a Ford Foundation project. And John Blackmore, who was appointed director of international programs in the Institute of Agriculture in 1965, was given tenure in the Department of Agricultural Economics.

An Overview

This period began at a leisurely pace under the benign leadership of S. O. Berg and ended in a whirlwind of change under the prodding of Vernon Ruttan. The Department grew tremendously in terms of size of staff, and it pushed into some important new subfields of agricultural economics. It even changed its name. On July 1, 1970, the old Department of Agricultural Economics became the Department of Agricultural and Applied Economics.

How much more change the Department could have

digested without some kind of a rebellion, we will never know, because Vern Ruttan stepped down as department head on July 1, 1970. For the next year, the Department coasted, waited, and watched for the appointment of the new department head. During that year members of the Department did a little feuding over the choice of a new head, but in the main, the selection process proceeded in an orderly and responsible fashion.

The professional staff that had been assembled by four department heads--Jesness, Berg, Learn, and Ruttan--was by 1970-71 a strong one (see appendix A). The principal subfields in agricultural economics were covered, the distribution of graduate degrees among faculty was sufficiently wide that no one economic philosophy prevailed, and the age distribution of the faculty was just about perfect.

But the world is rarely perfect. And there were some problems in the Department. The staff had grown in size to where communication had become a problem, and much time was consumed, "wasted," in committee and staff meetings. Further, the question was far from settled as to what constituted a desirable program of training for the Ph.D. degree. How much theory, what kind of theory, how much application, and what kind of application?

In sum, and in spite of certain problems, the Department of Agricultural and Applied Economics at the University of Minnesota was academically the strongest in 1970-71 that it had ever been in its long history. And the future was bright.

The process of selecting a new head of the Department progressed without any serious hitches during the fall of 1970, and the decision to hire Wesley B. (Burt) Sundquist as head of the Department of Agricultural and Applied Economics took place in the winter of 1970-71. Burt Sundquist took over as head on June 14, 1971. Coming to the northland, and to Minnesota in particular, was not a new experience for Sundquist since he was born and reared in North Dakota and he played an important role in an adjunct faculty status from 1958 to 1965 in shaping the research and teaching work in production economics at the University of Minnesota.

The Department of Agricultural and Applied Economics could not be said to be in deep trouble in the summer of 1971, but it was a large, sprawling department, operating under an acting head during the previous year, with some nagging problems--particularly funding problems. Thus, in the summer of 1971, it was badly in need of a firm hand, but a hand with just the right touch. Burt Sundquist provided that firm, but still gentle hand.

During his tour of duty as head of the Department, Burt Sundquist came to articulate and support four general goals or program priorities. The first two he had in his mind when he took over the position. The third emerged from an internal review of future program priorities. The fourth took shape from an outside review of the Department in 1976.

First, after the extensive shift to international activities in the Department in the 1960s and the increased emphasis on graduate teaching and research, Sundquist felt the need to give increased attention to undergraduate teaching programs and to the strengthening of some of the traditional areas of agricultural economics. This he hoped to do without weakening the international focus or de-emphasizing graduate teaching and research.

Second, he felt a keen need to secure additional external funding support and to restructure the support base for some key projects so as to bring more resources to bear on their implementation. The typical support for a project, of say \$10,000, much of which was used up in the research assistant's stipend, no longer represented, if it ever did, a resource base of sufficient size to undertake an effective research effort on a major problem.

Third, the internal review of 1973 helped identify several areas of applied economics needing additional attention (resources, regional development and planning, consumption, and public services) and lent support to the Sundquist perspective, namely, that these areas should be given a high program priority as additional resources became available. In this review, the idea of moving organizationally toward a school of applied economics surfaced, but the idea did not gain broad-based support from either the faculty or the administration.

Fourth, the recommendation took shape from the 1976 external review that graduate student numbers in the Department should be increased from a level of approximately 70 to about 100. It was felt that this action would utilize more fully faculty resources and possibly improve the quality of graduate training by increasing student numbers in some sparsely populated graduate courses and workshops.

This, then, became the agenda for departmental development as viewed and supported by Burt Sundquist. How well this agenda was carried out will be the subject of much of this chapter. But first let us review some other important personnel changes that occurred between 1971 and 1979.

In a large department of 40 staff members, such as existed in the school year 1970-71, it is reasonable that there should be some turnover of staff in the eight-year period between 1971 and 1979. And there was. Three men from the Jesness era retired: Selmer A. Engene in 1974, E. Fred Koller in 1975, and Truman R. Nodland in 1976. Six other men resigned from the Department. They were: Charles Cuykendall in 1973, W. Keith Bryant and Vernon R. Ruttan in 1974, Walter L. Fishel in 1975, Martin E. Abel in 1977, and Mathew D. Shane in 1978.

Twelve men and women were appointed to the Department during the period between 1971 and 1979: nine to the teaching-research faculty and three to the extension staff (their names and pertinent information regarding them may be seen in tables 11 and 12). William Easter moved from an adjunct status on the Ford Foundation payroll into a slot in natural resources in the Department. Vernon Eidman and Delane Welsch essentially replaced Engene and Nodland, who retired, but they, of course, brought new ideas and new approaches to farm management teaching and research. Benjamin Sexauer and Jean Kinsey were brought into the Department to continue and

Table 11. Individuals Added to Teaching and Research Staff in the Department of Agricultural and Applied Economics between July 1, 1971, and July 1, 1979

Name	Highest Degree Earned	Institution Granting Degree	Date of Appointment	Rank at Time of Appointment
K. William Easter	Ph.D.	Michigan State University	6/16/73	Assoc. Professor
Jerry L. Thompson	Ph.D.	University of Minnesota	9/1/74	Instructor
Benjamin H. Sexauer	Ph.D.	Stanford University	10/10/74	Asst. Professor
Vernon R. Eidman	Ph.D.	University of California	5/16/75	Professor
John Blackmore ^a	Ph.D.	Harvard University	7/1/76	Professor
Delane E. Welsch ^b	Ph.D.	Michigan State University	7/1/76	Professor
Jean L. Kinsey	Ph.D.	University of California	12/1/76	Asst. Professor
Glenn L. Nelson	Ph.D.	Michigan State University	5/26/77	Assoc. Professor
Vernon R. Ruttan ^c	Ph.D.	University of Chicago	1/1/78	Professor

^aBlackmore retired 10/31/79. ^bWelsch had been associated with the Department since 7/1/67.

^cRuttan terminated 6/30/74 and was reappointed 1/1/78.

Table 12. Individuals Added to Extension Staff in the Department of Agricultural and Applied Economics between July 1, 1971, and July 1, 1979

Name	Highest Degree Earned	Institution Granting Degree	Date of Appointment	Rank at Time of Appointment
Earl L. Fuller	Ph.D.	University of Minnesota	7/1/71	Professor
Gordon D. Rose	Ph.D.	Iowa State University	2/1/74	Professor
Fred J. Benson	Ph.D.	University of Minnesota	10/1/74	Assoc. Professor

strengthen the work in consumption economics. Jerry Thompson was brought into the Department to replace Fred Koller in the area of agricultural finance. Glenn Nelson was hired to develop the area of the economics of public services. After resigning from the Department in 1974, Vern Ruttan was rehired in 1978 as a replacement for Martin Abel in the international area. After stepping down from an administrative post in the Institute of Agriculture in 1976, John Blackmore worked in the Department until he retired in 1979.

Among the extension appointments, Earl Fuller brought special expertise in the use of the computer in farm management education, and Fred Benson replaced Charles Cuykendall with specialization in the areas of crop and machinery economics. Gordon Rose was appointed as extension program leader in community development, natural resources and public policy.

In addition to these 12 appointments, Jeremiah Fruin was hired during this period to develop the area of transportation economics, and Ronald Dorf was hired to work in regional economics, although neither was hired in a permanently funded faculty position (thus, they do not show up in table 11). Two ERS employees with adjunct faculty status,

Boyd Buxton in dairy economics and Thomas Stinson in regional economics, made a substantial contribution to the research program of the Department during this period.

In summary, then, there were a good number of personnel changes in the Department between 1971 and 1979, as would be expected in a large department. But the total staff size of the Department did not increase importantly between 1971 and 1979; it increased by only three positions, from 40 to 43. The period of 1971 to 1979 was a period of consolidation and refinement, not a period of great growth. Stated differently, the Department by 1971 was a mature department. The task confronting the new department head and the faculty itself was to ensure that the Department continued to develop intellectually--to ensure that it did not stagnate.

There was, however, one important change that occurred in the Department during the years between 1971 and 1979 that did not involve any personnel change. It was the physical move of the Department from Haecker Hall to the new Classroom Office Building in the summer of 1973. According to O. B. Jesness, the new Division of Farm Management and Agricultural Economics was assigned

the third floor of Haecker Hall in 1928. The Division and later the Department remained cooped up on the third floor of Haecker Hall with its quarters becoming more congested each year until 1957. In that year, the Department was permitted to take over the second floor of Haecker Hall, and for a few years the space situation in the Department was actually pleasant. But with the growth of the Department in the 1960s, the office quarters once again became badly congested.

In the late 1960s, the legislature provided the funds to build the Classroom Office Building, launching a battle of several years' duration over office sizes, number and sizes of classrooms, and other physical arrangements. The final building has two floors more or less in the ground, a first floor, a second floor, and a third floor. The Department of Agricultural and Applied Economics was assigned all of the second floor and most of the third floor. The Departments of Rural Sociology, Vocational Agriculture, and Applied Statistics were assigned the rest of the office space. Except for the facts that the cooling-heating system oscillates between too hot and too cold, the exposed structural cylinders that support the building create space utilization problems in most offices, and the men's rooms must have been designed by a woman architect, the Classroom Office Building was a big improvement over Haecker Hall--at first. At first everyone, with the possible exception of Professor Raup, had plenty of room in which to work, file papers, and store books. But with the large expansion in the number of graduate students in the late 1970s, the influx of visiting professors, and the increased number of temporary research staff, the quarters of the Department of Agricultural and Applied Economics have once again (1979) become congested. Perhaps nature does abhor a vacuum.

The Teaching Function

The teaching staff of the Department increased by approximately four positions between 1970-71 and 1978-79. But the course offerings grew much faster, particularly at the undergraduate level. The list of courses offered by the Department of Agricultural and Applied Economics for the school year 1978-79 may be reviewed in appendix G.

In drawing a comparison with the list of course offerings for 1969-70 in appendix F, the changes are almost too numerous to mention. But some of the more significant changes will be noted. In 1969-70 there were 15 courses listed with numbers below 5000 (lower division courses); in 1978-79 there were 27 such courses. In 1969-70 there were 23 courses listed with 5000 numbers (upper division courses); in 1978-79 there were 28 such courses. And in 1969-70 there were 19 courses and seminars listed for graduates only; in 1978-79 there were 22 such courses.

By the school year 1978-79 the farm management

courses had been completely revised again. There were new and additional courses at the undergraduate level in consumption economics, land and resource use, public services, commodity marketing, world agriculture and world food supply, regional economic analysis, and agricultural growth and development. The undergraduate curriculum in agricultural and applied economics had literally exploded.

Was this great expansion in the undergraduate teaching effort wasted? Apparently not. Large increases in the numbers of undergraduate majors in agricultural economics and agricultural business administration occurred between 1971 and 1979. The enrollment in those two majors, which totaled 120 in 1971-72, had increased to over 300 by 1978-79, with the biggest increase coming in the agricultural business major.

Graduate student numbers remained relatively constant around 70 between 1971 and 1976, but had increased to over 100 by 1979. The output of graduates with advanced degrees, however, had not reflected the increased number of graduate students enrolled in the late 1970s. The output of master's and Ph.D. degrees in agricultural economics at the University of Minnesota fluctuated between four and 12 per year in each degree category over the period of 1965 to 1979. No upward or downward trend is apparent in the graduate degree data for that period (refer to appendix B).

As would be expected, increases in the number of undergraduate and graduate student majors were accompanied by important increases in student credit hours taught by the Department. But interestingly, the departmental teaching support base as a percent of the College teaching support base does not increase in the 1970s; it holds constant at just about 12 percent (with the exception of a couple of statistical aberrations--one very high, one low). In fact, the Department's share of the College teaching budget holds constant at about 12 percent back to 1964-65.

So much for the numbers, what about the quality of teaching? The quality of teaching is difficult to judge. But there is every reason to believe that the quality of undergraduate teaching improved over the decade of the 1970s. The overall management of the teaching of "Principles" and intermediate theory had become the responsibility of John Helmberger, who made a career of developing materials and methods to reach undergraduates in this difficult area. He was assisted by other senior members of the staff interested in the teaching of "Principles" including Willis Peterson, who had written texts in microeconomics and macroeconomics for the teaching of Principles of Economics. These texts were well received by the profession. The applied courses at the undergraduate level were taught for the most part by young senior staff members well trained in their areas of specialty. All had been exposed to the

long tradition of proper class preparation and strong teaching in the Department of Agricultural Economics at the University of Minnesota. And since most courses at the undergraduate level were tailor-made by the instructors teaching them, it seems reasonable to believe that the quality of those courses was high.

But where the undergraduate teaching program of the 1970s must be judged highly successful, the teaching and training program for graduate students would seem to have been less successful. The latter judgment rests on several considerations.

First, many graduate students in the 1970s were not raised on farms, and some of the applied courses in agricultural economics carried little or no meaning for them.

Second, so much emphasis has been placed on gaining a proficiency in quantitative methods in the past decade by both the graduate advisors and the graduate students themselves that those same graduate students, to an important degree, lost interest in the problems of the food and agricultural sector and in seeking solutions to those problems through research. Their interest, by and large, was transformed into locating data in the food and agriculture area on which to use their newly acquired tools. The result was a training system which turned out high-level economic plumbers.

Third, at the University of Minnesota, the gulf between intricate theory being taught in the Department of Economics and the more mundane theory employed to guide applied research in the Department of Agricultural and Applied Economics in the 1970s became so wide (and is becoming wider) that the graduate students in the Department of Agricultural and Applied Economics were at a loss to know what to do with the theory that they had learned. In the main, their research advisors couldn't help them apply this theory because the advisors didn't understand it. And in truth, much of it may have had little or no use in applied economics.

What should be the policy position of the Department of Agricultural and Applied Economics with regard to the above graduate training problems? The answers are not self-evident and they will not be forthcoming unless the profession in general, and the Department of Agricultural and Applied Economics at the University of Minnesota in particular, confronts them head-on and seeks to deal with them. For the past decade they have been largely ignored on the grounds that graduate students in an applied field like agricultural economics must learn everything there is to know about the field. But that head-in-the-sand approach is creating problems, serious problems. At the University of Minnesota, graduate students in agricultural economics are spending so much

time becoming proficient in quantitative methods and in mastering modern intricate economic theory that they have almost no time left to consider, or to study, approaches to creative, problem-solving research in their major field, namely, the economics of agriculture. The onus here does not fall on students alone; a major share falls squarely on the graduate faculty in Agricultural and Applied Economics. And the graduate faculty will have to solve the problem, if indeed it is solved in a satisfactory way.

The solution to the training problems at the Ph.D. level may be found in a changed set of objectives for that training. Over the past two decades, the objectives of graduate training at the Ph.D. level have been transformed into a monistic goal, namely the production of research scientists highly skilled in quantitative verification. Research workers at the University, highly skilled in quantitative techniques, are producing research workers highly skilled in those same techniques. But there are other legitimate objectives of graduate training. The policy-oriented graduate student is interested in training that will help him, or her, participate effectively in the policy-making process. The business-oriented student is interested in training that will improve his, or her, management skills, perhaps at the farm level, perhaps at the agribusiness level. The historically oriented student is interested in training in the historical process and institutional development. But the graduate training program at the Ph.D. level at the University of Minnesota does not recognize these latter student interests. All graduate students are homogenized and forced through one training mold.

In the view of this writer, separate graduate training tracks leading to the Ph.D. degree which take account of the different professional objectives of students can and should be developed. Before retiring, Cochrane proposed a separate and distinct training track leading to the Ph.D. degree for policy-oriented students at Minnesota. (This proposal may be reviewed in appendix H.) A comparable but distinct training track could be constructed for the business-oriented student, and another training track for the historically, or institutionally, oriented student.

Cochrane was in no sense proposing a cheap, or second-class training program leading to the Ph.D. degree. He simply recognized that every graduate student does not aspire to be a particular kind of research scientist, namely, a researcher interested in the quantitative verification of some abstract economic principle from neoclassical theory. Our graduate student may seek a disciplined graduate education and he or she may aspire to be a serious analyst of economic behavior. *But he or she may not seek a career as a research worker in a conventional agricultural economics research agency.* He or she may aspire to work as

an analyst for a congressional committee, business journal, technical assistance agency, multinational corporation, or some other agency concerned with the operation of the agricultural economy. The interests of such students and demands of such non-research-type agencies are not recognized in the hardened, single-track graduate training program in agricultural economics at the University of Minnesota. But they should be. Where they are recognized, it is hypothesized that the "communication problem" with graduate students in Agricultural and Applied Economics at the University of Minnesota will be greatly reduced.

In sum, it is argued here that the training program leading to the Ph.D. degree must be rethought in terms of the varied professional objectives of the graduate students. A single-track program no longer answers the needs of disparate graduate students.

The Research Function

Although there may exist a teaching and training problem among graduate students in the Department of Agricultural and Applied Economics at the University of Minnesota, the flow of publications based upon research has not slowed down. In the eight-year period between 1971 and 1979, the Department published 13 Experiment Station bulletins, or over 50 percent of the bulletins published in that series. It also published eight bulletins in the Experiment Station technical bulletin series, or about 28 percent of the bulletins in that series. But by the 1970s, the Experiment Station bulletin series no longer constituted the principal avenue of publication for the Department. Much of the ongoing research of the Department was reported in departmental staff papers; these were and are mimeographed papers that do not go through any formal review process. The outpouring of these staff papers between 1970 and 1979 was tremendous; over 300 such papers were issued. Research findings that undergo some review within the Department have been and continue to be published as departmental economic reports. Over 100 of these reports were issued between 1970 and 1979.

Then, of course, the results of much of the research work in the Department has been published as journal articles. James Houck, for example, published 13 articles in various journals between 1970 and 1978 that in some way grew out of his research. Almost all other staff members in the Department have used this avenue of publication to some degree. And there are almost an infinite number of books, pamphlets, and conference proceedings published around the country to which members of the Department have contributed articles, or have helped write or edit, that have served as a means of disseminating the research product of the Department.

Some important books published by members of

the Department between 1971 and 1978 that grew directly out of their research include:

- James P. Houck, Mary E. Ryan, and Abraham Subotnik, *Soybeans and Their Products: Markets, Models and Policy*, University of Minnesota Press, Minneapolis, Minnesota, 1972.
- Willard W. Cochrane and Mary E. Ryan, *American Farm Policy: 1948-1973*, University of Minnesota Press, Minneapolis, Minnesota, 1976.
- Vernon W. Ruttan and Hans P. Binswanger, *Induced Innovation: Technology, Institutions and Development*, Johns Hopkins University Press, Baltimore, Maryland, 1978.

Department staff members have produced other books out of their general teaching and research experience that have had an important impact on the profession. Those books include:

- Willis L. Peterson, *Principles of Economics: Macro and Principles of Economics: Micro*, published by Richard D. Irwin, Homewood, Illinois. This two-volume "Principles" text was first published in 1971, the second edition in 1974, and the third edition in 1977. It has been widely adopted in the United States; as many as 150 colleges and universities have used it in some years.
- Willard W. Cochrane, *Agricultural Development Planning: Economic Concepts, Administrative Procedures, and Political Process*, Praeger Publishers, New York City, 1974. This book grew out of the author's experience as a program planner in the U.S. government and his overseas technical assistance work.
- Dale C. Dahl and Jerome W. Hammond, *Market and Price Analysis: The Agricultural Industries*, McGraw-Hill, New York, 1977. This book has been widely adopted as a text in undergraduate prices and marketing courses.
- Lee R. Martin has served as editor for three volumes (a fourth is still to come) that survey the literature of the field of agricultural economics. Their titles are: *A Survey of Agricultural Economics Literature, Volume I: Traditional Fields of Agricultural Economics*; *A Survey of Agricultural Economics Literature, Volume II: Quantitative Methods in Agricultural Economics, 1940s to 1970s*; and *Volume III: Economics of Welfare Rural Development and Natural Resources in Agriculture, 1940s to 1970s*, University of Minnesota Press,

Minneapolis, Minnesota.

This production of published research work was supported by an Experiment Station budget that just about doubled between 1971-72 and 1978-79. But much of that increase was eaten up by inflation during this period. And the Department's share of the total research base of the Experiment Station holds almost constant over the period at around 12 percent.

Research grants, contracts, and agreements from outside the Experiment Station during this period were, however, an important source of increased funding support for research in the Department. Funding support from these sources increased from \$100,585 in 1971-72 to \$494,346 in 1979-80. The largest of these was a 211(d) grant from USAID, which provided the Department with \$280,000 over a six-year period to support the training of graduate students and their research overseas on agricultural development projects. This grant was funneled into the Department through the Economic Development Center. In addition, the Center received a grant from USAID of \$570,000 to be used to support research by both staff and graduate students on developmental policy problems in both the Department of Economics and the Department of Agricultural and Applied Economics.

Contracts and agreements with the Economic Research Service and the Statistical Reporting Service were another important source of funding support, particularly with respect to commodity studies, trade studies, and policy analysis. Various state agencies provided funding support for projects in regional development, transportation, and energy. This supplemental income from research grants, contracts, and agreements provided critically needed research support in specialized research areas in the 1970s and is likely to continue to do so in the 1980s. This could well be the way that increased funding support for research on specific economic problems of agriculture is obtained in the future.

The Extension Function

The number of full-time extension staff members in the Department actually declines from 16 in 1970-71 to 15 in 1978-79. But some of the time of the released extension position could have been reallocated to staff members who were primarily teaching and research personnel. So whether the total staff time devoted to extension activities actually declines is not clear. But certainly the program did not expand between 1971 and 1979.

The programs in extension farm management, extension marketing, extension business management, and extension policy have continued into the 1970s as they came out of the 1960s with two possible exceptions. First, the integration of

extension activities into the total activities of the Department continues, so that the distinction between the extension staff and the teaching and research staff becomes more and more blurred. Increasingly in the 1970s, staff members who received 50 percent or more of their salary from extension have been doing some resident teaching, and staff members who are primarily teacher-researchers have been doing some off-campus extension work. By 1979, a stranger to the Department would in most cases have had to consult the budget book to know whether a particular staff member was an extension specialist or a teacher-researcher.

Second, the use of computers in the preparation of farm management extension materials has increased to the point where the computer has become an integral component of the extension activity. The 1978-79 annual report of the Minnesota Agricultural Extension Service makes this clear. It reads, in part, as follows:

The program area of Computer Information Systems (CIS) is composed of the (1) Minnesota Analysis and Planning System (MAPS); (2) Minnesota Extension Management Information System (MEMIS); and (3) Computer Assisted Instructional Aids.

CIS became operational in 1969 and focuses on data base acquisition, information delivery systems, data base management, and data analysis including management information decision aids. Its objective is to provide computer and analytical support to Extension administration through the transactional data base and information system. In addition, CIS supports statewide decisionmakers through a socio-economic data base and information system. Extension specialists and agents are also supported in their development of computer assisted instructional aids.

The CIS staff totals 13 and includes faculty, research analysts, computer systems analysts, programmers, data entry operators, and secretarial service. Supported by the computing facilities of the University of Minnesota Computer Center, the staff makes use of both the interactive and batch computer facilities. Funds to support CIS come primarily from the Agricultural Extension Service and from user service income.

The technological developments in programmable calculators and small computers has made possible the use of these tools in Extension in the program delivery process. CIS is presently providing some assistance to Extension staff in this area. However, considerable effort will be required in this area in the years

ahead. Some of the issues confronting Extension will include the compatibility of hardware, the communications network, software development, staff training and responsibilities, and the integrity of the educational programs and data base.

The Public Service Function

The public service activities of the Department of Agricultural and Applied Economics, on a relative basis, may have slackened off from the activity of the 1950s and 1960s. Stated differently, staff members of the Department probably had less influence on policy and program formulation in the federal government in the 1970s than they had in the two previous decades. Nonetheless, the tradition of public service remained strong in the Department. Vernon Ruttan continued to consult with and serve as an advisor to international agencies around the world. In 1973, he resigned from the University to become president of the Agricultural Development Council, and then in 1977 he resigned from the Council to return to the University of Minnesota.

Many staff members were engaged in foreign technical assistance work between 1971 and 1979. Reynold Dahl worked in Latin America and Africa; Terry Roe worked in North Africa and Latin America; J. W. Hammond worked in Africa; Malcolm Purvis worked in Africa; Kenneth Egertson worked in Indonesia; Fred Benson worked in Egypt; William Easter and John Helmberger worked in India; James Houck and Delane Welsch worked in Thailand; and Willard Cochrane worked in Thailand, India, and the Philippines and served as a consultant to the Food and Agricultural Organization in Rome. Thus, the involvement of departmental staff in technical assistance work overseas between 1971 and 1979 was heavy, indeed.

On the domestic scene, Reynold Dahl served as a public member of the Board of Directors of the Minneapolis Grain Exchange from 1972 to 1980. Martin Abel played a key role in the Office of Technology Assessment of the Congress of the United States. Glenn Nelson served as a consultant to a National Academy of Science study of "Statistics for Rural Development Policy." Wilbur Maki served as a consultant to various state agencies, including the Minnesota Energy Agency, Minnesota Department of Economic Development, and the Minnesota Department of Administration. Frank Smith served as the executive secretary of a committee to evaluate the quality and quantity of cooperative activity in the Economics, Statistics, and Cooperatives Service of the USDA. Paul Hasbargen served on the advisory committees of both Rudolph E. Boschwitz and Dave Durenberger in their successful campaigns for seats in the United States Senate in 1978. Burt Sundquist acted as a consultant to the National Science Foundation in Washington, D.C., and Willard Cochrane continued in an informal way as a consultant to the Office

of the Secretary of Agriculture. Thus, Department staff members were involved in many and varied public service activities on the domestic scene between 1971 and 1979.

An Overview of the Period

The professional staff of the Department increased only modestly in total size over the period from 1971 to 1979. But it was not a period of stagnation. First, there was a sizable turnover in the large staff. Second, the funds available for research to the faculty and graduate students increased importantly. Third, the number of undergraduate majors in the Department more than doubled. Fourth, the number of graduate students in the Department increased from a level of 70 to a level of 100. Fifth, the Department moved to new quarters in a new building, which, for a few years, was a pleasant experience.

But Burt Sundquist could not look upon his dominion in the spring of 1979 with complete satisfaction. The AID funding support for overseas research on developmental problems ran out in the late 1970s. Thus, by 1979 it was exceedingly difficult for a graduate student in the Department of Agricultural and Applied Economics to find funding support for a development project in the food and agricultural area in a less developed country.

The communication problem, which had become difficult by 1970-71, had probably worsened by 1978-79, with the large increase in the number of graduate students. There were signs that the communication problem, which earlier existed primarily among faculty, had by 1979 expanded in scope to include a communication problem between faculty and graduate students.

Finally, the issue of what constitutes a desirable training program for the Ph.D. degree had become serious. Was the heavy emphasis on quantitative methods causing the Department to turn out graduate student products that took the form of technical tool users rather than scholars? Were our students getting too much economic theory, or not enough, or the right blend? And how were professional staff members in the applied field of agricultural economics to advise their graduate students in the application of a theory which they either didn't understand or didn't want to understand? And was this latter lack of understanding the cause of the large communication problem between faculty and graduate students?

But given these problems, and they were real problems, the Department staff was a better trained staff with more, and more powerful, analytical skills than the staff in 1970-71. Furthermore, the interests of the staff continued to be wide-ranging. Thus, the judgment must be that, academically, the Department was stronger in 1978-79 than it was in 1970-71. And since it was

argued that the staff in 1970-71 was the strongest of any time in its history, then it follows that it had reached an all-time high in 1978-79.

But what of the future? It will be bright only to the extent that it finds satisfactory solutions to the problems plaguing it.

Another Leadership Change

During the 1978-79 school year, Burt Sundquist let it be known that he would like to step down as department head on June 30, 1979. The process of selecting a new head progressed smoothly during that year and G. Edward Schuh was appointed head of the department on July 1, 1979. Ed Schuh is an Indiana farm boy who was born near Indianapolis on September 13, 1930, and grew up

on a truck farm. He received his B.S. degree from Purdue University in 1952, his M.S. from Michigan State University in 1954, and his Ph.D. from the University of Chicago in 1961. He served on the staff of Purdue University from September 1959 to June 1979.

Schuh traveled widely for Purdue University and the Ford Foundation on foreign technical assistance projects of those two organizations, and he spent several years in Washington, D.C., in policy level positions. He also built a strong national reputation for his work on foreign trade and international exchange problems. He thus brought an international and policy perspective to Minnesota that was in keeping with the traditions in agricultural economics at Minnesota.

The development of the discipline of agricultural economics at Minnesota was similar in most respects to what occurred in the profession as a whole. This is not strange because in certain periods Minnesota led in the development of the discipline and at all times was in the vanguard of those developments. But there were some dissimilarities, too. This final chapter points out the different patterns of development and provides an explanation for those differences.

But first the historical setting in which the discipline of agricultural economics developed in the United States will be described. An appreciation of the physical and economic environment in which the discipline emerged and took shape should help the reader better understand the developments at Minnesota and the interrelationship between Minnesota and the profession as a whole. The development of an applied discipline such as agricultural economics did not take place in a vacuum. Development was greatly influenced by events and conditions.

The Historical Setting

The discipline of agricultural economics in the United States did not develop as rapidly or as fully in the nineteenth century as such disciplines as agronomy, horticulture, dairy industry, and veterinary medicine for some very good reasons. The pioneers who settled the hinterland of the North American continent, first as subsistence farmers and later as commercial farmers, encountered some horrendous physical production and marketing problems: how to clear the land of its heavy forest cover, how to break the sod in the tall-grass prairie country, how to farm the arid plains, how to control the pests (e.g., grasshoppers), how to control animal diseases, how to harvest the bumper grain crops, how to market animal products in distant markets, and many others. Thus, the pioneer farmer, and later the commercial farmer, sought help from wherever he could get it. Country squires like George Washington and amateur agriculturalists like Daniel Webster were sometimes helpful in suggesting new plant varieties and animal species. The village blacksmith was most helpful in inventing and producing labor-saving tools and machines. But the farmer also needed good advice of a more technical nature: which crops to plant on which soils, how to combat animal diseases, and how to physically handle and process the produce of his farm. At first he had to deal with these questions on a trial and error basis. But when the land grant colleges came along after the Civil

War, farmers instinctively turned to these colleges for advice. In this context, the production disciplines in the emerging colleges of agriculture quickly took shape, found funding support, and ultimately produced the useful information that the farmers were seeking.

There is also a negative side to the explanation as to why the discipline of agricultural economics developed slowly in the nineteenth century. The economy of the nation was developing so rapidly and was so poorly understood that in their lobbying efforts with the emerging land grant colleges, farmers were unable to even suggest what the colleges should do to help them with their economic problems. The rapidly developing agricultural economy was a mystery to both the farmers and their academic friends.

But events have a way of creating problems, raising issues, and suggesting policy solutions. The economic events of the early 1890s did just that. The early 1890s were a period of deep, dark depression--they were the final crisis years at the end of 30 years of hard times for farmers. In the political arena, farmers in large numbers turned to a third party, the Populist party, for economic help. Although farmers and their labor allies scared the established political parties badly in 1892, they failed to obtain any significant economic help for themselves. This was because they were so ignorant of the economic system that they could not ask the right questions about the system or formulate attainable political goals for dealing with their economic problems.

With respect to the emerging land grant colleges, farmers were somewhat more successful. In Minnesota they came to the college and asked the simple question--What is the most profitable combination of crops for our area? Except from intuition, the academics at the University of Minnesota, or any other land grant college for that matter, could not answer that simple question. But at Minnesota, the academics began to seek an answer. They began gathering economic data on farm operations. Once they had the data, they found ways, sometimes awkward ways, to analyze that data. Thus, research work in farm management was under way at Minnesota. In a few years, farm management work would be under way at all the leading agricultural colleges.

The depressed 1890s came to an end in 1897 and the national economy took off on a 23-year period of unparalleled growth and prosperity marred here

and there by a "money panic." In this context American agriculture specialized and prospered. But specialization led to new kinds of problems--marketing problems. How should farmers organize to sell their products in distant markets? Once again farmers turned to their colleges of agriculture for advice. Once again the academics responded by initiating a new kind of research--marketing research. This research, begun in the first two decades of the twentieth century, has always been more controversial and less specific in its application than farm management research. But farmers continue to call for it in 1979 and the public funding sources and the researchers continue to respond to the call.

The "golden age" of agriculture, which began in 1910, came to an end in 1920. Prices of farm products fell by 50 percent or more in that year. Farmers experienced hard times throughout the 1920s as the rest of the nation prospered. Then between 1929 and 1932, farmers along with the rest of the nation sank into the Great Depression.

Confronted first with their "private farm depression" and second with a general worldwide business depression, farmers turned once again to their colleges for an explanation of what was happening to them and what they should do about it. There they discovered that a new profession, agricultural economics, had come into being to study their problems and provide answers to their questions.

The new profession of agricultural economics did a creditable job in the 1920s explaining to farmers that their "private farm depression" was caused by a loss of foreign markets. And the new profession, under the leadership of H. C. Wallace and H. C. Taylor, cooked up a scheme to deal with their loss-of-markets problem. This took the legislative form of the McNary-Haugen bill. This scheme had some serious program and trade limitations and it ran counter to the conventional wisdom of the day, but it was at least rational in terms of having the potential for achieving the stated objectives of the scheme.

The leading agricultural economists in the 1920s had progressed to the point where they knew what the basic forces at work in the farm economy were, how those forces interacted to produce what results, and how those forces might be manipulated by private action or government programs.

The onset of the Great Depression created an additional burden for the new profession of agricultural economics. Their high-flying general economist colleagues could not, until 1936 at least, provide any satisfactory explanation for the Great Depression. Thus, agricultural economists were unable to tell their farmer clients the causes of their economic plight and what government should do to pull the nation out of the depression. The severely depressed economic

conditions did, however, spur on the agricultural economists to learn more about their own sector of the economy. This was the period when the old Bureau of Agricultural Economics in the USDA developed some basic data series on farm prices, incomes, and production. It is also the period when the college agricultural economists began to understand and measure the demand for farm products, gain a better understanding of the complexities of supply, and develop farm management studies that could actually help farmers make effective adjustments in their farm businesses. By 1940 the farm economy of the United States had been thoroughly mapped and, although there remained much to be learned about its behavior under various conditions, its operation was no longer a mystery--at least not to the agricultural economists.

World War II slowed down research activities dealing with the farm economy but not the use of the knowledge dealing with its structure and behavior that had been produced in the 1920s and 1930s. The imposition of rationing and price controls in the food and fiber sector, the employment of agricultural production incentives, and the regulations imposed upon the food marketing and distribution sector made heavy use of the knowledge dealing with the food and agricultural economy that had been produced during the 1920s and 1930s. The operation of those government programs also gave that knowledge a severe testing. In the main, it stood up well. The wartime programs in the food and agricultural sector based on the knowledge produced by the agricultural economists prior to 1940 worked surprisingly well.

The fear of a post-war collapse in farm prices, the soaring farm and food prices during the Korean crisis, and the dragging farm prices and agricultural surpluses in the 1950s confronted agricultural economists with one challenge after another in the post-World War II era. These challenges together with large and growing budgets and a rapidly expanding supply of well-trained agricultural economists enabled the profession to embark upon a long period from 1945 to 1970 of expansion with more sophisticated studies on both the domestic and international scenes. These strong budgets provided by government appropriation agencies were the result of the respect earned by agricultural economists during and immediately following World War II. The increased supply of young agricultural economists no doubt resulted from the increased visibility of agricultural economists during the war and post-war years which suggested to wide-awake undergraduates the desirable career opportunities in this expanding field. The result was a glorious 25-year period of expansion and development for the profession of agricultural economics.

The 1970s have not progressed smoothly or happily for most Americans. Those years have

revealed acute resource shortages in the world and witnessed a slowing down in the rate of economic growth. They have also demonstrated once again, for those who took the time to look, the feast or famine character of the national farm economy. And given that characteristic, what are the policy implications where the national agricultural economy is almost fully integrated into the world agricultural economy? As will be argued later, not too many agricultural economists took the time to look. They were too busy with their specialized studies of specialized facets of the agricultural economy.

The 1970s suggest that the food and agricultural sector of the national economy will be confronted with great uncertainties in the 1980s and that these uncertainties may translate into great instabilities. Besides the roller-coaster-like movement of farm product prices and the strong upward movement in farm input prices that should have been obvious to all, two other, but more subtle, warning signals for both the agricultural economy and the economists should have been noted and acted upon by the more perceptive members of the profession. One signal was that funding support for agricultural economics research was no longer growing in real terms; support for agricultural economics research by governmental appropriations bodies was on the wane. The second signal was that the communication gap between professional economists and farmers was wider than ever. For example, as members of the American Agriculture Movement drove their tractors up and down the Mall in Washington, D.C., it became clear that their economic literacy was no greater than that of their great-grandfathers who supported the Populist party in 1892. Their demands were totally unrealistic and their program goals totally unattainable. The agricultural economics profession had completely failed to reach and influence the activist leaders in the radical farm organizations of the 1970s.

Knowledge of the most sophisticated kind was accumulating in professional enclaves, but there were growing signs that the appropriators of research funds were becoming less willing to support that kind of knowledge accumulation and that such knowledge was not reaching or having an influence on the activist farm leaders. In fact, such leaders were calling for curtailment of the issuance of timely, relevant information concerning the farm economy on the grounds that it was hurting farmers.

Two Strands of Development--Once Again

George F. Warren of Cornell University, one of the founders of the profession of agricultural economics, made the following statement in 1932:

It will be noted that, as in most countries, the first work in farm management was usually done by agronomists. The *Annual*

Report of the American Farm Management Association for 1910 shows that farm management was taught in the same department as agronomy in twenty-five institutions. In three institutions, it was taught in departments of rural or agricultural economics. It was several years before any economists except Dr. Taylor joined the association.

This development was logical and, I believe, fortunate. Of all the men working in agriculture the agronomists came nearest to seeing the farm as a whole. It was not a long step from crop rotations to cropping systems and from that to the farm as a whole. Roberts, Hays, Hunt, Boss, Spillman, and Larsen of Denmark were all agronomists who became interested in farm management.¹

If Warren was using the term, farm management, as a synonym for rural economics, or agricultural economics, which he was almost doing and which was commonly done during the period from 1900 through 1920, then he was to some degree overstating his case. Much, if not most, of the early work in agricultural economics (prior to 1910) was concerned with farm management. And much, if not most, of that early work was done by men who were agricultural generalists--men who then were called agriculturalists and later became known as agronomists. This was the way farm management developed at the University of Minnesota, as we know from chapters 1 and 2.

But there was almost always a second strand to that development--a strand of thought growing out of the discipline of economics that influenced or guided the research and teaching on the farm firm, as well as the larger farm economy.

As H. C. Taylor and A. D. Taylor point out in *The Story of Agricultural Economics in the United States, 1840-1932*,² the first president of the University of Illinois, John Milton Gregory, lectured to agricultural students in the 1870s on rural economy and political economy. Out of these lectures grew Gregory's book, *A New Political Economy* (published in 1882), in which references to agriculture are common and one chapter is devoted to the rural economy. In that chapter he deals with the question of the choice and combination of enterprises in the farm firm.

Thomas F. Hunt, an Illinois farm boy, attended the University of Illinois in the 1880s to study agriculture. There he was influenced by Gregory

¹"The Origin and Development of Farm Economics in the United States," *Journal of Farm Economics* 14, no. 1 (January 1932):6-7.

²Iowa State Press, Ames, Iowa, 1952, chapter 4.

and his recently published book. Hunt graduated in 1884 from the University of Illinois and taught there until 1890. Thereafter he moved to Ohio State University, Cornell University, and Pennsylvania State College, and ended his career as dean of the College of Agriculture at the University of California. In all of these places he emphasized the economic aspects of farming, which at that time tended to get lost, as his contemporaries focused on the physical aspects of soils, crops, and livestock. Hunt helped keep the germ of economics alive in the teaching and research of agriculture from 1890 through 1920, when the physical and biological aspects of agriculture were preeminent.

But it was H. C. Taylor more than anyone else who introduced economic concepts and economic approaches into the emerging field of farm management and/or rural economics in the period 1900-1920. Taylor was a student of Richard T. Ely in the Department of Economics at the University of Wisconsin and studied at the London School of Economics and at the University of Berlin. His Ph.D. thesis, which was both a historical analysis and an economic analysis, dealt with the decline of landowning farmers in England. Taylor was a professor of agricultural economics at the University of Wisconsin from the early 1900s to 1922, when he was not on leave serving with some government agency in Washington, D.C. In 1905, he published one of the first texts in the field, entitled, *An Introduction to the Study of Agricultural Economics*, which dealt from an economic perspective with such questions as "How to Choose a Farm," "The Choice of Enterprises," "Intensity of Culture" or the problem of variable proportions, and "Land Tenure." When the Bureau of Markets and Crop Estimates was combined with the Office of Farm Management in the USDA in 1922 to form the Bureau of Agricultural Economics, H. C. Taylor was named its first chief. Taylor held strong views about the basic role of economics in the emerging field of farm management and agricultural economics, and he left his imprint.

The second strand first took form at the University of Minnesota in the establishment of the Bureau of Research in Agricultural Economics in 1912. This bureau, which became the Division of Research in Agricultural Economics soon thereafter, was directed to focus its attention on the marketing problems of farmers, and particularly on the role and place of cooperative organization in the marketing system. The directors, or chiefs, of this Division, it will be recalled, were selected from the Economics Department in the College of Science, Literature and the Arts. This Division did some interesting descriptive work in the general area of agricultural marketing and specifically with regard to the role and place of farmers' cooperatives. But the great development of the Division of Research in Agricultural Economics at the University of Minnesota occurred after John D. Black arrived on the scene. Black was a

student of H. C. Taylor and B. H. Hibbard at the University of Wisconsin and for that period was well trained in economic theory and analysis. At Minnesota he used that training to develop new courses in production economics, consumption economics, prices and price analysis, and land tenure, all of which emphasized economic analysis. And his research program followed his teaching program.

In summary, then, it could be said that the first flowering of agricultural economics as an applied field of economics occurred at the University of Wisconsin in the period of 1900-1920. The second flowering occurred at the University of Minnesota in the period of 1918-1928. And certainly, developments in the areas of production economics and prices and price analysis under Black's leadership broke new ground and set the profession moving in new directions.

The Two Strands Merge

The American Association of Agricultural Colleges and Experiment Stations sponsored a four-week summer course called "The Graduate School of Agriculture" on different university campuses on seven occasions between 1902 and 1916. This Graduate School brought together men interested in the advancement of sciences relating to agriculture.

One group attending these Graduate School sessions was the emerging group of teachers and researchers in farm management. The members of this group were far from agreement as to what constituted farm management. Some felt that farm management was co-equal with rural economics. Others thought that farm management was concerned only with the farm firm, and primarily with the physical aspects of the farm. Still others felt that farm management was a subfield of agricultural economics and dealt primarily with the economic aspects of the farm. Nonetheless, 14 persons, with some interest in farm management, attending the Graduate School at Iowa State College in 1910 decided to organize the American Farm Management Association. The first president of the association was W. J. Spillman; the fourth president of the association (1915) was Andrew Boss of Minnesota.

The new association issued a statement describing the field of farm management. This statement, called the Butterfield statement after its author, K. L. Butterfield, placed considerable emphasis on the physical, technical, and scientific aspects of farm management and seemed to make farm management co-equal with the overall field of agriculture. Although H. C. Taylor had been in attendance at the 1910 Graduate School session held at Ames, Iowa (in fact, he gave a series of lectures on agricultural economics at the session), he left before the organizational meeting of the American Farm Management Association. When he saw the Butterfield statement describing the

scope of the field of farm management, he was disturbed--to put it mildly. In the Taylor view, farm management was a subfield of agricultural economics, and that subfield should be concerned with the economics of the farm firm. Further, agricultural economics should properly be viewed as an applied field of the general field of economics. Thus, Taylor would spend a great deal of time and effort during the next 10 years lobbying his fellow workers in this emerging field, whatever its scope and name, to bring them around to his point of view.

His task was not an easy one. Many members of the American Farm Management Association had backgrounds in the agricultural sciences, particularly agronomy, with little or no formal training in economics. Thus, their concept of farm management tended to be a physical one--putting the right crops on the right soils. Taylor did, however, find some allies. The American Association of Agricultural Colleges and Experiment Stations appointed a committee "to study the relationship between rural economics and farm management and, if possible, to define the subjects and determine their lines of cleavage." T. F. Hunt, mentioned earlier in this chapter, was a member of the committee and wrote its report. The Hunt report essentially put economics back into farm management and made farm management a subfield of, or a branch of, rural economics. The Hunt report, of course, did not settle the issue. But it went a considerable distance toward doing so. And the battle clearly turned in favor of the Taylor position when George Warren in his book, *Farm Management*,³ published in 1913, came close to accepting the terminology and concepts of the Hunt report. Interestingly, T. F. Hunt had been George Warren's teacher at Cornell in the early 1900s.

At the tenth meeting of the American Economic Association in Madison, Wisconsin, in 1907, those members of the association interested in the economics of agriculture held a round table discussion under the chairmanship of T. N. Carver. The meeting was devoted largely to the question, "What is agricultural economics?" Almost every year thereafter the American Economic Association provided for sessions on topics dealing with the economics of agriculture. In this way a group of individuals around the country who considered themselves agricultural economists came to know and work with one another.

These men became active participants in an organization called the National Conference on Marketing and Credit, which met regularly from 1913 to 1916 to deal with the pressing credit and marketing problems of farmers. At the 1915 meeting of this conference some 30 agricultural economists who were in attendance decided to form the

³The Macmillan Company, New York, 1913.

National Association of Agricultural Economists. The purpose of the new association was stated to be:

1. To unite the interests of agricultural economists.
2. To promote the study of various phases of agricultural economics; to encourage research and the discussion of problems and subjects pertaining to the theory or practical application of the principles of agricultural economics.
3. To disseminate information relating to the subject of agricultural economics.
4. To collect and disseminate information concerning agrarian legislation; and to analyze, digest, and classify agricultural laws in their economic application.
5. To hold an annual meeting at some place to be designated by the members of the executive committee.⁴

The Association of Agricultural Economists held its annual meeting with the American Economic Association in 1917, as did the American Farm Management Association. Leaders of the two agricultural associations discussed a proposal to consolidate the two associations. But some members in both associations were opposed to consolidation; thus the effort to consolidate the two associations was stalled temporarily. But the consolidation talks continued. The American Farm Management Association appointed a committee to meet with a similar committee from the Association of Agricultural Economists to consider a basis of affiliation. The joint committees agreed upon the conditions of consolidation under the title of the American Farm Economic Association and reported this agreement back to their respective organizations.

In 1919, the agricultural economists, with an economic perspective from the Association of Agricultural Economists, and the farm managers, with an agricultural perspective from the American Farm Management Association, joined forces to form the American Farm Economic Association. The first president of the consolidated association was H. C. Taylor.

In 1920, the Departments of Farm Management and of Rural Economy at Cornell were consolidated under the leadership of George Warren as a Department of Agricultural Economics. And in 1922, the Bureau of Markets and Crop Estimates

⁴H. C. Taylor, "The History of the Development of the Farm Economic Association," *Journal of Farm Economics* 4, no. 2 (April 1922):196.

and the Office of Farm Management in the USDA were consolidated into the Bureau of Agricultural Economics under the leadership of H. C. Taylor.

This consolidation of farm management work with the remainder of the work in agricultural economics did not take place at Minnesota until 1928. There are at least two reasons for the eight-year lag in the merger of these different strands of work at Minnesota. First, farm management work at Minnesota had a long and strong tradition as a separate entity in the Division of Agronomy and Farm Management. But more than tradition was involved. Farm management work at Minnesota involved a particular approach--an accounting approach based on farm management route records--that had evolved from the thinking and work of Willet M. Hays, Andrew Boss, and F. W. Peck. As Boss wrote in 1945, they felt that they were really on to something important. He wrote:

... the effort was not made to find costs for costs' sake or with the expectation of determining an exact cost to be used in price making. Rather the objective was to secure basic data at first hand that could be used in determining which crops under certain conditions gave the greatest net profits when grown for market and which crops could best be worked into farm crop rotations that, over a period of years, would yield the best returns to the farmer.... The whole enterprise was aimed at better farm organization, improved farm operation and the development of information that would be useful in teaching school and college classes in farm management...⁵

It is questionable whether the early accounting studies undertaken at Minnesota achieved the lofty goals outlined above by Boss. But by the early 1920s, the farm management unit in the Division of Agronomy and Farm Management in cooperation with the new Bureau of Agricultural Economics, through the use of farm budgeting, were coming close to answering the questions that Willet Hays and Andrew Boss had in mind when they started the first cost accounting route back in 1901. George A. Pond of the Division of Agronomy and Farm Management and Jesse W. Tapp of the Bureau of Agricultural Economics in *A Study of Farm Organization in Southwestern Minnesota*, published in 1923, state the nature, content, and scope of this accounting study in the following general terms:⁶

⁵"Forty Years of Farm Cost Accounting Records," *Journal of Farm Economics* 27, no. 1 (February 1945):10.

⁶Minnesota Agricultural Experiment Station Bulletin No. 205, November 1923.

I. An account of the development of the agriculture of the area from the time of settlement, showing the changes in the crop and livestock enterprises with some of the main reasons therefor, and leading up to conditions under which farming is at present conducted.

II. A detailed statement and analysis of the amounts and distribution of labor and materials used in the production of the different crops and classes of livestock on the farms contributing data, and of the miscellaneous work incident to the operation of these farms.

III. A discussion of the principles involved in the application of the data to the constantly recurring problems of choice and combination of enterprises and their adjustment to changing economic conditions⁷ and to more local conditions on particular farms, together with illustrations.

Boss and Pond believed in their method and were proud of their achievements, and they weren't about to give up control of their accounting studies to that upstart J. D. Black in the Division of Agricultural Economics.

The second reason for the lag in the merger at Minnesota relates to the first. Andrew Boss was the chief of the Division of Agronomy and Farm Management; he was the vice director of the Experiment Station; and he was the dominant personality on the St. Paul Campus. One can guess that he was not inclined to give up the research projects that he had helped to bring into being and had babied and nurtured for 20 years. The consolidation could wait, as far as he was concerned. And it did wait until he stepped down as Division chief in 1928.

Thus, for both intellectual and personality reasons, the merger of farm management and agricultural economics at the University of Minnesota lagged behind the merger actions taken in other land grant universities and colleges and the USDA.

The Great Man Phenomenon: 1930 through 1950

In the formative years of the discipline of agricultural economics there were giants at work who shaped its scope, method, and direction. One of these giants was George Warren, who dominated the development of agricultural economics at Cornell University from 1910 until he died in the spring of 1938. The inductive, empirical Cornell approach to farm management and marketing research which he favored and fostered became the

⁷It is at this point that the farm budgeting analysis becomes an important part of the study.

accepted research approach in many, many colleges of agriculture in the 1920s and 1930s.

H. C. Taylor was another giant who literally forced the emerging profession to recognize economic theory and economic analysis as the foundation stones upon which the applied field of agricultural economics must be built. This principle guided the development of the teaching and research program in agricultural economics at the University of Wisconsin between 1900 and 1920, the first strong program in agricultural economics in the Midwest; it helped guide the fledgling American Farm Economic Association through a maze of possible detours and empirical thickets in the 1920s; and it enabled Taylor to build a strong and effective Bureau of Agricultural Economics in the 1920s.

We already know how John D. Black built the Department of Agricultural Economics at the University of Minnesota from a one-man show in 1918 to one of the largest, if not the largest, department in the country by 1927. More important than size, however, much of the intellectual leadership for the new profession of agricultural economics in the 1920s was being provided by the department that Black built and the staff he had put together within it.

By 1930 the formative years of the profession were past. Departments of agricultural economics were an established fact in most colleges of agriculture around the country by 1920 and were beginning to move out of the one-man operation stage. But the growth and development of departments of agricultural economics over the years from 1920 to 1950 was very uneven. As already noted, there was a phenomenal development of agricultural economics at the University of Minnesota in the 1920s and then a tapering off of that growth--almost a stagnation--in the 1930s and 1940s. The University of California at Berkeley experienced a rapid development in the later 1920s and early 1930s with the establishment of the Giannini Foundation. The Giannini Foundation attracted staff with national reputations in the various subfields of agricultural economics and quickly built a large graduate program. The departments of agricultural economics in the large and strong colleges of agriculture in the Midwest grew in the period between 1920 and 1950--but typically in a conservative fashion focusing on work in farm management and marketing. Departments of agricultural economics in the smaller colleges of agriculture around the country typically became and remained small operations.

In the Midwest there was one important exception to the above generalization. It was Iowa State University under the leadership of T. W. Schultz. Schultz joined the Department of Agricultural Economics at Iowa State in 1930 with a fresh Ph.D. from Wisconsin. In 1934 he became

head of the department, and from 1934 to 1943 he led Iowa State in a glorious development. He brought in bright young theorists such as George Stigler and A. G. Hart from the University of Chicago and William Nicholls from Harvard. He brought in established economists such as Ranier Schickele, Walter W. Wilcox, and Gerhard Tintner. And he developed and held on to such bright young men as D. Gale Johnson, O. H. Brownlee, and Earl Heady. By adding able economists to the staff, encouraging cooperative work in statistics, fostering interdisciplinary work, and applying economic theory and analysis to the economic problems of agriculture, he stimulated, fostered, and supported broad and exciting programs of teaching, research, and extension in the general area of agricultural economics. In short, T. W. Schultz made Iowa State University the intellectual capital of agricultural economics in the Midwest in the 1930s.

Schultz left Iowa State in 1943 to accept a professorship at the University of Chicago. Exactly why he left is not clear. Perhaps he left because of the opportunities provided by the University of Chicago. Perhaps he left as a consequence of the academic freedom controversy regarding an oleomargarine study. But in any case, he left, and with his leaving much of the excitement went out of the Iowa State program in agricultural economics. The developments at Iowa State following the resignation of T. W. Schultz in 1943 followed a comparable path, if not a similar one, to the developments at Minnesota following the resignation of John D. Black in 1927.

At the University of Chicago, Schultz continued to be one of the two intellectual leaders in agricultural economics in the United States. He continued to attract good students, good associates in the field, and money to support his programs of graduate training and research. And he became an even more powerful intellectual leader in the field through his writings and speaking engagements. By 1950 his influence in the agricultural economics community--particularly the academic community--was enormous. And as we know, for this intellectual leadership he received the Nobel Prize in Economics in 1981.

But Schultz was not the sole intellectual leader in agricultural economics in the United States. He shared that leadership with John D. Black of Harvard. Black was able to build a program in agricultural economics at Harvard, after leaving Minnesota, in a fashion similar to that of Schultz's at Chicago. But Black was 15 years ahead of Schultz. Black had the ability to attract good graduate students, good associates in the field, and the money to support his programs of graduate training and research. By 1940 Black had become the most powerful intellectual leader in the field of agricultural economics in the United States through his writings,

consulting, and speaking. By 1950 he would share that leadership with Schultz, but in the World War II period Black was the leading advisor to the government on food and agricultural policy. His influence on food and agricultural policy, both directly and indirectly through such men as J. K. Galbraith, H. R. Tolley, O. V. Wells, and Sherman Johnson, was incalculable.

The personalities of Black and Schultz were as different as night and day. Each had the ability to attract good students, to attract money to support his graduate training programs and research, and to sell his ideas. Thus, in the 1930s and 1940s each became the leader of a nucleus of intellectual development in agricultural economics in the United States.

O. B. Jesness, as we have noted, was a dominant personality at the University of Minnesota and highly influential in agribusiness circles. But he was less able than Black and Schultz in attracting students and money to support those students, and less skillful than Black and Schultz in developing ideas and selling those ideas. Thus, Minnesota slipped from a position of national prominence in the development of agricultural economics in the 1930s and 1940s.

Rapid and Widespread Growth: 1950-1970

A broad and strong intellectual foundation for agricultural economics had been built by 1950--a foundation composed of economic analysis, statistical tools, and reliable data. A large cadre of well-trained agricultural economists was in existence and ready and anxious to "move mountains." And there was increased financial support from the federal government (e.g., the Research and Marketing Act), from individual state governments, and from international agencies and foundations. Thus, the discipline of agricultural economics was ready to take off in a sweeping development, and it did. Departments of agricultural economics in colleges of agriculture, large and small, greatly increased the size of their staffs, greatly increased their teaching and training programs for both undergraduates and graduates, and greatly increased their research programs.

In this period of general growth and development, several old, well-established departments of agricultural economics rose to positions of national prominence. The following come to mind: North Carolina State, Pennsylvania State, Michigan State, and Purdue. Prominent institutions from the past continued to develop and expand. These included: Cornell, California at Berkeley and Davis, Illinois, Iowa State, Minnesota, and Wisconsin.

The subfields of agricultural economics on the domestic scene were well defined and established by 1950; thus the development that occurred after 1950 did not involve pushing into new subfields.

But what was true for domestic questions and issues was not true for international ones. Most departments of agricultural economics had done little or no research on commercial trade prior to 1950, and they were unaware that a field of agricultural development existed. But supported by funds from market development projects in the USDA and technical assistance projects from AID (and its predecessor agencies) and the Ford and Rockefeller Foundations, colleges of agriculture, and particularly departments of agricultural economics, plunged into this international work.

At first there was little theory to guide foreign development work, either research or technical assistance. Americans sought to apply abroad what they had learned at home, and often in very different physical and cultural contexts. Consequently, it was not surprising that what Americans tried to apply abroad in less developed countries often failed miserably. But by the early 1960s, a body of literature regarding agricultural development was taking shape, and a body of experience had been accumulated. And by the late 1960s, agricultural economists in the United States interested in economic development abroad were becoming reasonably sophisticated in both their research and technical assistance work. An outpouring of research that dealt with agricultural development, ranging from theoretical to empirical, was occurring.

Since the federal government had relatively large budgets to support overseas technical assistance work, and almost every college of agriculture in the United States had scientists who were anxious to "try their wings" overseas, a very large number of agricultural colleges became involved. Of course, much of the technical assistance work was production-oriented and did not directly involve agricultural economists. But increasingly, the developing countries came to realize, as did the donor countries, that the economic development process was a complex process; thus increasingly, economists in general, and agricultural economists in particular, were called upon to "explain" how the process should occur. As a result, theoretically trained economists from large private and state universities came to play an important role in the formulation of theories of development. And well-trained agricultural economists from the more prominent agricultural universities and colleges came to play an important part in guiding and directing technical assistance work and testing its cost-effectiveness. In the 1960s, departments of agricultural economics in such universities as Cornell, Michigan State, Purdue, Iowa State, Minnesota, Wisconsin, and the University of California at Berkeley and Davis played important roles in developing theories of agricultural development, participating in the planning processes of less developed countries, and conducting all kinds of applied research on problems of agricultural development in specific countries.

Similarly, the departments of agricultural economics in the above mentioned universities together with the universities of Chicago and Stanford developed the subfield of international trade in agricultural products. Thus, by 1970 a substantial body of literature and expertise existed with regard to commercial trade in agricultural products.

Since the Eisenhower administration dismantled the Bureau of Agricultural Economics (BAE) in 1952, the general field of agricultural economics could not, and did not, develop in the USDA in the 1950s in the same way that it did in the universities and colleges across the nation. But work in most of the subfields of agricultural economics had expanded importantly in the BAE in the 1940s, and that work would expand again in the Economic Research Service in the 1960s. The 1950s were years of an institutional aberration for agricultural economics in the federal government, which in the world of politics is bound to happen from time to time.

How did the University of Minnesota fit into the period between 1950 and 1970? It moved slowly in its development until O. B. Jesness retired in 1957. The Department did not make use of the newly available research and marketing funds to expand in size. And it did not join the rush to do technical assistance work overseas. But the situation changed rapidly with the coming of Woody Berg in 1957. Berg was particularly interested in commercial trade developments, as was Elmer Learn. Thus, they moved quickly to expand the work on international trade in agricultural products within the Department. Berg also moved to expand the staff in more traditional areas of agricultural economics and to increase the size of the graduate training program. Learn in his brief tenure as head of the department acted to maintain this momentum.

O. Meredith Wilson, who became president of the University in 1960, was not pleased with the lack of international involvement at the University of Minnesota. He personally negotiated a major grant from the Ford Foundation in 1963-64 to support a range of international activities at the University of Minnesota. Wilson further induced Willard Cochrane to assume the leadership of this University-wide international activity in 1965. With the backing of the Ford Foundation grant, the arrival of Vernon Ruttan in 1965 as the new head of the Department of Agricultural Economics, and the negotiation of several technical assistance projects and grants with AID between 1965 and 1970, the Department of Agricultural Economics was launched into international activities in an important way. By 1970 a major portion of the staff of the Department was involved either in foreign technical work, doing research on agricultural development, or teaching in the international area. Between 1950 and 1970 the Department of Agricultural Economics at

the University of Minnesota moved from a position of almost no involvement in international activities to a position as one of the leading institutions of the country in this area of work.

Although Ruttan himself was deeply committed to research and teaching in agricultural development, he had wider ambitions for the Department. He saw no reason why it should remain an applied department in agriculture alone. He sought to expand its applied work in such areas as consumption, regional economics and planning, and resource economics. And he would go further afield if he could find the money and carry his staff with him. So once again the Department of Agricultural Economics at the University of Minnesota was in the vanguard with respect to the development of new fields of activity.

Ruttan did get some new fields established within the Department. He changed the name of the Department to "Agricultural and Applied Economics," and he expanded the staff size of the Department significantly. But his staff would only go so far down the road to change. The further expansion of the Department into new applied fields would have to come from new leadership.

By 1970 the Department of Agricultural and Applied Economics at the University of Minnesota was back among a few leading departments of the nation with respect to quality of staff, graduate training program, innovativeness of research, and policy influence.

The Age of Tool Users: 1970-1979

State support for higher education slackened off across the country in the late 1960s and 1970s, federal support for research in agriculture leveled off during the same period, and foundation support for international activities practically dried up. In this context departments of agricultural economics across the country ceased their rapid expansion. Departments had to learn to live once again with slowly growing budgets.

But developments in research and training techniques did not come to an end. The computer became the centerpiece of research equipment in universities across the land. One university after another developed departments of theoretical and/or applied statistics. And instructors in econometrics and programming became prized properties in departments of economics and agricultural economics.

It was logical that both staff and graduate students in departments of agricultural economics would make use of these new resources and facilities. And they did in increasing numbers in the 1970s. Professional staff members went back to school to learn the new methods and how to use

the new resources. Graduate students clamored for more and better courses in quantitative methods, and they got them. As staff and graduate students became increasingly expert in their knowledge of quantitative methods, they wanted to use that knowledge, and they did.

With this development in research techniques and methods a subtle but important change occurred in the basic approach to research in agricultural economics. Graduate students and their staff advisors stopped looking for problems to solve and questions to answer, and started looking for subject areas and data that lent themselves to the use of various quantitative research techniques. Graduate students and their advisors had by the end of the 1970s become *tool users* in search of places to employ their tools. A review of articles published in the *American Journal of Agricultural Economics* makes this development abundantly clear. Article after article (1) describes some facet of the economy, (2) sets forth some hypotheses regarding the behavior of variables in that area of the economy, (3) describes the data available, (4) massages that data with some quantitative research technique to derive estimates of coefficients describing the relationships among variables, (5) provides some tests of significance of those estimated coefficients, and (6) outlines some areas of research that could be pursued if more data should become available or if some breakthrough in research techniques should occur. The tool users follow a well-defined pattern in which one research project differs from the next only in the facet or area of the economy that is quantified or in the specific quantitative technique employed.

There has always been some of this in agricultural economics research. In price analysis work in the 1920s and 1930s, potatoes were a popular commodity to study because they were subject to wide price fluctuations, hence provided a nice scatter of price-quantity observations which contributed to a solution of the identification problem. But technique did not dictate the selection of research projects in the 1920s and 1930s. Research in agricultural economics in that period was viewed as a means of helping the farmer solve his economic problems--those internal and external to the farm firm. In the 1940s and 1950s, the scope of agricultural economics research widened; the proper role for it in this period was to help farmers, middlemen, and consumers solve their food and agricultural problems. But research, the research that mattered, was problem-oriented. This is not to argue that the results, or the findings, of these problem-oriented research efforts always made a contribution to the solution to those problems. In many cases they did not. But the goal of good research, effective research, was to solve a problem or answer a question that was important to society.

The goal of agricultural economics research in the 1970s seems to have changed, and to have changed importantly. The goal of research in agricultural economics in the 1970s was in large measure to locate areas of the economy where sufficient data were available to permit the effective use of some new or modified quantitative research technique. This was justified, where it was justified, on the grounds that the more we knew about the behavior of the agricultural economy, the more rational decisions we could make with respect to it. But who was to put all these pieces of quantitative research together? Or who was to select the individual areas to be researched by advanced quantitative methods so that the results would add up to some meaningful whole? These questions were largely ignored in the 1970s in the rush to turn out one more piece of sophisticated quantitative research.

The training and research programs of the Department of Agricultural and Applied Economics at the University of Minnesota were not in the vanguard of this development; but neither did they bring up the rear. They were dead center in the midst of the movement. Graduate students and their staff advisors at Minnesota were anxious to learn the new techniques, and for the most part they did learn them. After having paid a considerable price to gain a working knowledge of the techniques, they then wanted to use them, and they did. Thus, it can be said that Minnesota has been in the mainstream of development in the teaching, training, and use of quantitative methods in agricultural economics research.

A few staff members in the Department of Agricultural and Applied Economics at the University of Minnesota have expressed some doubts about the direction that research in agricultural economics was moving, as have some staff members in other departments around the country. But these critics have really not done much more than raise a few doubts--doubts that were most often brushed aside as the antiquated views of ancient staff members. And perhaps that is what they were and are.

But the nagging questions continue to surface at Minnesota and elsewhere. Who is looking at the big picture? Who is going to put all the little pieces of specialized, sophisticated quantitative research together into one meaningful whole? And who is going to explain this development to the providers and allocators of research support funds when they discover what is really going on? In that day of reckoning it may be those mundane gatherers and refiners of economic intelligence on one hand and the developers of the big picture (e.g., T. W. Schultz) on the other who salvage the research budgets in agricultural economics.

Overview: 1886-1979

The University of Minnesota was certainly in

the vanguard of research and teaching in farm management from 1900 to 1910, and it was among the leaders in the development of farm management research and teaching from 1910 to 1930. Under Black's leadership during the period 1919 to 1927, Minnesota moved into a prominent position with respect to the subfields of production, consumption, and price analysis, and it was providing leadership in land tenure, cooperative organization, and farm policy.

Minnesota's strengths in the above subfields of agricultural economics did not collapse after 1930, but they did not continue to build from 1930 to 1950. During this period, Minnesota remained a first-class school in which to do graduate work because of the high priority given to the teaching function in the Department of Agricultural Economics and the strong offerings in economic theory in the Economics Department. But the leadership role in research in agricultural economics had slipped away from Minnesota.

After 1950, new faces in the Department and the new approaches associated with them brought increased vigor to both the teaching and research program at Minnesota. Under the leadership of first Berg, then Learn, and finally Ruttan, the Department had by 1970 assumed a leadership role in such areas as price analysis, policy analysis, resource economics, production economics, and agricultural development. This was true for both teaching and research.

The increased emphasis in the profession on quantitative methods and techniques in the 1970s encompassed Minnesota as well. With the aid of the Departments of Economics and Applied Statistics, Minnesota graduate students received a respectable amount of training in quantitative methods, but the Department of Agricultural and Applied Economics did not make any notable contribution to the revolution in quantitative meth-

ods; it simply kept pace. The faculty and graduate students were not sure how far down the road of specialized studies employing the latest quantitative methods they wanted to travel. Some wanted to travel further and faster down this road and become frontrunners. Others were inclined to hold back and continue to do what the Department had been doing with differing degrees of success for 80 years, namely, develop analyses, by whatever means, that seek to explain economic behavior in *problem areas* of the food and agricultural sector.

The issue confronting the Department as of 1979 is the following one. Should it stick to the mainstream of the discipline and become more proficient in producing specialized, sophisticated, quantitative studies and tool users with the capacity to undertake such studies? Or should it seek a leadership role outside the present-day mainstream of agricultural economics?

If the decision is to leave the mainstream and live dangerously, then a set of questions along the following lines must be posed. Can Ed Schuh and his talented staff pull together the myriad of small, specialized studies produced across the country and construct the "big picture," as Schultz was able to do at Chicago? Or can they break new ground with multi-track Ph.D. training programs that have greater relevance than the conventional single-track program? Or can they find some other fruitful route out of the thicket of small, specialized, sophisticated, quantitative studies of the agricultural sector of the economy, which in their present form have little or no meaning for farmers and farm leaders, consumers and their advocates, the agri-business community, and the political establishment?

The future should prove interesting at Minnesota and in the profession generally. We shall see what we shall see.

Appendix A. UNIVERSITY OF MINNESOTA FACULTY IN AGRICULTURAL ECONOMICS, 1930-1979

Date	Name	Title/Position
1930/31	1. O. B. Jesness	Chief and Professor
	2. Warren C. Waite	Professor
	3. George A. Pond	Associate Professor
	4. E. C. Johnson	Associate Professor
	5. Louis B. Bassett	Associate Professor
	6. Lewis F. Garey	Assistant Professor
	7. Rex W. Cox	Assistant Professor
	8. Dorothea Kittredge	Assistant Professor
	9. Lloyd L. Ullyot	Instructor
	10. Willard P. Ranney	Instructor
	11. Percy M. Lowe	Instructor
	12. Don S. Anderson	Instructor
	*13. William L. Cavert	Assistant Professor; Farm Economist
	*14. D. C. Dvoracek	Instructor (6 mo. appt.); Marketing Specialist
1935/36	1. O. B. Jesness	Chief and Professor
	2. Warren C. Waite	Professor
	3. George A. Pond	Associate Professor
	4. E. C. Johnson	Associate Professor
	5. Louis B. Bassett	Associate Professor
	6. Lewis F. Garey	Assistant Professor
	7. Rex W. Cox	Assistant Professor
	8. E. Fred Koller	Instructor
	9. Willard P. Ranney	Instructor
	10. Percy M. Lowe	Instructor
	11. H. F. Hollands	Instructor
	*12. Spencer B. Cleland	Assistant Professor; Farm Management Specialist
	*13. J. B. McNulty	Assistant Professor; Farm Management Specialist
	*14. W. Bruce Silcox	Assistant Professor; Marketing Specialist
	*15. D. C. Dvoracek	Marketing Specialist
1940/41	1. O. B. Jesness	Chief and Professor
	2. Warren C. Waite	Professor
	3. Austin A. Dowell	Professor
	4. George A. Pond	Professor
	5. Louis B. Bassett	Associate Professor
	6. Rex W. Cox	Assistant Professor
	7. E. Fred Koller	Assistant Professor
	8. Selmer A. Engene	Assistant Professor
	9. Truman Nodland	Instructor
	10. G. Leroy Peterson	Instructor
	11. George E. Tobin	Instructor
	12. Percy M. Lowe	Instructor
	*13. Spencer B. Cleland	Assistant Professor; Extension Economist, Farm Management
	*14. James B. McNulty	Assistant Professor; Extension Economist, Farm Management
	*15. Ross L. Huntsinger	Extension Specialist, Farm Management
	*16. J. Raymond Buckholder	Extension Specialist, Farm Management
	*17. Glen Myers	Extension Assistant Economist, Farm Management
	*18. Daniel C. Dvoracek	Extension Economist, Marketing
	*19. William H. Dankers	Assistant Professor; Extension Economist, Marketing
	*20. Ernest T. Baughman	Instructor; Extension Assistant Economist, Marketing
1945/46	1. O. B. Jesness	Chief and Professor
	2. Warren C. Waite	Professor
	3. Austin A. Dowell	Professor
	4. George A. Pond	Professor
	5. E. Fred Koller	Associate Professor

*Extension staff; not a member of the Department of Agricultural Economics.

APPENDIX A--Continued

Date	Name	Title/Position	
1945/46 <i>Continued</i>	6. Rex W. Cox	Assistant Professor	
	7. Selmer A. Engene	Assistant Professor	
	8. Truman Nodland	Instructor	
	9. Harlow W. Halvorson	Instructor	
	10. George E. Tobin	Instructor (resigned 6/46)	
	11. Percy M. Lowe	Instructor	
	*12. Spencer B. Cleland	Associate Professor; Extension Economist, Farm Management	
	*13. William H. Dankers	Associate Professor; Extension Economist, Marketing	
	*14. Daniel C. Dvoracek	Associate Professor; Extension Economist, Marketing	
	*15. James B. McNulty	Assistant Professor; Extension Economist, Farm Management	
	*16. J. Raymond Buckholder	Agricultural Extension Specialist, Farm Management	
	*17. Roger S. Harris	Agricultural Extension Specialist, Farm Management	
	*18. Glen Myers	Assistant Agricultural Extension Specialist, Farm Management	
	*19. Open Position	Instructor; Extension Economist, Marketing	
	1950/51	1. O. B. Jesness	Chief and Professor
		2. Warren C. Waite	Professor (deceased 11/11/50)
		3. Austin A. Dowell	Professor
		4. E. Fred Koller	Professor
		5. George A. Pond	Professor
6. Selmer A. Engene		Associate Professor	
7. Rex W. Cox		Associate Professor	
8. Truman Nodland		Assistant Professor	
9. Frederick R. Taylor		Instructor (resigned 8/50)	
10. Reynold P. Dahl		Instructor (appointed 9/50)	
11. William E. McDaniel		Instructor	
12. Percy M. Lowe		Instructor	
13. Grover C. Chappell		Instructor	
*14. Spencer B. Cleland		Associate Professor; Extension Economist, Farm Management	
*15. William H. Dankers		Associate Professor; Extension Economist, Marketing	
*16. Daniel C. Dvoracek		Associate Professor; Extension Economist, Marketing	
*17. James B. McNulty		Assistant Professor; Extension Economist, Farm Management	
*18. Max K. Hinds		Instructor; Extension Economist, Marketing	
*19. George N. Wisdom		Instructor; Extension Specialist, Livestock Management	
*20. Harvey Bjerke		Assistant Agricultural Extension Specialist, Farm Management	
*21. David S. Johnson		Agricultural Extension Specialist, Farm Management	
*22. Harold C. Pederson		Assistant Professor; Extension Economist, Marketing	
1955/56	1. O. B. Jesness	Professor and Head	
	2. Willard W. Cochrane	Professor	
	3. Philip M. Raup	Professor	
	4. E. Fred Koller	Professor	
	5. George A. Pond	Professor	
	6. Selmer A. Engene	Associate Professor	
	7. Rex W. Cox	Associate Professor	
	8. Truman Nodland	Assistant Professor	
	9. Reynold P. Dahl	Assistant Professor	
	10. Royce A. Hinton	Instructor (resigned 8/55)	
	11. Percy M. Lowe	Instructor	
	12. Arvid C. Knudtson	Instructor	
	13. Martin K. Christiansen	Instructor	
	*14. William H. Dankers	Professor; Extension Economist, Marketing	
	*15. Ermond H. M. Hartmans	Assistant Professor; Extension Economist, Farm Management	
	*16. Open Position	Assistant Professor; Extension Economist, Farm Management	
	*17. Harland G. Routh	Assistant Professor; Extension Economist, Farm Management	
	*18. Harold C. Pederson	Assistant Professor, Extension Economist, Marketing	
	*19. Luther J. Pickrel	Assistant Professor; Extension Economist	
	*20. Harvey Bjerke	Agricultural Extension Specialist, Farm Management	

*Extension staff; not a member of the Department of Agricultural Economics.

APPENDIX A--Continued

Date	Name	Title/Position
1960/61	1. Sherwood O. Berg	Professor and Head
	2. E. Fred Koller	Professor
	3. Harald R. Jensen	Professor
	4. Willard W. Cochrane	Professor (on leave)
	5. Philip M. Raup	Professor
	6. Selmer A. Engene	Professor
	7. Truman Nodland	Associate Professor
	8. Reynold P. Dahl	Associate Professor
	9. Carroll V. Hess	Associate Professor
	10. Darrell F. Fienup	Associate Professor
	11. Elmer W. Learn	Associate Professor
	12. Roger G. Johnson	Instructor
	13. Victor F. Amann	Instructor
	14. Richard V. Elefson	Instructor (terminated 9/60)
	15. Russell G. Thompson	Instructor
	*16. William H. Dankers	Professor; Extension Economist, Marketing
	*17. Harold C. Pederson	Associate Professor; Extension Economist, Marketing
	*18. Harlund G. Routhe	Associate Professor; Extension Economist, Farm Management
	*19. Open Position	Associate Professor; Extension Economist, Farm Management
	*20. Paul R. Hasbargen	Assistant Professor; Extension Economist, Farm Management
	*21. Francis J. Smith, Jr.	Assistant Professor; Extension Economist, Marketing
	*22. Martin K. Christiansen	Instructor; Extension Economist, Marketing
	*23. Kenneth E. Egertson	Instructor; Extension Economist, Marketing
	*24. Kenneth H. Thomas	Instructor; Extension Economist, Farm Management
	*25. Harvey Bjerke	Instructor; Agricultural Extension Agent, Farm Management
	*26. Gene W. Stevermer	Instructor; Agricultural Extension Agent, Farm Management
1965/66	1. Vernon W. Ruttan	Professor and Head (8/65)
	2. E. Fred Koller	Professor
	3. Harald R. Jensen	Professor
	4. Open Position	Professor
	5. Philip M. Raup	Professor
	6. Selmer A. Engene	Professor
	7. Carroll V. Hess	Professor (terminated 5/66)
	8. Truman Nodland	Professor
	9. Reynold P. Dahl	Professor
	10. Darrell F. Fienup	Professor
	11. Marguerite C. Burk	Professor
	12. Willard W. Cochrane	Professor (on leave)
	13. W. Keith Bryant	Assistant Professor
	14. James P. Houck, Jr.	Assistant Professor (8/65)
	15. Willis L. Peterson	Assistant Professor (9/65)
	16. Dale C. Dahl	Assistant Professor
	17. Thomas E. Daves	Instructor (3/66)
	18. Clifford G. Hildreth	Professor (joint appointment with Economics and Statistics)
	*19. Raymond D. Vlasin	Professor; Extension Program Leader, Resource Development
	*20. William H. Dankers	Professor; Extension Economist, Marketing (retired 10/65)
	*21. Harold C. Pederson	Professor; Extension Program Leader, Marketing and Utilization
	*22. Paul R. Hasbargen	Associate Professor; Extension Economist, Farm Management
	*23. Francis J. Smith, Jr.	Associate Professor; Extension Economist, Marketing
	*24. Martin K. Christiansen	Assistant Professor; Extension Economist, Marketing
	*25. Arley Waldo	Assistant Professor; Extension Economist, Public Affairs
	*26. Harvey Bjerke	Assistant Professor; Agricultural Extension Agent
	*27. Robert W. Snyder	Assistant Professor; Extension Economist, Land Use
	*28. Open Position	Assistant Professor; Extension Economist, Marketing
	*29. John W. Foschia, Jr.	Instructor; Extension Economist, Marketing

*Extension staff; not a member of the Department of Agricultural Economics.

APPENDIX A--Continued

Date	Name	Title/Position
1965/66	*30. Richard O. Hawkins	Instructor; Assistant Extension Specialist, Farm Management
<i>Continued</i>	*31. Mary E. Ryan	Instructor; Extension Specialist, Consumer Marketing
	*32. Kenneth H. Thomas	Instructor; Extension Economist, Farm Management
	*33. Carole B. Yoho	Instructor; Extension Specialist, Public Affairs
	*34. Lyle M. Ross	Instructor; Extension Agent, Farm Management
	*35. Kenneth E. Egertson	Instructor; Extension Economist, Marketing
1966/67+	1. Vernon W. Ruttan	Professor and Head
	2. E. Fred Koller	Professor
	3. Harald R. Jensen	Professor
	4. Lee R. Martin	Professor (7/66)
	5. Philip M. Raup	Professor
	6. Selmer A. Engene	Professor
	7. Truman Nodland	Professor
	8. Reynold P. Dahl	Professor
	9. Darrell F. Fienup	Professor
	10. Marguerite C. Burk	Professor
	11. Willard W. Cochrane	Professor (on leave)
	12. Harold C. Pederson	Professor; Extension Program Leader, Marketing and Utilization††
	13. Raymond D. Vlasin	Professor; Extension Program Leader, Resource Development††
	14. Oscar Uel Blank	Professor; Extension Specialist, Recreation††
	15. Charles H. Cuykendall	Instructor; Extension Economist, Farm Management (1/67)††
	16. W. Keith Bryant	Associate Professor
	17. Paul R. Hasbargen	Associate Professor; Extension Economist, Farm Management††
	18. John D. Helmberger	Associate Professor
	19. Francis J. Smith, Jr.	Associate Professor; Extension Economist, Marketing††
	20. Arley D. Waldo	Associate Professor; Extension Economist, Public Affairs††
	21. John S. Hoyt, Jr.	Associate Professor; Extension Economist††
	22. James P. Houck, Jr.	Assistant Professor
	23. Willis L. Peterson	Assistant Professor
	24. Dale C. Dahl	Assistant Professor
	25. Martin K. Christiansen	Assistant Professor; Extension Economist, Marketing††
	26. Robert W. Snyder	Assistant Professor; Extension Economist, Land Use††
	27. Open Position	Instructor
	28. Kenneth E. Egertson	Instructor; Extension Economist, Marketing††
	29. Richard O. Hawkins	Instructor; Assistant Extension Specialist, Farm Management††
	30. Mary E. Ryan	Instructor; Extension Economist, Consumer Education††
	31. Kenneth H. Thomas	Instructor; Extension Economist, Farm Management††
	32. Carole B. Yoho	Instructor; Extension Specialist, Public Affairs††
	33. Harvey Bjerke	Assistant Professor; Agricultural Extension Agent, Farm Management††
	34. Michael H. Lynch	Instructor; Agricultural Extension Agent, Farm Management††
	35. Clifford G. Hildreth	Professor (joint appointment with Economics and Statistics)
1970/71	1. Vernon W. Ruttan	Professor and Head
	2. E. Fred Koller	Professor
	3. Harald R. Jensen	Professor
	4. Lee R. Martin	Professor
	5. Philip M. Raup	Professor
	6. Selmer A. Engene	Professor
	7. Truman Nodland	Professor; Extension Economist, Farm Management
	8. Reynold P. Dahl	Professor
	9. Willard W. Cochrane	Professor

*Extension staff; not a member of the Department of Agricultural Economics.

†First Year that Extension staff in Agricultural Economics is integrated into the Department of Agricultural Economics.

††Indicates that 50 percent or more of the staff member's salary comes from Extension.

APPENDIX A--Continued

Date	Name	Title/Position
1970/71 <i>Continued</i>	10. Harold C. Pederson	Professor; Extension Program Leader, Marketing and Utilization++
	11. Open Position	Professor; Extension Program Leader, Resource Development++
	12. Martin E. Abel	Professor
	13. Oscar Uel Blank	Professor; Extension Resource Economist++
	14. Paul R. Hasbargen	Professor; Extension Economist, Farm Management++
	15. John D. Helmberger	Professor; Extension Economist, Public Finance
	16. Francis J. Smith, Jr.	Professor; Extension Economist, Marketing++
	17. Wilbur R. Maki	Professor
	18. W. Keith Bryant	Professor
	19. John S. Hoyt, Jr.	Professor; Extension Program Leader and Special Project Development Coordinator++
	20. Arley D. Waldo	Professor; Extension Economist, Public Affairs++
	21. James P. Houck, Jr.	Professor; Extension Economist, Public Affairs
	22. Dale C. Dahl	Professor; Extension Economist, Legal Affairs
	23. Martin K. Christiansen	Associate Professor; Extension Economist, Agricultural Policy++
	24. Lyndell Fitzgerald	Associate Professor; Extension Economist, Farm Management++
	25. Willis L. Peterson	Associate Professor
	26. Jerome W. Hammond	Associate Professor
	27. John J. Waelti	Associate Professor; Extension Economist
	28. Robert W. Snyder	Associate Professor; Extension Economist, Land Use++
	29. Kenneth H. Thomas	Associate Professor; Extension Economist, Farm Management++
	30. K. William Easter	Associate Professor
	31. Malcolm J. Purvis	Associate Professor
	32. Terry L. Roe	Assistant Professor
	33. Charles Cuykendall	Assistant Professor; Extension Economist, Farm Management++
	34. Willis E. Anthony	Assistant Professor; Extension Economist, Marketing++
	35. Carole B. Yoho	Assistant Professor; Extension Specialist, Public Affairs++
	36. Kenneth Egertson	Assistant Professor; Extension Economist, Marketing++
	37. Walter L. Fishel	Assistant Professor
	38. Richard O. Hawkins	Assistant Professor; Extension Economist, Farm Management++
	39. Mathew D. Shane	Assistant Professor
	40. Harvey M. Bjerke	Instructor; Area Extension Agent, Farm Management++
	41. Erlin J. Weness	Instructor; Area Extension Agent, Farm Management++
	42. Mary E. Ryan	Research Fellow
	43. Clifford G. Hildreth	Professor (joint appointment with Economics and Statistics)
1971/72	1. Wesley B. Sundquist	Professor and Head
	2. E. Fred Koller	Professor
	3. Harald R. Jensen	Professor
	4. Lee R. Martin	Professor
	5. Philip M. Raup	Professor
	6. Selmer A. Engene	Professor
	7. Truman Nodland	Professor; Extension Economist, Farm Management
	8. Reynold P. Dahl	Professor; Extension Economist, Marketing
	9. Willard W. Cochrane	Professor
	10. Vernon W. Ruttan	Professor
	11. Open Position	Professor; Extension Program Leader, Resource Development++
	12. Martin E. Abel	Professor
	13. Oscar Uel Blank	Professor; Extension Resource Economist++
	14. Paul R. Hasbargen	Professor; Extension Economist, Farm Management++
	15. John D. Helmberger	Professor; Extension Economist, Public Finance
	16. Francis J. Smith, Jr.	Professor; Extension Economist, Marketing++
	17. Wilbur R. Maki	Professor
	18. W. Keith Bryant	Professor

++Indicates that 50 percent or more of the staff member's salary comes from Extension.

APPENDIX A--Continued

Date	Name	Title/Position
1971/72 <i>Continued</i>	19. John S. Hoyt, Jr.	Professor; Extension Program Director, Systems Development, and Extension Economist, Regional Development††
	20. Arley D. Waldo	Professor; Extension Economist, Public Policy††
	21. James P. Houck, Jr.	Professor
	22. Dale C. Dahl	Professor; Extension Economist, Legal Affairs
	23. Earl I. Fuller	Professor; Extension Economist, Farm Management††
	24. Martin K. Christiansen	Associate Professor; Extension Economist, Agricultural Policy††
	25. Malcolm J. Purvis	Associate Professor
	26. Willis L. Peterson	Associate Professor
	27. Jerome W. Hammond	Associate Professor
	28. John J. Waelti	Associate Professor; Extension Economist
	29. Robert W. Snyder	Associate Professor; Extension Land Economist††
	30. Kenneth H. Thomas	Associate Professor; Extension Economist, Farm Management††
	31. Kenneth E. Egertson	Associate Professor; Extension Economist, Marketing††
	32. Harvey M. Bjerke	Associate Professor; Area Extension Agent, Farm Management††
	33. K. William Easter	Associate Professor
	34. Charles Cuykendall	Assistant Professor; Extension Economist, Farm Management††
	35. Willis E. Anthony	Assistant Professor; Extension Economist, Farm Management††
	36. Carole B. Yoho	Assistant Professor; Extension Economist, Marketing††
	37. Walter L. Fishel	Assistant Professor
	38. Richard O. Hawkins	Assistant Professor; Extension Economist, Farm Management††
	39. Erlin J. Weness	Assistant Professor; Area Extension Agent, Farm Management††
	40. Mathew D. Shane	Assistant Professor
	41. Terry L. Roe	Assistant Professor
	42. Mary E. Ryan	Research Fellow
43. Clifford G. Hildreth	Professor (joint appointment with Economics and Statistics)	
1975/76	1. Wesley B. Sundquist	Professor and Head
	2. K. William Easter	Professor
	3. Harald R. Jensen	Professor
	4. Lee R. Martin	Professor
	5. Philip M. Raup	Professor
	6. Vernon R. Eidman	Professor; Extension Economist, Production Economics and Farm Management
	7. Truman Nodland	Professor; Extension Economist, Farm Management
	8. Reynold P. Dahl	Professor; Extension Economist, Marketing
	9. Willard W. Cochrane	Professor
	10. Jerome W. Hammond	Professor
	11. Gordon D. Rose	Professor; Extension Program Director, Community and Resource Development††
	12. Martin E. Abel	Professor
	13. Oscar Uel Blank	Professor; Extension Resource Economist††
	14. Paul R. Hasbargen	Professor; Extension Economist, Farm Management††
	15. John D. HelMBERGER	Professor; Extension Economist, Public Finance
	16. Francis J. Smith, Jr.	Professor; Extension Economist, Marketing††
	17. Wilbur R. Maki	Professor
	18. Kenneth E. Egertson	Professor; Extension Economist, Marketing††
	19. John S. Hoyt, Jr.	Professor; Extension Program Director, Computer Systems, and Extension Economist, Regional Development††
	20. Arley D. Waldo	Professor; Extension Economist, Public Policy††
	21. James P. Houck, Jr.	Professor
	22. Dale C. Dahl	Professor and Adjunct Professor of Law; Extension Economist, Legal Affairs
	23. Earl I. Fuller	Professor; Extension Economist, Farm Management††
	24. Willis L. Peterson	Professor
	25. Martin K. Christiansen	Professor; Extension Economist, Agricultural Policy††

††Indicates that 50 percent or more of the staff member's salary comes from Extension.

Date	Name	Title/Position
1975/76	26. Kenneth H. Thomas	Professor; Extension Economist, Farm Management††
<i>Continued</i>	27. Malcolm J. Purvis	Associate Professor
	28. Terry L. Roe	Associate Professor
	29. John J. Waelti	Associate Professor; Extension Economist
	30. Robert W. Snyder	Associate Professor; Extension Land Economist††
	31. Fred J. Benson	Associate Professor; Extension Economist, Farm Management††
	32. Willis E. Anthony	Associate Professor; Extension Economist, Marketing††
	33. Walter L. Fishel	Associate Professor
	34. Richard O. Hawkins	Associate Professor; Extension Economist, Farm Management††
	35. Mathew D. Shane	Associate Professor
	36. Carole B. Yoho	Associate Professor; Extension Specialist, Public Policy††
	37. Harvey M. Bjerke	Associate Professor; Area Extension Agent, Farm Management††
	38. Mary Ellen Ryan	Assistant Professor
	39. Benjamin H. Sexauer, Jr.	Assistant Professor
	40. Erlin J. Weness	Assistant Professor; Area Extension Agent, Farm Management††
	41. Jean L. Kinsey	Assistant Professor (12/76)
	42. Jerry L. Thompson	Instructor
	43. Clifford G. Hildreth	Professor (joint appointment with Economics and Statistics)
1978/79	1. Wesley B. Sundquist	Professor and Head
	2. K. William Easter	Professor
	3. Harald R. Jensen	Professor
	4. Lee R. Martin	Professor
	5. Philip M. Raup	Professor
	6. Vernon R. Eidman	Professor; Extension Economist, Production Economics and Farm Management
	7. Delane E. Welsch	Professor; Extension Economist, Farm Management
	8. Reynold P. Dahl	Professor; Extension Economist, Marketing
	9. Willard W. Cochrane	Professor
	10. Jerome W. Hammond	Professor
	11. Gordon D. Rose	Professor; Extension Program Director, Community and Resource Development††
	12. Vernon W. Ruttan	Professor
	13. Oscar Uel Blank	Professor; Extension Resource Economist††
	14. Paul R. Hasbargen	Professor; Extension Economist, Farm Management††
	15. John D. Helmberger	Professor; Extension Economist, Public Finance
	16. Francis J. Smith, Jr.	Professor; Extension Economist, Marketing††
	17. Wilbur R. Maki	Professor
	18. Kenneth Egertson	Professor; Extension Economist, Marketing††
	19. John S. Hoyt, Jr.	Professor; Extension Program Director, Computer Systems, and Extension Economist, Regional Development††
	20. Arley D. Waldo	Professor; Extension Economist, Public Policy††
	21. James P. Houck, Jr.	Professor
	22. Dale C. Dahl	Professor and Adjunct Professor of Law; Extension Economist, Legal Affairs
	23. Earl I. Fuller	Professor; Extension Economist, Farm Management††
	24. Willis L. Peterson	Professor
	25. Martin K. Christiansen	Professor; Extension Economist, Agricultural Policy††
	26. Kenneth H. Thomas	Professor; Extension Economist, Farm Management††
	27. John Blackmore	Professor
	28. John J. Waelti	Professor; Extension Economist
	29. Malcolm J. Purvis	Associate Professor
	30. Terry L. Roe	Associate Professor
	31. Robert W. Snyder	Associate Professor; Extension Land Economist††
	32. Fred J. Benson	Associate Professor; Extension Economist, Farm Management††
	33. Willis E. Anthony	Associate Professor; Extension Economist, Marketing††
	34. Richard O. Hawkins	Associate Professor; Extension Economist, Farm Management††

††Indicates that 50 percent or more of the staff member's salary comes from Extension.

APPENDIX A--Continued

Date	Name	Title/Position
1978/79	35. Mathew D. Shane	Associate Professor
<i>Continued</i>	36. Carole B. Yoho	Associate Professor; Extension Specialist, Public Policy††
	37. Glenn L. Nelson	Associate Professor
	38. Mary E. Ryan	Associate Professor
	39. Erlin J. Weness	Associate Professor; Area Extension Agent, Farm Management††
	40. Benjamin H. Sexauer, Jr.	Assistant Professor
	41. Jean L. Kinsey	Assistant Professor
	42. Jeremiah E. Fruin	Assistant Professor
	43. Hilbert B. Pfeifer, Jr.	Assistant Professor; Area Extension Agent, Farm Management††
	44. Jerry L. Thompson	Instructor
	45. Clifford G. Hildreth	Professor (joint appointment with Economics and Statistics)

††Indicates that 50 percent or more of the staff member's salary comes from Extension.

Appendix B. RECIPIENTS OF GRADUATE DEGREES WITH MAJORS IN AGRICULTURAL AND APPLIED ECONOMICS,
UNIVERSITY OF MINNESOTA, 1914-1979

Date	Name	Degree	Thesis Title
1914	Cavert, William L.	M.S.	No thesis*
	Corniea, Francis A.	M.S.	No thesis
1915	Frear, Dana W.	M.S.	A Syllabus of Farm Management
	Warber, Gustav P.	M.A.	No thesis
1916	Price, H. Bruce	M.S.	The Inspection and Grading of Grain
1917	Brossard, Edgar B.	M.S.	Important Factors in the Operation of Irrigated Farms
	Peck, Francis Winfred	M.S.	Factors of Cost in Meat Production
1918	Gillilan, John	M.S.	Land Settlement Survey in the Cut-Over Lands of Northern Minnesota
1919	Brossard, Edgar B.	Ph.D.	Some Types of Irrigation Farming in Utah
1920	Rhoads, Joseph H.	M.S.	No thesis
	Wallace, B. A.	M.A.	Legal Constitutional Aspects of State Aid and Control of Land Settlement with Special Reference to Minnesota
1921	Curtiss, Ralph E.	M.S.	No thesis
	Pond, George A.	M.S.	No thesis
	Robotka, Frank	M.S.	A System of Accounting for Cooperative Produce Marketing Associations
	Waite, Warren C.	M.A.	Cost Indices for Butterfat Production...1921
	Worsham, Clinton G.	M.S.	A Study of Farm Organization in the Cut-Over Areas of Northern Minnesota
1922	Bjorka, Knute	M.S.	Recent Tendencies in the Economics of the Dairy Industry in Minnesota
	Dacanay, Jose Q.	M.A.	Membership Contracts for Agricultural Cooperative Associations
	Gaumnitz, Edwin W.	M.A.	Organization and Management Problems of Minnesota Cooperative Livestock Shipping Associations
	Haas, George C.	M.A.	A Statistical Analysis of Farm Sales in Blue Earth County, Minnesota, As a Basis for Farm Land Appraisal
	Holt, Budd A.	M.A.	Organization and Management Problems of the Minnesota Potato Exchange
	Leager, Marc C.	M.S.	A Cost Accounting System for a Terminal Grain Elevator
1923	Critchfield, Burke H.	M.S.	No thesis
	Daggit, Edmund M.	M.A.	The Organization of the Twin City Butter Market
	Engberg, Russell C.	M.S.	Basic Farm Data As an Aid to the Farmer in Organizing His Farm Business
	Ezekiel, Mordecai J. B.	M.S.	A Statistical Examination of Diminishing Returns in Agriculture
	Hurd, Edgar B.	M.A.	A Cost Accounting Analysis for a Livestock Commission Firm

*The Graduate School offers the master's degree under two plans: Plan A, involving a thesis; and Plan B, which substitutes additional course work and special projects for the thesis.

APPENDIX B--*Continued*

Date	Name	Degree	Thesis Title
1923	Johnson, Abner L.	M.A.	The Minneapolis Central Public Market
<i>Cont'd.</i>	Lowe, Percy	M.A.	No thesis
	Oakes, Floyd E.	M.S.	A Cost Accounting System for the Flour Mill
	Peterson, George M.	M.A.	Cost of Handling Potatoes in the Local Markets
	Purves, Clarence M.	M.A.	Cost Rates for Farm Labor
1924	Jesness, O. B.	M.S.	The Marketing of Burley Tobacco
	Waite, Warren C.	Ph.D.	The Price-Making Mechanism of the Central Markets...1924
1925	Arthur, Charles M.	M.A.	Some Management Problems of Farmers' Elevators
	Ballinger, Roy A.	M.A.	No thesis
	Black, Albert G.	M.S.	No thesis
	Fredell, G. Herbert	M.S.	The Minnesota Cooperative Creameries Association, Inc.
	Gile, Bueford M.	M.A.	No thesis
	Howe, Charles B.	M.A.	No thesis
	Scanlan, John J.	M.A.	Factors Affecting the Price of Wheat Flour-Mill By-Product Feeds in Minneapolis (1910 to 1925)
	Smith, Bryan E.	M.A.	A Study of the Income of the Minnesota Farmer from 1900 to 1924
	Sulerud, George L.	M.A.	Trends in Production in the Red River Valley
	Truman, Rex	M.S.	No thesis
	Wall, Norman J.	M.A.	Livestock Financing in the Northwest
	Guamnitz, Edwin W.	Ph.D.	Central Market Price Quoting, Especially in the Minneapolis-St. Paul Market
	Zimmerman, Carle C.	Ph.D.	Farmers' Market Attitudes
1926	Arnold, Carl R.	M.A.	No thesis
	Braun, Elmer W.	M.A.	A Preliminary Statistical Analysis of the Factors Determining Corn Prices at Chicago
	Derrick, Bruce B.	M.A.	Present Tendencies in Livestock Marketing with Special Reference to Minnesota
	Johnson, Sherman E.	M.S.	An Analysis of Organization Problems on Louisiana Farms
	Kifer, Russell S.	M.S.	Dairying in Relation to the Major Enterprises on Farms in Cottonwood and Jackson Counties, Minnesota
	Kuhrt, William J.	M.A.	A Study of Some Special Problems of Farmers' Elevator Operation in 1924-25
	Longley, Willard V.	M.S.	Plan of Organization for Marketing Minnesota Potatoes Cooperatively
	Mighell, Ronald L.	M.S.	A Study of the Relation of Input to Output in the Dairy Enterprise on Steele County Farms
	Peterson, Arthur G.	M.A.	Factors Affecting the Utilization of Farmers' Cash Incomes in Minnesota
	Reese, Elmer A.	M.A.	Some Factors Influencing the Demand for Milk in Minneapolis
	Sprague, Gordon W.	M.A.	Factors Affecting Efficiency of an Egg and Poultry Producers Association

APPENDIX B---Continued

Date	Name	Degree	Thesis Title
1926 <i>Cont'd.</i>	Ward, Gordon H.	M.A.	Cooperative Marketing of Local Produce with a Program for the Twin Cities
	Metzger, Hutzal	Ph.D.	The Economic Aspects of Local Elevator Organization
	Rauchenstein, Emil	Ph.D.	Factors Affecting the Milk Supply in the Twin Cities Area
	Stitts, Thomas G.	Ph.D.	Economic Factors Affecting the Price of Butter
1927	Bredin, James H.	M.A.	Price Differentials in Wheat between Minneapolis, Winnipeg and Liverpool
	Epps, Martha S.	M.A.	No thesis
	Froker, Rudolph	M.A.	Organization and Management Problems of Cooperative Oil Companies in Minnesota
	Grindley, Thomas William	M.A.	The Economics of Oat Production in Alberta
	McLaughlin, John R.	M.S.	No thesis
	Oldfield, Henry G.	M.S.	An Analysis of the Present Land Value Situation in Minnesota
	Olson, Victor J.	M.S.	A Statistical Study of Factors Affecting Farmers' Earnings in Stevens County, Minnesota
	Sallee, George A.	M.S.	Pork Production in Relation to Farm Organization and Income with Special Reference to Steele County, Minnesota
	Slagsvold, Peter L.	M.A.	A Preliminary Study of Egg Prices
	Black, Albert G.	Ph.D.	The Wealth and Income of the Farmers of the United States
	Churchill, Omar O.	Ph.D.	Economics of Flaxseed Production
	Gile, Bueford M.	Ph.D.	The Agricultural Credit Situation in Minnesota
	Peterson, George M.	Ph.D.	The Problem of the Agricultural Surplus in the United States
1928	Grinager, Torstein	M.S.	A Study of Minnesota Honey Marketing Methods
	Hall, Orville J.	M.S.	The Marketing of Arkansas Strawberries
	Hendel, Julius	Ph.D.	Relationship between the Price of Cash Hard Red Spring Wheat and Futures in the Minneapolis Market
	Jesness, O. B.	Ph.D.	The Marketing of Tobacco
	Tinley, James M.	Ph.D.	The Marketing of Flue Cured Tobacco
1929	Gilman, Virgil D.	M.A.	The Organization and Business Practices of Agricultural Credit Corporations in Minnesota
	Kindt, Lawrence E.	M.A.	Economic Study of Sheep Production in Southwestern Alberta
	Grindley, Thomas W.	Ph.D.	The Economic Aspects of Single-Cropping in Western Canada
	Johnson, Edwin C.	Ph.D.	The Agricultural Credit Situation in Kentucky
	Roth, Walter J.	Ph.D.	The Evolution of Farm Accounting in Germany
	Thompson, Roy L.	Ph.D.	The Agricultural Credit Situation in Louisiana
1930	Galloway, Zachary L.	M.S.	The Use of the Budget in Farm Organization Analysis

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1930 <i>Cont'd.</i>	Hansen, Peter L.	M.S.	Some Trends of Cooperative Dairy Marketing in Minnesota
	Hodgson, Robert E.	M.S.	The Economy of Corn Production As Affected by the Use of F ₁ Seed of Varietal Crosses
	Pingrey, Hazen B.	M.S.	The Rise and Decline of Wheat Production in Minnesota
	De Swardt, Stephanus J. J.	M.S.	Factors Determining the Success of Land Settlement in South Africa
	Vogel, Harold A.	M.S.	Factors Affecting Hog Production and Prices in Minnesota
	Clarke, George B.	Ph.D.	Study of the Minnesota System of Agricultural Taxation with Special Reference to the Distribution of the Tax Burden
	Hammar, Conrad H.	Ph.D.	Farm Incomes and Land Values in the Cut-Over Region of the Lake States
	Howe, Charles B.	Ph.D.	A Method of Analyzing the Behavior of Prices in Local Markets
	Ward, Gordon H.	Ph.D.	A Statistical Analysis of the Price Making Forces in the New York Egg Market
1931	Dankers, William H.	M.S.	A Study of Incomes, Expenditure and Financial Progress of Farmers in the Cut-Over Area of Minnesota
	Johnson, Edwin A.	M.A.	Motor Transportation of Livestock
	Maevers, Martin	M.S.	The Raiffeisen System and Its Significance for the German Farmer
	Malitsky, Valentine S.	M.S.	The Production and Foreign Trade of Soybeans in the United States
	Armentrout, Walter W.	Ph.D.	The Efficiency of Cooperative Livestock Shipping Associations in West Virginia
	Ballinger, Roy A.	Ph.D.	An Analysis of the Present Tax Situation in Virginia Relative to Agriculture
	Longley, Willard V.	Ph.D.	Some Economic Aspects of the Apple Industry in Nova Scotia
	Mortenson, William P.	Ph.D.	An Economic Study of the Milwaukee Milk Market
	Quackenbush, Ernest R.	M.S.	A Study of Some Economic Factors Affecting the Food Costs of Eighty-Four Twin City Families
Van der Merwe, William H.	Ph.D.	Competitive Cotton Production: International and Inter-Regional, Domestic	
1932	Day, Joseph B.	M.S.	A Study of Farm Lease Problems in Minnesota
	Gilcreast, Roy Matthew	M.S.	Systems of Management Used on Group Farm Holdings in Minnesota
	Picha, Fred K.	M.A.	The Practice of Life Insurance Companies in Farm Mortgage Financing in Minnesota with Special Reference to Foreclosures
	Putnam, Paul L.	M.S.	Planning Profitable Farm Organizations for Connecticut Dairy Farms
	Regan, Mark M.	M.A.	An Analysis of Farm Mortgage Foreclosure in the State of Minnesota

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1932 <i>Cont'd.</i>	Smith, Clifford Z.	M.A.	An Analysis of Farm Real Estate Assessments in Minnesota
	Soderburg, Harry William	M.S.	The Problem of Appraising Farm Lands for Mortgage Purposes
	True, Arthur W.	M.A.	An Analysis of Real Estate Problems of the Minnesota Rural Credits Department
	Dowell, Austin Allyn	Ph.D.	An Evaluation of the Advantages and Disadvantages of Minnesota Agriculture in World Competition
	Murray, William G.	Ph.D.	An Economic Analysis of Farm Mortgages in Story County, Iowa, 1854-1931
	Nickell, Paulena	Ph.D.	Rural Housing: A Study of the Housing of 316 Master Farm Homemakers with Special Reference to Adequacy
1933	Cleland, Spencer B.	M.S.	Production Factors and Standards for Minnesota Agriculture
	Simon, Marvin J.	M.S.	Cooperative Purchasing of Farm Supplies
	Mighell, Albert T.	Ph.D.	The Application of Economic Analysis to the Management Problems of the Individual Farmer
1934	Cowan, Donald Ross G.	Ph.D.	Some Economic Analyses for Planning the Sales Program
	Filley, Horace Clyde	Ph.D.	Effects of Inflation and Deflation upon Nebraska Agriculture, 1914 to 1932
	Hinrichs, Arnold F.	Ph.D.	An Economic Study of Farmers' Elevators in Indiana
	Malitsky, Valentine S.	Ph.D.	Economic Effects of Recent Changes in Russian Agriculture
	Quintus, Paul E.	Ph.D.	An Economic Analysis of the Twin City Milk Market
1935	Anderson, Hjalmar O.	M.A.	An Analysis of the Competitive Relationships among Cooperative Creameries of Houston County, Minnesota
	Davis, John H.	M.A.	School Costs and the Farm Tax Burden in Van Buren County, Iowa
	Peterson, George Leroy	M.A.	An Economic Analysis of the Operation of the Agricultural Adjustment Act in Minnesota, 1933-1935
	Uys, G. J. C.	M.S.	The Development of Farm Management Research Methods in the United States
1936	Davis, James H.	M.S.	A Study of Chattel Mortgages in Boone County, Iowa, for the Years 1910-1932
	du Plessis, Christoffel H.	M.S.	An Analysis of the Operations of the Federal Land Bank System
	Liang, Jen Ho	M.S.	Cooperative Rural Credit in China
	Sheay, John	M.A.	An Economic Study of the Improvement of the Quality of Butter Made by the Members of the Land O' Lakes Creameries, Incorporated
	Storey, Emerson W.	M.S.	A Study of the Relationships between the Future Options and the Cash Prices of the Various Grades of Corn at Chicago
	Warrington, Sylvan T.	M.A.	An Analysis of the Development of Cooperative Trucking of Livestock in Minnesota

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1936 <i>Cont'd.</i>	Dankers, William H.	Ph.D.	An Economic Analysis of the Cost and Utilization of Power Supplied by Horses on Minnesota Farms
1937	Alvord, Ben F.	M.S.	No thesis
	Anderson, Alton A. R.	M.S.	A Study of the Beltrami Island Resettlement Project
	Baldwin, Wilbur A.	M.S.	A Study of Prices Paid by Farmers for Goods and Services in Minnesota, 1910-1936
	Bevan, Roland C.	M.S.	A Study of the Use of Farm Records in Helping the Individual Farmer to Improve His Farm Organization
	Chu, Hsioh-shwen	M.S.	A Proposed Plan for Marketing Citrus Fruits in China
	King, Leslie W.	M.S.	An Analysis of the Hedging Problems of the Northwest Millers
	Wang, Ih Chiao	M.S.	An Analysis of One Hundred Rural Cooperative Credit Societies in Shensi Province, China
	Thompson, Samuel H.	Ph.D.	Economic Trends in the Marketing of Iowa Livestock
1938	Eoyang, Ping	M.S.	Rural Finance in China, Present Status and Suggestions for Improvement
	Hanson, Hans P.	M.S.	No thesis
	Haugland, Nelvin E.	M.S.	A Study of Some of the Factors Influencing Farm Development in Cherry and Clinton Townships of St. Louis County, Minnesota
	Osgood, Otis T.	M.S.	No thesis
	Ferrier, Wallace T.	Ph.D.	A Study of Farm Mortgage Credit in the Spring Wheat Region
	Fleming, Frank L.	Ph.D.	Economic Aspects of Soil Conservation and Production Control in the Corn Belt
	Sallee, George A.	Ph.D.	An Economic Study of Agricultural Labor in Minnesota
	Snyder, Lloyd B.	Ph.D.	The Tax System of Nebraska with Special Reference to Its Relation to Agriculture
	Trelogan, Harry C.	Ph.D.	An Economic Analysis of the Chicago Milk Market, with Special Reference to the Operation of United States Milk License Number 30 in That Market
1939	Castro, Alfonso	M.S.	No thesis
	Cheo, Wen-Wei	M.S.	A Study of Land Tenure in China
	Delzell, Fred E.	M.S.	No thesis
	Duerr, William A.	M.S.	Possibilities of Farmers' Cooperation in Timber Management and Marketing
	Eberle, Alfred M.	M.S.	A Study of Factors, and Their Economic Implications, That Must Be Considered When Planning a Farming Business in Central South Dakota
	Fenske, Leo J.	M.S.	No thesis
	Huang, Kuo Chih	M.S.	Land Utilization in China
	Johnson, Harvey P. H.	M.S.	No thesis
	Loenholdt, Fritz	M.S.	An Analysis of Farm Loan Experience in Mille Lacs County and Jackson County, Minnesota
	Newman, William A.	M.A.	Problems in Marketing Poultry and Eggs in Minnesota

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1939	Watkins, Lucius H.	M.S.	No thesis
<i>Cont'd.</i>	White, John W.	M.S.	No thesis
	Yang, Shu-Chia	M.S.	A Comparative Study of Agricultural Credit Agencies in the United States and in Great Britain
	Arthur, Ira W.	Ph.D.	Public Regulation of Monopolistic Practices in the American Livestock and Wholesale Meat Trades (Economic Objectives and Consequences)
	Hollands, Harold F.	Ph.D.	An Economic Study of Reclamation Projects in Central Washington, with Particular Reference to Plans for Repayment of Construction Costs
	Ranney, Willard P.	Ph.D.	An Analysis of the Selection and Use of Factors Affecting the Earnings of Dairy Farmers in Southeastern Minnesota
1940	Baker, Johnathan C.	M.S.	No thesis
	Carlsen, Earl W.	M.A.	A Study of Real Estate Sales of the Federal Land Bank of Spokane
	Click, Walter L.	M.S.	No thesis
	Dvoracek, Daniel C.	M.S.	No thesis
	Halvorson, Harlow W.	M.S.	A Study of Land Classifications and Their Relation to the Ownership and Taxation of Land in Morton County, North Dakota
	Myers, Glen M.	M.S.	A Study of the Effect of Soil Erosion Control Practices on the Organization of a Selected Group of Farms in Winona County
	Myrom, Arthur M.	M.S.	Holdings of Farm Real Estate in Minnesota by Principal Corporate Agencies, 1938
	Shearer, Charles F.	M.S.	No thesis
	Wyman, Donald E.	M.S.	A Study of County Egg Prices within Minnesota and in Comparison with Large Eastern Markets
	Yu, Robert Si-Hsuin	M.S.	Agricultural Regions in China
	Chen, Hong Yu	Ph.D.	Crop Rotation Studies and the Use of Crop Rotations in Soil Conservation Programs in Southeastern Minnesota
	Engene, Selmer A.	Ph.D.	An Analysis of the Relationship of the Relative Ranking of Management Factors to Farm Earnings
	Sprague, Gordon W.	Ph.D.	Butter Price Quotations at Chicago
1941	Aiton, Edward W.	M.S.	An Appraisal of Agricultural Policy in the United States, 1920-1940
	Baughman, Ernest T.	M.S.	A Study of the Efficiency of Cooperative Creameries in West Central Minnesota with Suggested Adjustments
	Garver, Walter B.	M.S.	Marketing Margins for Minnesota Farm Products
	Hemming, Clarence J.	M.S.	No thesis
	Hoglund, C. Raymond	M.S.	Effects of an Erosion Control Program on the Organization and Operation of a Group of Winona County Farms
	Jones, Lloyd E.	M.S.	No thesis

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1941 <i>Cont'd.</i>	Wilkens, George	M.S.	An Economic Study of the Poultry Enterprise and Poultry Practices on Southeast Minnesota Farms
	MacFarlane, David L.	Ph.D.	A Study of Selected Problems in Sampling for Crop and Livestock Estimating
	Peterson, George L.	Ph.D.	A Study of Agricultural Financing by Country Banks in Minnesota
	Phillips, Carroll D.	Ph.D.	The Louisville Wholesale Fruit and Vegetable Market
1942	Anderson, Arthur W.	M.S.	A Study of the Effect of Shape and Size of Field on the Labor and Power Expenditures for Crop Production
	Edson, Allen W.	M.S.	A Study of Land Tenure in Synnes Township, Stevens County, Minnesota
	Hirsch, Hans G.	M.S.	Crop Yield Index Numbers
	Shelley, Oren R.	M.S.	County Land-Use Planning in Minnesota
	Stucky, H. R.	M.S.	No thesis
	Herrmann, Louis F.	Ph.D.	A Study of Rates of Feeding and Milk Production in Some West Virginia Dairy Herds
	Nodland, Truman R.	Ph.D.	A Study of Management Factors Affecting Variations in Returns from Livestock in Southeastern Minnesota
	Osgood, Otis T.	Ph.D.	Planning Farm Organizations in the Eastern Ozarks of Arkansas
	Proctor, Roy Estes	Ph.D.	Factors Influencing Farm Organization in a General Livestock Area in Kentucky
	Yang, Shu-Chia	Ph.D.	A Study of the Chinese Economy with Special Reference to Farm Credit
1943	Sielaff, Theodore J.	M.A.	No thesis
	Halvorson, Lloyd C.	Ph.D.	The Use of Normal Prices by the Farm Credit Administration
	White, John W.	Ph.D.	Economic Possibilities of Changes in Enterprise Combinations on Plantations in the Lower Arkansas River Delta
1944	Short, Frederick W.	M.S.	No thesis
1945	Gaylord, Clinton G.	M.S.	Problems Confronting Southern Minnesota Farmers in the Marketing of Livestock
	Neittamo, Eino Armas	M.S.	A Study of Incomes of Farmers in the Northeast Cutover Area of Minnesota with Special Emphasis on Supplementary Sources
	Sielaff, Richard O.	M.B.A.	No thesis
1946	Bhargava, Mohan P.	M.S.	No thesis
	Guy, William L.	M.S.	No thesis
	O'Young, William	M.S.	A Study of Some Economic Factors Affecting Cereal Production in China
	Tsiang, Chieh	M.S.	Farm Tenancy in China
	Peterson, Weber H.	Ph.D.	Economics of Flaxseed Production in the United States
	Salter, Leonard A.	Ph.D.	A Critical Review of Research in Land Economics

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1946 <i>Cont'd.</i>	Whitney, Ramey C.	Ph.D.	Farm Income, Investment, and Value of Farm Land in Missouri
1947	Arms, Floyd B.	M.S.	Economic Aspects of Labor in City Milk Distribution
	Brownstone, Meyer	M.S.	An Analysis of the Manitoba Cooperative Poultry Marketing Association
	Champa, Robert L.	M.S.	Trends of Farm Property Values in Minnesota from 1900 to 1945
	Eckstrom, Clifford R.	M.S.	No thesis
	Erlandson, M. Julian	M.S.	No thesis
	Fugett, Kenneth	M.S.	No thesis
	Hallberg, Owen K.	M.S.	No thesis
	Koudele, Joe W.	M.S.	No thesis
	Middleton, Ezekiel M.	M.S.	No thesis
	Nel, A. B. C.	M.S.	An Economic Study of Extensive Livestock Farming in in Eastern Bechuanaland, Union of South Africa
	Olson, Russell O.	M.S.	A Study of the Suitability of Work Units per Worker As a Measure of Farm Labor Efficiency
	Taylor, Frederick R.	M.S.	No thesis
	Short, Frederick W.	Ph.D.	Fruit Marketing with Special Reference to the Niagara Peninsula of Ontario
	Zivnuska, John A.	Ph.D.	Business Cycles, Building Cycles, and the Development of Commercial Forestry in the United States
1948	Adams, Ralph W.	M.S.	No thesis
	Dwivedi, Radhanath N.	M.S.	No thesis
	Farstad, Edmund H.	M.S.	No thesis
	Gordon, Japhas A.	M.S.	No thesis
	Hayden, Austin J.	M.S.	No thesis
	Hillier, Kenneth L.	M.S.	No thesis
	McHugh, Jerry	M.S.	No thesis
	Ogren, Kenneth E.	M.A.	No thesis
	Olson, Robert E.	M.S.	No thesis
	Pierce, Walter H.	M.S.	An Economic Study of the Turkey Enterprise on North Carolina Farms, 1946
	Sorenson, Vernon L.	M.S.	No thesis
	Swanson, Earl R.	M.S.	No thesis
	Wyler, Martin	M.S.	No thesis
	Burk, Marguerite C.	Ph.D.	Analysis of Wartime Changes in Consumption
	Cotton, Walter P.	Ph.D.	A Study of an Economic Adjustment of Market Milk Supplies to Needs in North Carolina
	Doll, Raymond J.	Ph.D.	Agricultural Policy in Relation to the Beef Cattle Industry
	Engelman, Gerald	Ph.D.	Some Economic and Physical Problems in the Marketing of Slaughter Hogs on the Basis of Carcass Weights and Grades in the United States

APPENDIX B--*Continued*

Date	Name	Degree	Thesis Title
1948 <i>Cont'd.</i>	Pine, Wilfred H.	Ph.D.	Methods of Classifying Kansas Land According to Economic Productivity
	Sielaff, Richard O.	Ph.D.	The Nature and Extent of Monopolistic Competition in the Ready-to-Eat Cereal Industry: An Agricultural Processing Industry
	Tsiang, Chieh	Ph.D.	An Economic Study of Some Problems of Chinese Agriculture
1949	Benrud, Charles H.	M.S.	No thesis
	Blackwood, Milton B.	M.S.	No thesis
	Bunkers, Elmer W.	M.S.	No thesis
	Chia, Chien	M.S.	An Economic Study of the Relationships between Size of Farm Business and the Standard of Living of Farmers in Sing-Lung-Hsiang, Bai-Hsien, Szechwan, China
	Hurst, Robert	M.S.	No thesis
	Miller, John D.	M.S.	No thesis
	Swanson, Harold B.	M.S.	No thesis
	Swantz, Alexander	M.S.	No thesis
	Wang, Tseng Chuang	M.S.	No thesis
	Wilmot, Stephen E.	M.S.	No thesis
	Yang, Yu-Kun	M.S.	No thesis
	Beneke, Raymond R.	Ph.D.	Transfer of Farm Operatorship with Special Reference to the Problems of Beginning Operators and the Utilization of Farm Resources during the Establishment Phase
	Davis, John H.	Ph.D.	An Economic Analysis of the Tax Status of Farmer Cooperatives
	Epp, Abram W.	Ph.D.	An Analysis of Adjustments in Farm Organization in Pawnee County, Nebraska, to Meet Soil Conservation Needs
	Hall, Orville J.	Ph.D.	Drying of Arkansas Rice--Economic Considerations and Consequences
	Liou, Song-Seng	Ph.D.	Possibilities of Improving the Chinese Agricultural Situation through Industrialization
Miller, Frank	Ph.D.	Agricultural Credit in Southeastern Nebraska	
Spaulding, J. Lloyd	Ph.D.	Criteria for the Utilization of the Value Premise As an Analytical Device Examined with Special Reference to Certain Studies in Rural Land Economics	
1950	Anderson, Harold W.	M.S.	Financing of Country Grain Elevators Affiliated with Farmers Union Grain Terminal Association
	Blank, Oscar Uel	M.S.	No thesis
	Chandrayya, D.	M.S.	No thesis
	Dahl, Reynold P.	M.S.	An Economic Analysis of Short-Term Agricultural Loans of Selected Minnesota Rural Banks
	Ezzell, Walter L.	M.S.	Accounting System for Retail Cooperative Associations

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1950 <i>Cont'd.</i>	Hwang, Yun-Shih	M.S.	A Study of the Standard of Living of the Farm Population
	Keith, Ian F.	M.S.	No thesis
	Krause, Stanley F.	M.S.	No thesis
	Lowe, Anthony	M.S.	No thesis
	Maddy, Glenn E.	M.S.	No thesis
	Newberg, Richard R.	M.A.	No thesis
	Ottoson, Howard W.	M.S.	Effect of Dairy Barn Arrangements on Chore Labor Requirements
	Parker, Lorne E.	M.S.	No thesis
	Peightal, Billy J.	M.S.	No thesis
	Strangeland, Sigurd	M.S.	No thesis
	Stanton, Bernard F.	M.S.	No thesis
	Wu, Chu Yuan	M.S.	No thesis
	Butz, Dale E.	Ph.D.	An Economic Analysis of the Minnesota Dry Milk Industry
	Hirsch, Hans G.	Ph.D.	The Role of Milk Producers' Cooperatives under the Agricultural Marketing Agreement Act
	Korzan, Gerald E.	Ph.D.	Marketing Dairy Products in Sparsely Populated Regions with Special Reference to Montana
1951	Boucher, Gustave P.	M.S.	No thesis
	Fortenberry, J. Wendell	M.S.	Effect of Mechanized Power on Small Farms in the Hill Region of Mississippi
	Furniss, Ian F.	M.S.	Relationship of Farm Mechanization to Size of Farm in the Prairie Provinces of Canada
	Haw, Nathan S.	M.S.	No thesis
	Hinds, Max K.	M.S.	An Analysis of Dairy Marketing in Steele County, Minnesota
	Ingersent, Kenneth A.	M.S.	A Study of the Effect of Farm Size on the Earnings and Productive Efficiency of Farms in Southeastern Minnesota
	Killen, Mary B.	M.S.	Consumer Use of Non-Fat Dry Milk Solids in St. Paul
	Larson, Arnold	M.S.	No thesis
	Tyvand, James	M.S.	No thesis
	Wilson, Augustus T.	M.S.	No thesis
	Berg, Sherwood O.	Ph.D.	An Economic Analysis of Production Credit Associations in the State of Minnesota
	Buck, John T.	Ph.D.	An Economic Analysis of the Shift from Cream to Whole Milk in Minnesota Cooperative Creameries
	McDaniel, William E.	Ph.D.	A Study of Technological Change and Its Effect upon Production and Cash Expenses from 1910-1949 on Southeastern Minnesota Dairy Farms
	Ogren, Kenneth E.	Ph.D.	An Analysis of Consumer Demand for Fresh Citrus Fruits, Frozen Concentrated Orange Juice, and Selected Canned Fruit Juices

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1951 <i>Cont'd.</i>	Sartorius, Lester C.	Ph.D.	A Statistical Analysis of Eating Places As Marketers of Food Products in Minneapolis and Fairmont, Minnesota, and in the U.S.
	Sielaff, Theodore J.	Ph.D.	An Economic Study of Rural Electrification in Minnesota
	Swantz, Alexander	Ph.D.	Economic Effects of Federal Regulation of Fluid Milk Markets with Special Reference to the Minneapolis-St. Paul Market
	Taylor, Frederick R.	Ph.D.	An Economic Analysis of Quality Deterioration in Minnesota Egg Marketing
	Vanvig, Andrew	Ph.D.	An Economic Study of Farm Organization with Special Reference to Cropping Systems on the Heavy Soils Area of the Red River Valley
1952	Dennistown, Rollin M.	M.S.	No thesis
	Kottke, Marvin W.	M.S.	A Study of Farm Leasing Practices in the Various Economic Areas of Minnesota
	Nelson, Ralph E.	M.S.	No thesis
	Pederson, Harold C.	M.S.	Some Economic Aspects of Artificial Grain Drying at Country Elevators in Minnesota
	Pilhofer, Hans	M.S.	No thesis
	Smith, Carl E.	M.S.	No thesis
	Stallings, Dale G.	M.S.	An Analysis of the Marketing and Merchandising of Consumer Packages of Dry Skim Milk in the Minneapolis Market
	Swanson, Henning W.	M.S.	No thesis
	Thompson, H. Harlow	M.S.	An Economic Analysis of the Operations of Farmers' Cooperative Purchasing Associations in Minnesota, 1949-50
	Wilson, Arthur G.	M.S.	The Determination of By-Product Credits in the Marketing of Slaughter Hogs by Carcass Weight and Grade
	Bitting, H. Wayne	Ph.D.	Problems in Measuring and Analyzing Marketing Margins for Selected Fruits and Vegetables
	Brekke, Arnold	Ph.D.	Development of Agricultural Policy
	Goldberg, Ray A.	Ph.D.	The Competitive Position of the Minnesota Soybean Producer and Processor
	Gray, Roger W.	Ph.D.	An Economic Analysis of the Impact of the Price Support Program upon the Development of the Potato Industry in the United States
	Keith, Ian F.	Ph.D.	An Economic Analysis of the Integration of Crop and Livestock Production in Southern Minnesota
	Krause, Stanley F.	Ph.D.	The Marketing and Pricing of Minnesota Creamery Butter
	Manuel, Milton Lloyd	Ph.D.	The Historical Development and Evaluation of the Farm Management Service Associations in the United States
	Shute, James A.	Ph.D.	A Comparison of Dairy Cattle Labor Requirements for Stall and Loose Housing Barns
	Sinclair, Soloman	Ph.D.	The Role of Subsidies in Farm-Mortgage Credit

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1952 <i>Cont'd.</i>	Stoltenberg, Carl H.	Ph.D.	Progress in Rural Zoning in Northeastern Minnesota
1953	Amunategui, Gregorio	M.S.	No thesis
	Aune, Henrik J.	M.S.	No thesis
	Daumnitz, Chester B.	M.S.	No thesis
	Hamouda, Khalil Abdel	M.S.	No thesis
	Knudtson, Arvid C.	M.S.	No thesis
	Olson, Lester L.	M.S.	No thesis
	Rivera, Aida	M.S.	No thesis
	Smith, Wesley G.	M.S.	No thesis
	Sorenson, L. Orlo	M.S.	No thesis
	Day, Lee M.	Ph.D.	Comparative Efficiency of Farm Operations under Alternative Leasing Systems
	Pierce, Walter H.	Ph.D.	Opportunities for Economic Adjustments in Farming Systems, Central Coastal Plain North Carolina, with Particular Reference to Small Tobacco Farms, Wilson County
	Plaxico, James S.	Ph.D.	An Economic Analysis of Intensive Forage Systems
	Sorenson, Vernon L.	Ph.D.	A Study of the Nature and Cost of Government Programs Affecting Potatoes and Their Impact on Inter-Market Relationships with Particular Reference to Kentucky
	Summers, George P.	Ph.D.	An Economic Study of the Production Control and Price Support Program for Burley Tobacco
1954	Anderson, Raymond L.	M.S.	No thesis
	Goblirsch, David L.	M.S.	No thesis
	Hjort, Rober	M.A.	No thesis
	Juers, Linley E.	M.S.	No thesis
	Manion, William M.	M.S.	No thesis
	Myint, Kyaw	M.S.	No thesis
	Peterson, Thomas H.	M.S.	No thesis
	Routhe, Harlund	M.S.	No thesis
	Dahl, Reynold P.	Ph.D.	An Economic Analysis of the Agricultural Production Lending Activities of Minnesota Country Banks
	Khan, Masuda	Ph.D.	An Evaluation of Minnesota Farm Price Index Numbers and Recommendations for the Future
	Lee, Charles Edgar	Ph.D.	Economic Effects of Sanitary Regulations Relating to Milk Markets
	Manning, Travis W.	Ph.D.	An Analysis of the Economic Efficiency of Minnesota Dairy Cooperatives
	Montgomery, George	Ph.D.	Wartime Control of Grain Prices in the United States
	Newberg, Richard R.	Ph.D.	An Analysis of Changes in Hog-Cattle Price Relationships, 1900-1953
	Rorholm, Niels	Ph.D.	Linear Programming As a Possible Refinement of Farm Budgeting Techniques

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1954 <i>Cont'd.</i>	Stanton, Bernard F.	Ph.D.	Using Farm Records in Decision Making in Livestock Production
	Stucky, Harold Ralph	Ph.D.	Settlement and Repayment Policies on Irrigation Projects
	Swanson, Jay P.	Ph.D.	The Economic Effects of Varying Amounts of Forage on the Organization of Minnesota Farms
	Wood, V. A.	Ph.D.	Public Land Policy for Alberta
1955	Blaich, Oswald P.	M.S.	No thesis
	Bohn, Gerhardt H.	M.S.	No thesis
	Dreyer, Stanley W.	M.S.	No thesis
	Gray, Wesley H.	M.S.	No thesis
	Jawando, Ganiyu A.	M.S.	No thesis
	Kleene, Kermit H.	M.S.	No thesis
	Kori, Gangadhar S.	M.S.	No thesis
	Olson, Fred L.	M.S.	No thesis
	Vila, Hector	M.S.	No thesis
	Hamouda, Khalil Abdel	Ph.D.	Economic Aspects of the Application of Cooperative Farming in Egypt
	Keaton, Clyde R.	Ph.D.	An Economic Analysis of Apple Marketing, Hondo Valley, New Mexico
	Kottke, Marvin W.	Ph.D.	A Study of Decision Sharing, Tenure Uncertainty and the Choice of Farm Enterprise Combinations under Farm Leasing Systems in Minnesota
	Martin, Joe A.	Ph.D.	The Impact of Industrialization upon Agriculture
1956	Abbawi, Abdullah A.	M.A.	The Significance of Date Production to the Economy of Iraq
	Buse, Rueben	M.A.	No thesis
	Christiansen, Martin	M.S.	No thesis
	Fuller, Boyd C.	M.S.	No thesis
	Hasbargen, Paul R.	M.S.	No thesis
	Pavlick, Anthony L.	M.S.	No thesis
	Radway, Richard F.	M.S.	No thesis
	Sandoval, Pedro R.	M.S.	Economic and Social Conditions of Settlers in the Kidapawan Area in Mindanao
	Siira, Eino	M.S.	No thesis
	Evans, Homer C.	Ph.D.	The Nature of Competition among Apple Processors in the Appalachian Area
	Trotter, Clarence Earl	Ph.D.	Consumer Preference for Lean and Fat Type Pork Cuts
1957	Angus, Richard E.	M.S.	No thesis
	Brand, Richard W.	M.S.	No thesis
	Brown, Earl H.	M.S.	No thesis
	Dorow, Norbert A.	M.S.	No thesis

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1957 <i>Cont'd.</i>	Eichers, Theodore R.	M.S.	Effect of Method of Summer Feeding on the Dairy Farm Organization
	Helmberger, Peter G.	M.S.	No thesis
	Narvarette, Hernan	M.S.	An Economic Analysis of the Farm Credit System of Chile
	Park, Jin Hwan	M.S.	No thesis
	Hsieh, Sam Chung	Ph.D.	Rice and Sugarcane Competition on Paddy Land in Central Taiwan
	Juers, Linley E.	Ph.D.	An Economic Analysis of the Operating Costs of Butter-Powder Plants with Particular Reference to the Problems of Joint Costs
	Knudtson, Arvid C.	Ph.D.	An Analysis of Processing Costs in Specialized Butter Plants Receiving Whole Milk
	Moore, Donald S.	Ph.D.	A Study of the Effect of Individual Motivations and of Farm Business-Household Relationship upon the Organization and Operation of 29 Southeastern Minnesota Farms, 1928-55
1958	Egertson, Kenneth E.	M.S.	No thesis
	Johnson, Roger G.	M.S.	No thesis
	Olson, Joseph C.	M.S.	No thesis
	Subaiya, Pandanda N.	M.S.	No thesis
	Ying, John T. S.	M.A.	No thesis
	Aune, Henrik J.	Ph.D.	An Economic Analysis of Labor Inputs in Dairying As Affected by Size of Herd and Types of Equipment
	Bortfeld, Charles F.	Ph.D.	Production Alternatives in Response to Price Changes for a 320-Acre Wheat-Beef Farm in South Central Kansas
	Ghahraman, Farhad	Ph.D.	The Right of Use and Economics of Irrigation Water in Iran
1959	Jawando, Ganiyu A.	Ph.D.	The Role of Agriculture in the Economic Development of Nigeria
	Pilhofer, Hans	Ph.D.	The Interrelationship of Farm Mechanization and Organization in Decision Making
	Zoller, Richard B.	Ph.D.	The Vertical-Block Budgeting System--A New Farm Planning Technique
	Behr, Michael R.	M.S.	No thesis
	Ehrich, Rollo L.	M.S.	An Economic Analysis of Cash-Future Price Relationships of Hard Red Spring Wheat
	Emmer, Gerald W.	M.S.	No thesis
	Erickson, Duane E.	M.S.	No thesis
	Herder, Richard J.	M.S.	An Economic Analysis of Retail Feed Credit in Minnesota
	Johansson, Hakan Sven	M.S.	No thesis
	Lee, Lin-Chuan (Davis)	M.S.	No thesis
	Nesheim, Nils K.	M.S.	Market Stabilization in Norway under the Agricultural Marketing Act

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1959	O'Brien, Thomas J.	M.S.	No thesis
<i>Cont'd.</i>	Vlakeley, Ransom A.	M.S.	No thesis
	Andrews, Richard A.	Ph.D.	A Study of the Sweet Corn Industry in the Midwest Farm Economy
	Law, Jerry M.	Ph.D.	The Development of a Classification of Market Structures for Agriculture
1960	Biniek, Joseph P.	M.S.	No thesis
	Butterworth, Keith	M.S.	No thesis
	Chen, Dean Tin	M.S.	No thesis
	Dailey, Edward	M.S.	No thesis
	Denison, Larry Lee	M.S.	No thesis
	Forbord, Roger J.	M.S.	No thesis
	Gensurowsky, Walter	M.S.	Impact of a Controlled Access Highway upon Economic Organization of Farm Units
	Gilman, Dean E.	M.S.	The Organization and Business Practices of Agricultural Credit Corporations in Minnesota
	Mitton, William Eldridge	M.S.	An Economic Analysis of Sidelines in Country Grain Elevators
	Morrow, Robert B.	M.S.	No thesis
	Nohre, Carmen O.	M.S.	No thesis
	Sison, Rafael A.	M.S.	No thesis
	Troncoso, Jose Luis	M.S.	No thesis
	Tung, Yi-Ping	M.S.	No thesis
	West, Donald A.	M.S.	No thesis
	Baumgartner, H. Walter	Ph.D.	Factors Associated with Potential Mobility among Farmers
	Hoepner, Paul Helmuth	Ph.D.	An Economic Analysis of Risk and Uncertainty in Dairy and Hog Production
	Nelson, Ralph E.	Ph.D.	The Nature of Competition among South Dakota Dairy Manufacturing Plants
	Schmidt, John R.	Ph.D.	Farm Organization As Influenced by Forage Acreage
1961	Evans, T. M. K.	M.S.	No thesis
	Johnson, Jerome E.	M.S.	No thesis
	Kamali-Nafar, Ahmad	M.S.	No thesis
	Lindstrom, John D.	M.S.	No thesis
	Nystrom, Lloyd W.	M.S.	No thesis
	Pankratz, Stanley R.	M.S.	No thesis
	Sherper, Keith W.	M.S.	No thesis
	Sherper, Kenneth H.	M.S.	No thesis
	Abel, Martin	Ph.D.	An Economic Analysis of Programs for Expanding the Demand for Farm Food Products in the United States
	Blaich, Oswald P.	Ph.D.	Vertical Integration in Theory

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1961 <i>Cont'd.</i>	Liu, Wei-ping	Ph.D.	An Economic Analysis of Taiwanese Agricultural Development Since 1950
	Tomek, William G.	Ph.D.	The Theory and Measurement of Long-Run Demand (with Special Emphasis on the Demand for Food Products)
1962	Anthony, Willis E.	M.S.	An Economic Analysis of Risk Problems in Minnesota PCA's
	El-Yamani, Abdel-Tawab	M.S.	No thesis
	Erlander, Gordon W.	M.S.	No thesis
	Hacklander, Duane D.	M.S.	No thesis
	Hammill, James H.	M.S.	No thesis
	Hanlon, J. William	M.S.	No thesis
	Hegland, James T.	M.S.	No thesis
	Hyslop, John D.	M.S.	An Economic Analysis of Changes in Transportation Costs and Their Effect on Processors of Grain and Oilseeds and on Farm Prices
	Johnson, James V.	M.S.	No thesis
	Nag, Prantosh	M.S.	No thesis
	Nelson, Harvey R.	M.S.	No thesis
	Peterson, Willis L.	M.S.	No thesis
	Pilgram, Eugene	M.S.	No thesis
	Wells, Arnold R.	M.S.	No thesis
	Wu, Carson Kung-Hsien	M.S.	No thesis
	Amann, Victor F.	Ph.D.	An Analysis of the Role of Management in Minnesota Farm Supply Cooperatives
	Dorow, Norbert A.	Ph.D.	Economics of Forage Handling Systems
	Erickson, Duane E.	Ph.D.	An Economic Analysis of the Feeder Cattle Enterprise
	Goodman, Richard J.	Ph.D.	Organization, Structure and Competitive Behavior of the Twin Cities Milk Market--Producer to Distributor Level
	Houck, James P., Jr.	Ph.D.	Demand and Price Analysis of the United States' Soybean Market
	Johnson, Roger G.	Ph.D.	The Relationship of Characteristics of Farmers to Their Efficiency of Production in the Dairy and Hog Enterprises
	Olson, Fred L.	Ph.D.	An Analysis of the Proportion of Grade A and Grade B Milk Patrons in Minnesota and Northwestern Wisconsin
	Rixie, Lloyd C.	Ph.D.	Cost Economies to Size and Resource Use in Red River Valley Farming
	Schertz, Lyle P.	Ph.D.	An Economic Analysis of Direct Controls on Marketings in the Feed-Livestock Sector
	Stallings, Dale G.	Ph.D.	An Economic-Engineering Analysis of the Methods and Costs of Packing Plums
	Thompson, Russell G.	Ph.D.	An Approach to Estimating Optimum Sizes of Butter-Powder Plants
1963	Ban, Sung Hwan	M.S.	No thesis

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1963	Coles, Bruce O.	M.S.	No thesis
<i>Cont'd.</i>	Mann, Jitendar S.	M.S.	No thesis
	Ruhland, Victorin J.	M.S.	No thesis
	Benrud, Charles H.	Ph.D.	Economic and Other Factors Associated with Variation in Alfalfa Seed Production in South Dakota
	Dennistoun, Rollin M.	Ph.D.	Some Economic Aspects of an Agricultural Machinery Leasing Program
	Dirks, Harlan J.	Ph.D.	Technological and Market Forces Influencing Vertical Integration in the Swine Industry
	Kamali-Nafar, Ahmad	Ph.D.	The Economic and Social Impact of Credit Institutions on Agricultural Development in Iran
	Long, Roger B.	Ph.D.	An Investigation into the Nature of Supplemental Irrigation with an Emphasis on the Economic, Motivational and Physical Factors Involved
	Nohre, Carmen O.	Ph.D.	Optimal Organizations for Farms and Normative Supply Responses for Hogs and Beef in South Central Minnesota
	Park, Jin Hwan	Ph.D.	Economics of Resource Use on Rice Farms in Korea
	Pavlick, Anthony L.	Ph.D.	An Analysis of the Effects of Federal Farm Programs on Incomes of Appalachian Farmers
	Sorenson, L. Orlo	Ph.D.	An Economic Analysis of Government Grain Storage Programs and Their Impact on Grain Market Organization in Kansas
	Tinsley, W. Allen	Ph.D.	An Economic Analysis of the Use of Corn Silage in Beef Cattle Rations
	Ying, John T. S.	Ph.D.	Relationship of Earnings and Efficiency to Acres per Farm
1964	Al-Zand, Osama Adhim	M.S.	No thesis
	Badr, Mahmoud Mahmoud	M.S.	No thesis
	Dancey, Richard J.	M.S.	No thesis
	Evenson, Robert E.	M.S.	An Economic Analysis of Changes in the Minnesota Grain Processing and Terminal Elevator Industries
	Hammill, Anne E.	M.S.	No thesis
	Keefe, Dennis R.	M.S.	No thesis
	Poore, Edwin R.	M.S.	No thesis
	Taylor, Donald C.	M.S.	No thesis
	Wu, Torng-Chuang	M.S.	No thesis
	Christiansen, Martin	Ph.D.	An Analysis of Labor Costs on Home Delivery Milk Routes in the Twin Cities Market
	Dahl, Dale C.	Ph.D.	Employment and Income in the Agribusiness Sector of the Minnesota Economy
	Ram, Peretz	Ph.D.	A Productivity Analysis of South-Central and Red River Valley Farms in Minnesota, 1960
1965	Kip, Ergun	M.S.	No thesis
	Miller, Marlen F.	M.S.	No thesis

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1965	Shalaby, Farouk M.	M.S.	No thesis
<i>Cont'd.</i>	Stitts, Donald G.	M.S.	No thesis
	Walch, Herbert N.	M.S.	No thesis
	Winter, Marcus L.	M.S.	No thesis
	Anthony, Willis E.	Ph.D.	Size Structure and Growth of Livestock Slaughter Firms
	Elefson, Richard Vern	Ph.D.	Economics of Agricultural Leasing
	El-Yamani, Abdel-Tawab	Ph.D.	The Process of Technological Advance in Egyptian Agriculture: Lessons from the U.S. Experience
	Fuller, Earl I.	Ph.D.	An Evaluation of Alternative Labor Data for Use in Farm Planning
	Gruebele, James W.	Ph.D.	Changing Market Structure of the Minnesota Dairy Manufacturing Industry
	Lansford, Robert R.	Ph.D.	Personal Attributes of Farmers Related to Earnings
	Oyloe, Turner L.	Ph.D.	A Study of Vertical Integration in the Minnesota Turkey Industry
	Stephens, William P.	Ph.D.	Economic Efficiency in the Shipment of New Mexico Feeder Cattle
	Taylor, Donald C.	Ph.D.	Income Improving Adjustments and Normative Supply Responses for Hogs and Beef in Southwestern Minnesota
1966	Adams, Duane R.	M.S.	No thesis
	Bursch, William G.	M.S.	No thesis
	Crewdson, Buddy G.	M.S.	No thesis
	Doming, Alden E.	M.S.	No thesis
	English, John C.	M.S.	No thesis
	Ferster, Geoffrey	M.S.	A Study of Changing Land Tenure and Leasing Arrangements in Southwestern Minnesota
	Kasal, James	M.S.	No thesis
	Kvenvold, Terrance	M.S.	No thesis
	Makonnen, Telahum	M.S.	No thesis
	Power, Richard	M.S.	No thesis
	Purrmann, Fritz-Arno	M.S.	No thesis
	Schebeck, Emmerich	M.S.	No thesis
	Solum, Dale O.	M.S.	A Study of Minnesota Farmland Ownership
	Wipf, Larry J.	M.S.	No thesis
	Chen, Dean Tin	Ph.D.	An Analysis of Inter-Community Expenditure Differentials in the Provision of Public Services to Rural Communities in Southwestern Minnesota
	Criswell, James Earnest	Ph.D.	Insurance Strategies of West Kentucky Farmers
	Hanlon, John William	Ph.D.	An Analysis of Processing Costs in Plants That Manufacture Butter and Nonfat Dry Milk
	Kerchner, Orval G.	Ph.D.	Economic Comparisons of Flexible and Specialized Plants in the Minnesota Dairy Manufacturing Industry

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1966 <i>Cont'd.</i>	Mann, Jitendar S.	Ph.D.	The Contribution of United States Public Law 480 to Indian Economic Development
	McCalla, Alexander Frederick	Ph.D.	An Analysis of the Possibilities for International Arrangements for Temperate Zone, Grain Livestock Trade
	Wells, Arnold R.	Ph.D.	The Economics of Beef Cow Herds in Northeastern Minnesota
1967	Brown, Bruce Wilbur	M.S.	No thesis
	Ezaz, Fesseha	M.S.	No thesis
	Peterson, James N.	M.S.	No thesis
	Smith, Rex	M.S.	No thesis
	Swenson, Clyde G.	M.S.	Seasonal Variation in the Demand for Turkeys
	Thiele-Wittig, Maria	M.S.	Economic and Social Factors Related to Food Buying Practices of Upper-Income Families
	Wiseman, Wayne C.	M.S.	No thesis
	Buxton, Boyd M.	Ph.D.	Economies of Size in Minnesota Dairy Farming
	Cable, Cecil Curtis, Jr.	Ph.D.	Economic Models for a Cotton Ginning-Warehousing Complex
	Chai, Ju Chun	Ph.D.	An Economic Analysis of the Demand and Price Structure of Wheat for Food by Classes in the United States
	English, John C.	Ph.D.	The Impact of Land Use Patterns on Public Service Expenditures in the Twin Cities Metropolitan Area
	Hertsgaard, Thor A.	Ph.D.	Comparative Advantage Analysis of Meat and Poultry Production in the United States
	Hyslop, John D.	Ph.D.	An Economic Analysis of Price-Quality Relationships in Spring Wheat
	Knutson, Ronald D.	Ph.D.	Price and Trade Practice Regulation in the Minnesota Dairy Industry
	Miller, Marlen F.	Ph.D.	A Measurement of Factor Productivities in the Minnesota Dairy Industry
Snider, Thomas E.	Ph.D.	An Economic Analysis of Equity Capital Financing in Minnesota Dairy Cooperatives	
1968	Bambenek, Jerome V.	M.S.	No thesis
	Cobb, Dan G.	M.S.	No thesis
	Fehlhafer, Leo R.	M.S.	No thesis
	Greer, R. Clyde	M.S.	No thesis
	Ryan, Mary Ellen	M.S.	An Analysis of Economic and Demographic Characteristics of Consumers Associated with Excessive Installment Debt
	Tamin, Mokhtar Bin	M.S.	No thesis
	Anderson, Donald E.	Ph.D.	The Impact of the Commodity Credit Corporation on the Structures of Grain Markets in the North Central Region
	Arromdee, Virach	Ph.D.	Economics of Rice Trade among Countries of South East Asia

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1968 <i>Cont'd.</i>	Erlandson, Gordon W.	Ph.D.	A Market Structure, Conduct, and Performance Analysis of the Fluid Milk Industry of Non-Metropolitan Minnesota
	Gnauck, Brian G.	Ph.D.	An Economic Analysis of Market Conduct in Five Agricultural Input Industries
	Hinton, Royce A.	Ph.D.	The Economics of Labor and Choice of Swine Housing
	Thomas, Kenneth H.	Ph.D.	A Poly-Period Analysis of the Impact of Selected Variables upon the Growth Process of Beginning Farm Firms, South-Central Minnesota
	Walch, Herbert N.	Ph.D.	Competitive Position of Beef Breeding Herds in Southern Minnesota
	Wu, Carson Kung-Hsien	Ph.D.	An Economic Investigation of the Problem of Water Quality Management in the Twin Cities-Upper Mississippi River Area
1969	Hama, Mary	M.S.	No thesis
	Ogren, Sylvia Carol	M.S.	No thesis
	Yamashita, Sachiko	M.S.	No thesis
	Al-Zand, Osama Adhim	Ph.D.	Olive Oil Trade and Trade Policies in the Mediterranean Region
	Clarke, James Harris	Ph.D.	Effect of an Advertising Campaign on Hot Cocoa Consumption
	Freeman, Daniel	Ph.D.	Interregional Competition in Producing, Processing, and Marketing Snap Beans
	Herd, Robert William	Ph.D.	An Analysis of the Aggregate Supply Function of Agriculture in the Punjab (India)
	Kaldenberg, Ronald Elwin	Ph.D.	Economic Analysis of the Optimal Size and Location of Southern Minnesota Country Elevators
	Stitts, Donald Gregory	Ph.D.	Price Efficiency in Selected Federal Order Milk Markets
	Van Wersch, Herman Jozel M.	Ph.D.	Land Tenure, Land Use, and Agricultural Development, A Comparative Analysis of Messinia (Greece) and the Cape Bon (Tunisia)
1970	Bertin, Pedro	M.S.	No thesis
	Briz, Julian	M.S.	No thesis
	Lewis, Robert C.	M.S.	The Marginal Costs of Alternative Levels of Water Quality in the Upper Mississippi River
	Memoli, Nicholas	M.S.	No thesis
	Burke, Ronnie L.	Ph.D.	Technological and Pecuniary Marketing Economies of Size in Minnesota Feedlots
	Daves, Thomas E.	Ph.D.	Economics of Small Watershed Management in Minnesota
	Goode, Frank Martin	Ph.D.	An Economic Analysis of the Supply of Land for Urban Use
	Greer, R. Clyde	Ph.D.	An Analysis of Price Dispersion
	Hanes, John Kaska	Ph.D.	Price Analysis Approach to Market Performance in the Red River Valley Potato Market

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1970 <i>Cont'd.</i>	Herder, Richard John	Ph.D.	An Analysis of Agricultural Credit Lending by Commercial Banks in the Ninth Federal Reserve District
	Johnson, Jerome E.	Ph.D.	Interrelationships between Land Tenure and Progress in North Dakota Farming
	Nolte, Gerald M.	Ph.D.	Effect of Milk Assembling and Processing Costs on Optimal Type and Size of Plant for Butter and Nonfat Dry Milk in Minnesota
	Rathjen, Robert A.	Ph.D.	An Economic Analysis of Fertilizer Retailing in Minnesota
1971	Hathamart, Phaitoon	M.S.	No thesis
	Kennedy, George	M.S.	No thesis
	Nefstead, Ward E.	M.S.	No thesis
	Slama, Abdelmajid	M.S.	No thesis
	Wade, William W.	M.S.	No thesis
	Ban, Sung Hwan	Ph.D.	The Long-Run Productivity Growth in Korean Agricultural Development, 1910-1968
	Boisvert, Richard Neal	Ph.D.	A Model for Farm Planning under Uncertain Weather Conditions: An Application to Southern Minnesota Cash Grain Farms
	Lilwall, Nicholas Brier	Ph.D.	Technological Organizational and Spatial Factors As Determinants of Optimum Plant Size in the Cheddar Cheese Manufacturing Industry
	Matetic, Jorge R.	Ph.D.	An Economic Analysis of the Chilean Fresh Fruit and Vegetable Export Sector
	Recto, Aida Eguia	Ph.D.	An Analysis of the International Demand for Philippine Coconut Products
1972	Arends, John A.	M.S.	No thesis
	BenRedjeb, Twefik	M.S.	No thesis
	BenSenia, Mohamad	M.S.	No thesis
	Brints, Calvin L.	M.S.	No thesis
	Christianson, Dell	M.S.	No thesis
	Engstrom, Howard L.	M.S.	No thesis
	Ogg, Clayton W.	M.S.	No thesis
	Pagel, Douglas E.	M.S.	No thesis
	Park, Sang Woo	M.S.	No thesis
	Rouhiainen, Juhani	M.S.	Aggregate Crop Production Functions in Finnish Agriculture in 1956/57-1968/69
	Viticcioli, Guillermo	M.S.	No thesis
	Biondolillo, Aldo Luis	Ph.D.	Social Cost of Production Instability in the Grape-Wine Industry: Argentina
	Burbee, Clark R.	Ph.D.	Adjustments to Improve the Competitive Position of the Upper Midwest Turkey Industry
	DeBoer, A. John, Jr.	Ph.D.	Technical and Economic Constraints on Bovine Production in Three Villages in Thailand

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1972 <i>Cont'd.</i>	Hoyt, Richard C.	Ph.D.	A Dynamic Econometric Model of the Milling and Baking Industries
	Hunt, Robert D.	Ph.D.	The Contrasted Effects of Quota, Autarky and the Free Trade Policies on U.S. Beef Production and Prices
	Sidhu, Surjit S.	Ph.D.	Economics of Technical Change in Wheat Production in Punjab (India)
	Torres, Remigio D.	Ph.D.	Potential Benefits and Pricing of Irrigation Water, A Case Study of the Santa Cruz System
1973	Bedoui, Chebil Mohamed	M.S.	No thesis
	Draoui, Hedia	M.S.	No thesis
	Hamari, Hedi El	M.S.	No thesis
	Hopeman, Alan R., Jr.	M.S.	An Economic Analysis of Flood Damage Reduction Alternatives in the Minnesota River Basin
	Johnson, Dennis A.	M.S.	A Market Analysis of the Lodging Industry in the Twin Cities Metropolitan Area
	Maamouri, Fatma	M.S.	No thesis
	Mabrouk, Abedlaziz	M.S.	No thesis
	Myers, John Kenneth	M.S.	No thesis
	Nelson, Terry Lee	M.S.	No thesis
	Rollings, Roger A.	M.S.	The Effects of a Value Added Tax on Minnesota Farmers
	Rustand, Larry J.	M.S.	No thesis
	Wong, William Yen	M.S.	No thesis
	Angus, James Edward	Ph.D.	Spatial Distribution of Employment: Alternatives for a Metropolitan Region
	Barandiaran, Edgardo E.	Ph.D.	The Control of Money and Bank Credit in Argentina
	Brints, Calvin L.	Ph.D.	The Economics of Information in Purchasing Feed and Fertilizer in Minnesota
	Meilke, Karl D.	Ph.D.	The Demand for Animal Feed: An Econometric Analysis
	Pherson, Carl L.	Ph.D.	Economics of Alternative Waste Management Systems Complying with Pollution Control Regulations on Beef Feedlots in Southwestern Minnesota
	Sanders, John H., Jr.	Ph.D.	Mechanization and Employment in Brazilian Agriculture, 1950-1971
	Shatava, James W.	Ph.D.	An Estimate of the Benefits Derived from the Use of Commercial Fertilizer and Pesticides in Agriculture
	Wade, William W.	Ph.D.	Institutional Determinants of Technical Change and Agricultural Productivity Growth: Denmark, France, and Great Britain, 1870-1965
Yamaguchi, Mitoshi	Ph.D.	Technical Change and Population Growth in the Economic Development of Japan	
Yamashita, Sachiko	Ph.D.	An Exploration of the Economics of Taste and Demand for Food	
1974	Iroegbu, Cyril	M.S.	No thesis
	Jensen, Helen Hannay	M.S.	The Incidence of State Sales and Income Taxes in Minnesota

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1974	Jolly, Robert W.	M.S.	No thesis
<i>Cont'd.</i>	Liu, Mui Kay Maggie	M.S.	No thesis
	Mansour, Abdesslem	M.S.	No thesis
	Nygaard, David F.	M.S.	No thesis
	Saidane, Ezzedine	M.S.	No thesis
	Dehter, Aaron	Ph.D.	Economic Analysis of an Urban Center As a Potential Growth Pole: An Argentine Case
	Geistfeld, Loren V.	Ph.D.	A Technical Efficiency Approach to Consumer Decision Making
	Hay, Michael J.	Ph.D.	An Economic Analysis of Rural-Urban Migration in Tunisia
	Hein, Norlin Albert	Ph.D.	A Management Planning, Control and Analysis System for Midwest Beef Feedlots
	Koszarek, Thomas V.	Ph.D.	Market Performance of Minnesota Retail Farm Supply Cooperatives
	Maffucci, Eugenio Angel	Ph.D.	Exports Earnings Instability--The Argentine Case
	Menz, Kenneth M.	Ph.D.	The Impact of Mobile Processing Plants on the Production and Distribution of Frozen Peas
	Ogg, Clayton W.	Ph.D.	Sources of Agricultural Productivity Differences in North America
	Pollak, Peter K.	Ph.D.	Economic Analysis of Oilseed Markets in Thailand
	Setter, Gerald L.	Ph.D.	The Hours of Work Supply Decision: A Study of Metropolitan and Rural Minnesota Nurses
	Sung, Bai Yung	Ph.D.	The Demand for Fertilizer in Korea
	Venegas, Ernesto Custodio	Ph.D.	Simulation of a Regional Economy--A Systems Approach to Migration
1975	Benbrahim, Ahmed Rafik	M.S.	No thesis
	Brown, Donald Gregory	M.S.	No thesis
	Essid, Habib	M.S.	No thesis
	Gallagher, Paul William	M.S.	No thesis
	Good, Dale	M.S.	No thesis
	Gostovich, John	M.S.	No thesis
	Nelson, Donald	M.S.	No thesis
	Norton, George W.	M.S.	No thesis
	Seyama, Shuhei	M.S.	No thesis
	Tvedten, Audun E.	M.S.	No thesis
	Bisaliah, Siddanaik	Ph.D.	Effects of Technological Change on Output, Employment and Functional Income Distribution in Indian Agriculture: A Case Study of the Punjab Wheat Economy
	Black, John R.	Ph.D.	Production Functions for Minnesota Farms
	Bredahl, Maury E.	Ph.D.	The Productivity and Allocation of Research at U.S. Agricultural Experiment Stations
	Gafsi, Salem	Ph.D.	Green Revolution: The Tunisian Experience

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1975 <i>Cont'd.</i>	Nelson, Frederick J.	Ph.D.	An Economic Analysis of the Impact of Past Farm Programs on Livestock and Crop Prices, Production, and Resource Adjustments
	Park, Sang Woo	Ph.D.	Fertilizer Distribution in Korea
1976	Amar, Badr Ben	M.S.	No thesis
	Gulliver, Karen L.	M.S.	No thesis
	Hamilton, Milo Charles	M.S.	No thesis
	Levy, Steven	M.S.	No thesis
	Mandagi, Johannes W.	M.S.	No thesis
	Newell, Donald Ray	M.S.	No thesis
	Pederson, Glen Darwin	M.S.	No thesis
	Spriggs, John David	M.S.	No thesis
	Thabet, Boubaker	M.S.	No thesis
	Thomas, Frederick III	M.S.	No thesis
	Antiporta, Donato Baraquia	Ph.D.	The Structure of Regional Rice Production in the Philippines
	Jolly, Robert William	Ph.D.	An Econometric Analysis of the Grain-Livestock Economy in Canada with a Special Emphasis on Commercial Agricultural Policy
	Mahe, Louis Adrien Pascal	Ph.D.	An Econometric Analysis of the Hog Cycle in France in a Simultaneous Cobweb Framework and Welfare Implications
	Womack, Abner Willis	Ph.D.	Domestic Demand for U.S. Feed Grains: Corn, Sorghum, Oats and Barley: An Econometric Analysis
	Zegers Prado, Roberto C.	Ph.D.	An Economic Analysis of Milk Production in Southern Chile
1977	Bostrous, Peter Naguib	M.S.	No thesis
	Fischer, Martin Lee	M.S.	No thesis
	Gardner, Richard Lindsay	M.S.	No thesis
	Hernesman, John Michael	M.S.	No thesis
	Magnani, Richard Jacob	M.S.	No thesis
	Okusanya, Cole Ajibolu	M.S.	No thesis
	Pearson, Daniel Robert	M.S.	No thesis
	Rivera, Julia C.	M.S.	No thesis
	Tiffany, Douglas Glen	M.S.	No thesis
	Todd, Richard Michael	M.S.	No thesis
	Cummins, David Earl	Ph.D.	Resource Productivity on Grade A Dairy Farms in the Twin Cities Milk Marketing Area
	Konjing, Chaiwat	Ph.D.	Thailand's Maize Export Agreement Policy: An Economic Analysis
	Konjing, Khaisri	Ph.D.	An Analysis of the Economic Performance of the U.S. Corn Futures Market
	Meyers, William Henry	Ph.D.	Long-Run Income Growth and World Grain Demand: An Econometric Analysis

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1977 <i>Cont'd.</i>	Spriggs, John David	Ph.D.	An Econometric Analysis of the Factors Affecting Australia's Grain Exports
1978	Christopherson, David	M.S.	No thesis
	Hanson, Gregory Dean	M.S.	No thesis
	Herruzo, Antonio	M.S.	No thesis
	Kao, Shih-Wei	M.S.	A Market Analysis of Travel in Minnesota
	Kinnucan, Henry W.	M.S.	No thesis
	Miner, Alan	M.S.	No thesis
	Otto, Daniel	M.S.	No thesis
	Palvia, Pankaj	M.S.	No thesis
	Rolfes, Nicholas	M.S.	No thesis
	Thompson, Sarahelen R.	M.S.	An Analysis of the Market Performance of the U.S. Grain Export Industry
	Huh, Shin Haeng	Ph.D.	The Preventive and Incidental Demands for Pesticides: An Economic Analysis of the Demand for Herbicides and Insecticides Used by Selected Corn Producers in Minnesota
	Martin, Michael V.	Ph.D.	An Economic Analysis of the Social Cost of Regulated Value-of-Service Wheat and Barley Rail Rates in the Upper Midwest
	Ryan, Timothy John	Ph.D.	Commodity Price Determination and Transmission: An Analysis of the Farm-Retail Pricing of U.S. Beef
1979	Baidu-Forson, Jojo	M.S.	No thesis
	Callaway, John MacIntosh, Jr.	M.S.	The Optimal Use of Surface Water with Return Flows Present: A Theoretical Model for Deriving Alternative Allocation Rules
	Chu, Siu Chuen Francis	M.S.	No thesis
	Chukuigwe, Eleoke Elly Chikwe	M.S.	No thesis
	Fishman, Rita Lynn	M.S.	No thesis
	Leathers, Howard Dopp	M.S.	No thesis
	McCarron, Robert John	M.S.	No thesis
	Touber, Francois Alain	M.S.	No thesis
	Vogel, Wolfgang Otto	M.S.	No thesis
	Wilkus, James Lewis	M.S.	No thesis
	Davis, Jeffrey S.	Ph.D.	Stability of the Research Production Coefficient for U.S. Agriculture
	Hoffman, George Harry	Ph.D.	Monthly Forecasting of the U.S. Livestock Industry
	Norton, George W.	Ph.D.	A Model for Indian Reservation Agricultural Development: The Case of the Sisseton-Wahpeton Sioux
	Nygaard, David Fergus	Ph.D.	Risk and Allocation Errors Due to Imperfect Information: The Impact on Wheat Technology in Tunisia
	Oleson, Brian Thomas	Ph.D.	Price Determination and Market Share Formation in the International Wheat Market

APPENDIX B--Continued

Date	Name	Degree	Thesis Title
1979 <i>Cont'd.</i>	Ribeiro, Jose Leonardo	Ph.D.	Rates of Return to Agricultural Investment in the Cerrados Area in Brazil
	Titapiwatanakun, Boonjit	Ph.D.	Analysis of Export Demand for Thai Tapioca

Appendix C. COURSE OFFERINGS IN FARM MANAGEMENT AND AGRICULTURAL ECONOMICS, 1930-1932

1. Principles of Economics I. For students in Agriculture and Forestry.
2. Principles of Economics II. For students in Agriculture and Forestry.
3. Principles of Economics. For students in Home Economics
7. Natural Resources. A study of the natural resources of the United States and other countries in their relation to agriculture. Attention is given to the importance of these resources and to their wise utilization. Lectures, reference work, and discussions.
8. Rural Economics. An economic analysis of a number of the important social problems of agriculture, including rural organization, tenancy, farm incomes, rural population and standards of living, agricultural policy.
25. Principles of Accounting. Same as Economics 25 but credit is allowed without the completion of Economics 26.
30. Prices of Farm Products. Past and probable future trends in prices of important farm products. Adjustment of production to price changes, foreign competition. Price stabilization.
40. Principles of Marketing Organization. The principles of the organization of the market and of marketing enterprises, both proprietary and cooperative.
47. Marketing Accounting.
50. Farm Finance. The mechanism of exchange with special reference to the financing of the production and marketing of farm products.
90. Agricultural Statistics. Statistical method applied to the analysis of agricultural data; collection, tabulation, and graphical presentation; averages; measures of dispersion; index numbers; time series.
101. Farm Management. Farm records--simple farm accounting and the forms and methods employed in making cost of production studies and farm management surveys. Practice in record keeping and accounting.
102. Farm Management: Organization. The business side of farming is emphasized. Special attention is given to farm organization and equipment.
103. Farm Management: Operation. Continuation of 102. Special attention is given to farm operation.
104. Types of Farming. A study of types of farming and of prevailing farm practices in the principal agricultural production areas.
- 110-111. Economics of Agricultural Production. The principles of production economics applied to agriculture, special emphasis being placed upon comparative advantage and localization of production.
126. Economics of Consumption. Nature of human wants; standards of living; costs of living; income, administration of income; nature of demand; demand and price; relation of consumption to the population problem.
131. Market Prices. Manner in which prices are determined in the market place. Local, wholesale, and retail prices. Price fluctuation and speculation. Prices and market grades. Market quotations.
135. Methods of Price Analysis. Statistical methods for the study of the forces determining prices, forecasting price changes, and determining "established prices." Survey of research work in the field.
140. Marketing Organization: Staples. Principles of production economics applied to the organization of markets and marketing organization for the grains, tobacco, cotton, and wool. Special attention to co-operative organization.
141. Marketing Organization: Dairy and Poultry Products.
142. Marketing Organization: Fruits and Vegetables.
143. Marketing Organization: Livestock and Meats.
144. Cooperative Organization. Development of Cooperation in agriculture in the United States and foreign countries. Analysis of economic problems peculiar to cooperative

Appendix C--Continued

- organization, especially of marketing agencies.
150. Advanced Farm Finance.
170. Land Economics. Land as a factor of production; rural and urban utilization; rents and land values; land classification; land exchange.
191. Advanced Agricultural Statistics. Analysis of agricultural data by methods of correlation. See also courses in Economics and Business Administration.

Source: *University of Minnesota Bulletin, College of Agriculture, Forestry and Home Economics*, Vol. XXXII, No. 25, May 9, 1930, pp. 61-62.

Appendix D. COURSE OFFERINGS IN AGRICULTURAL ECONOMICS, 1952-1953

Freshman and Sophomore Courses

1. Principles of Economics I. For students in agriculture, forestry, and veterinary medicine. (3 cred.; soph., jr., sr.; no prereq.) To receive credit for this course the student must complete both Ag.Ec. 1 and 2)
2. Principles of Economics II. For students in agriculture, forestry, and veterinary medicine. (5 cred.; soph., jr., sr.; prereq. 1)
3. Principles of Economics. For students in home economics. (5 cred.; soph., jr., sr.; no prereq.)
8. Rural Economics. An analysis of a number of the important economic problems of agriculture, including organization of the agricultural industry, tenancy, farm incomes, rural population and standards of living, tariff, taxation, and agricultural policy. (3 cred.; soph., jr., sr.; prereq. 2 or 3)
25. Principles of Accounting. (4 cred.; soph., jr., sr. in this college only)
30. Agricultural Prices. Factors determining prices and trends in prices of agricultural commodities. Adjustment of production to price changes. Foreign competition. Price stabilization. Price policies. (3 cred.; soph., jr., sr.; prereq. 2)
40. Principles of Marketing Organization. Principles of the organization of the market and of marketing enterprises, both proprietary and cooperative. (3 cred.; soph., jr., sr.; prereq. 2)
47. Marketing Accounting. Interpretations of accounts, statement preparation, and analysis. Accounting methods and statements of agricultural marketing organizations including cooperative associations. Utilization of accounting data and statements by the management. (4 cred.; soph., jr., sr.; prereq. 25)

Junior and Senior Courses

50. Farm Finance. The mechanism of exchange with special reference to financing the

production and marketing of farm products. (5 cred.; jr., sr. in Ag. and For. only; open to soph. on petition; prereq. 2)

80. Farm Accounting. Kinds and uses of farm records; calculation of measures of farm earnings; accounting analysis of farm business. Discussion and practice. (3 cred.; jr., sr., soph., on petition)
90. Agricultural Statistics. Statistical method applied to the analysis of agricultural data; collection, tabulation, and graphical presentation; averages; measures of dispersion; time series, and simple correlation. (5 cred.; jr., sr., soph. on petition. Graduate students may take Ag.Ec. 190, listed in Bulletin of the Graduate School)

Upper Division and Graduate Courses

102. Farm Management: Organization. The business side of farming with emphasis on farm selection and organization. Prereq. 2; 3 cred. Pond.
103. Farm Management: Operation. A continuation of 102 with special attention to efficiency in farm operation. Prereq. 102; 3 cred. Pond.
104. Types of Farming. A study of types of farming and of prevailing farm practices in the principal agricultural production areas. Prereq. 2; 3 cred. Pond.
107. Farm Work Simplification. A study of principles and methods of accomplishing work in less time and with less effort. Practice in planning improved working methods. Prereq. 2; 3 cred. Engene.
110. Economics of Agricultural Production. Principles of production economics elaborated in terms of the production of the major farm products and producing areas. Prereq. 2; 3 cred. Dowell.
126. Economics of Consumption. Formulation of the economic principles relating to choice between different uses of income, time, and energy by individuals and family organizations. Prereq. 2 or 3; 3 cred. Cochrane.
131. Market Prices. Analysis of the price-making process as it works out in the

APPENDIX D--Continued

- market places where the major farm products are sold. Market quotations and price quoting. Prereq. 30, 40; 3 cred. Cochrane.
140. Marketing Organization: Staples. Principles of production economics applied to the organization of markets and marketing organization for the grains, tobacco, cotton, and wool. Prereq. 40; 3 cred. Cox.
141. Marketing Organization: Dairy and Poultry Products. Prereq. 40; 3 cred. Jesness.
142. Marketing Organization: Fruits and Vegetables. Prereq. 40; 2 cred. Cox.
143. Marketing Organization: Livestock and Meats. Prereq. 40; 3 cred. Dowell.
144. Cooperative Organization. Prereq. 40; 3 cred. Jesness.
150. Advanced Farm Finance. Prereq. 50 or equiv.; 3 cred. Koller.
170. Land Economics. Prereq. 110; 3 cred. Dowell.
172. Economics of World Agriculture. Distribution, quality, and utilization of agricultural resources: variations in population densities and characteristics, internal organization and techniques, comparative advantage, world trade in agricultural products, national and international policies relating to agriculture, future trends and prospects. Prereq. 110 or permission; 3 cred. Dowell.
190. Agricultural Statistics. Intended for beginning graduate students who have had no course in the elements of statistical method. 3 cred. Cox.
191. Advanced Agricultural Statistics. Prereq. 190; 3 cred. Cochrane.
- Graduate Courses
- 200-201-202. General Seminar in Agricultural Economics. Cred. ar. Jesness and staff.
206. Seminar in Agricultural Policy. A study of economic problems of agriculture and policies adopted by governmental, agricultural, and other agencies toward such problems. 3 cred. Jesness.
221. Farm Organization Studies. A seminar study of the principles involved in the analysis of farm organization data and the computation of farm costs. 3 cred. Pond.
226. Advanced Farm Organization. Analysis of farm organization and the application of the budgeting method in improving the farm business. 3 cred. Pond.
230. Research Problems in Farm Organization and Operation. Individual study of methods of conducting research work and analyzing problems in farm organization and operation. Reports required for credit. Cred. ar. Pond. Engene. (Offered when demand warrants)
235. Methods of Price Analysis. Application of economic theory and statistical techniques to agricultural price and market research. Prereq. 191; 3 cred. Cochrane.
241. Seminar in the Marketing of Livestock and Livestock Products. 3 cred. Dowell. (Offered when demand warrants)
244. Seminar in Cooperative Marketing. 3 cred. Koller, Jesness. (Offered when demand warrants)
246. Seminar in Economics of Consumption. 3 cred. Cochrane. (Offered when demand warrants)
270. Seminar in Land Tenure. 3 cred. Dowell. (Offered when demand warrants)
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- Sources: Freshman, Sophomore, Junior, and Senior course listings from *Bulletin of the University of Minnesota, College of Agriculture, Forestry, Home Economics, and Veterinary Medicine, 1951-1953*, Vol. LIV, No. 32, July 11, 1951, pp. 58-60; Upper Division and Graduate course listings from *Bulletin of the University of Minnesota, Graduate School, 1953-1954*, Vol. LV, No. 18, April 23, 1952, pp. 42-43.

Appendix E. COURSE OFFERINGS IN THE DEPARTMENT OF AGRICULTURAL ECONOMICS, 1959-1960

1. Introduction to Economics. Description of economic society; nature and interrelations of important economic problems. (3 cr)
2. Principles of Economics. Economic problems continued; the basic tools of analysis. (3 cr; prereq 1)
8. Agricultural Economics. Analysis of a number of the important economic problems of agriculture, including organization of the agricultural industry, tenancy, farm incomes, rural population and standards of living, tariff, taxation, and agricultural policy. (3 cr; prereq 2)
12. Farm Management I. The farm as a unit; co-ordination of crops, livestock, machinery, labor; the nature and process of management. (3 cr; prereq 2)
25. Principles of Accounting. (4 cr; for AFHE students only; prereq soph)
30. Agricultural Prices. Factors determining prices and trends in prices of agricultural commodities. Adjustment of production to price changes. Foreign competition. Price stabilization. Price policies. (3 cr; prereq soph, 2)
40. Principles of Marketing Organization. Principles of the organization of the market and of marketing enterprises, both proprietary and co-operative. (3 cr; prereq soph, 2)
50. Farm Finance. The mechanism of exchange, with special reference to financing the production and marketing of farm products. (5 cr; for students in agriculture and forestry only; prereq # for soph, 2)
80. Farm Accounting. Kinds and uses of farm records; calculation of measures of farm earnings; accounting analysis of farm business. Discussion and practice. (3 cr; prereq # for soph)
82. Farm Management II. Farm business diagnosis; farm budgeting; use of principles of economics in managing a farm and interpreting experimental data for farm use; analysis of a farm. (3 cr; prereq 12)
101. Statistical Methods for Social Sciences. Extension of Biom 100 with emphasis on application of statistical methods to research in the social sciences; multiple regression and correlation, analysis of variance and covariance, index numbers, elementary sampling procedures. (4 cr; prereq Biom 100 or equiv)
107. Farm Work Simplification. Principles and methods of accomplishing farm work in less time and with less effort. Methods of analyzing jobs, principles of motion economy, efficient working methods for different enterprises. Practice in planning improved working methods. (3 cr; prereq 2)
110. Economics of Agricultural Production. Principles of production economics applied to agriculture, special emphasis being placed upon profitable combinations of factors of production, comparative advantage, and localization of production. (3 cr; prereq 2)
126. Economics of Consumption. Nature of human wants; standards of living; theory of consumer behavior; nature of demand; demand and price; income and consumption; relation of consumption to the population problem. (3 cr; prereq 2)
- *127. Food Needs, Uses, and Supplies. Review of consumption trends; relation of food consumption to price, income and other variables, economic implications of nutrition, consumption-production balance, food consumption problems, food policy. (3 cr; prereq 2 or #)
131. Market Prices. The nature of demand for farm products: supply considerations; price formulation and structure of markets; price variation and instability; dynamic analysis. (3 cr; prereq 30)
140. Grain Marketing. Principles of production economics applied to the organization of markets and marketing organizations for the grains, tobacco, cotton, and wool. Special attention to grain marketing. (3 cr; prereq 40)
141. Dairy Marketing. (3 cr; prereq 40)
142. Fruit and Vegetable Marketing. (2 cr; prereq 40)

APPENDIX E--Continued

143. Livestock and Poultry Marketing. (3 cr; prereq 40)
144. Co-operative Organization. Development of co-operation in agriculture in the United States and foreign countries. Analysis of economic problems peculiar to co-operative organizations, especially of marketing agencies. (3 cr; prereq 40)
147. Marketing Accounting. Interpretations of accounts, statement preparation, and analysis. Accounting methods and statements of agricultural marketing organizations including co-operative associations. Utilization of accounting data and statements by the management. (4 cr; prereq 25 or equiv)
150. Advanced Farm Finance. Consideration of credit problems of farmers with special attention to credit principles, policies, and financial institutions. (3 cr; prereq 50 or equiv)
170. Land Economics. Land as a factor of production; rural and urban utilization; rents and land values; land classification; land exchange. (3 cr; prereq 110 or #)
172. Economics of World Agriculture. Distribution, quality, and utilization of agricultural resources; variations in population densities and characteristics; internal organization and techniques; comparative advantage; world trade in agricultural products; national and international policies relating to agriculture; future trends and prospects. (3 cr)
176. Economic Problems of Beginning Farmers. Availability of farming opportunities, alternative methods of acquiring a farm, evaluation of various forms of operating agreements and inheritance arrangements, use of credit, comparative rates of capital accumulation, interrelations between the problems of beginning farmers and the structure of land ownership and tenure. (3 cr; prereq 170 or #)
180. Farm Accounting. Same as AgEc 80 plus a special problem. (3 cr; prereq grad or #)
183. Farm Planning. Special problems in farm planning. (3 cr; prereq grad or #)
- For Graduate Students Only
- *200-201-202. General Seminar in Agricultural Economics. (cr ar)
- *206. Seminar in Agricultural Policy. (3 cr)
- *221. Farm Management Research Methods. (3 cr)
- *226. Seminar in Farm Management. (3 cr)
- *235. Methods of Price Analysis. (3 cr)
- *241. Seminar in Marketing. (3 cr)
- *244. Seminar in Co-operative Marketing. (3 cr)
- *246. Seminar in Economics of Consumption. (3 cr)
- *270. Seminar in Land Tenure. (3 cr)
- Source: *Bulletin of the University of Minnesota, College of Agriculture, Forestry, and Home Economics, 1959-1961, Vol. LXII, No. 14, July 15, 1959, pp. 62-64.*
- #Consent of instructor is required.
- *Courses through which it is possible for graduate students to prepare Plan B papers.

Appendix F. COURSE OFFERINGS IN THE DEPARTMENT OF AGRICULTURAL ECONOMICS, 1969-1970

- 1 (1-010). Introduction to Economics. The organization and development of our economic system; basic economic concepts in price determination; background for macro-economics. (3 cr)
- 2 (1-020). Principles of Macro-Economics. Determinants of national income and employment levels; prices and money; the banking system; monetary and fiscal policy; economic growth and development; the role of government in the economy. (3 cr; prereq 1)
- 3 (1-030). Principles of Micro-Economics. Economics of the firm and household; factor and product price determination; theory of production, consumption, and distribution; supply and demand analysis; equilibrium analysis. (3 cr; prereq 2)
- 25 (1-250). Principles of Accounting. Fundamentals of business accounting; basic finance concepts; use of accounting data for income tax and managerial decision making. (4 cr; for AFHE students only; prereq soph)
- 30 (1-300). Agricultural Prices. Factors determining prices and price trends of agricultural commodities; the demand for and supply of agricultural products; price support and stabilization policies. (3 cr; prereq 3)
- 40 (1-400). Agricultural Marketing. Economics of agricultural marketing; organization of markets and marketing enterprises; marketing policy. (3 cr; prereq 3)
- 50 (3-500). Agricultural Finance. The elements of money and banking with emphasis on financing the production and marketing of agricultural products; description and analysis of agricultural credit institutions and agencies. (5 cr; prereq 3)
- 56 (3-560). Micro-Economics of Consumption. Factors determining the consumption patterns of individuals and families; the contribution of economics and other social sciences to the study of consumer behavior; the use of consumer surveys in market studies. (3 cr; prereq 2)
- 61 (3-610). Community Resource Development. Basic concepts of resource use including physical and economic classification; physical and economic feasibility; benefits and costs; external effects; cost sharing; selected resource use problems. Economic areas and units for planning and development, generating alternative program elements and developing consequences; problems in choosing elements for an optimum resource development program. (3 cr; prereq 3 or #)
- 71 (3-710). Agricultural Policy. The application of economic analysis to agricultural policy problems; the allocation of resources within agriculture and between agriculture and the rest of the economy; income distribution in agriculture; historical highlights in U.S. farm policy and the political process. (3 cr; prereq 30 and 40 or Econ 65 and Econ 66 or #)
- 80 (3-800). Farm Records and Business Analysis. Analysis of farm records and their role in management of the farm business; types of farm records; calculation of farm earnings by various measures. (4 cr; prereq 3)
- 82 (3-820). Farm Management Economics. The use of cost and production theory in farm management; the nature and process of management. (4 cr; prereq 3)
- 95 (1-950). Undergraduate Seminar: Agricultural Economics. A survey of current issues in agricultural economics; current research activities. (1 cr; prereq 3 and 3rd qtr soph; offered only on P-N basis)
- 98 (3-980). Current Issues in Agricultural Economics. Discussion and analysis of important and timely problems in agricultural economics; primarily for undergraduate AFEA debate preparation. (1-3 cr; prereq #)
- 99 (3-990). Problems or Independent Study. Independent study, supervised reading, or research on agricultural economics problems not covered in regularly offered courses. (cr ar; prereq #)
- 101 (5-010). Statistical Methods for Social Science. Application of statistical methods to research in the social sciences; time series analysis, index numbers, multiple regression and correlation, elementary sampling procedures, analysis of variance and covariance. (4 cr; prereq Biom 100 or QA 53 or equiv)

APPENDIX F--Continued

- 111 (5-110). Agricultural Economic Analysis. The economic behavior of households, firms, and industries with special applications to agriculture; competition and monopoly power; factors affecting pricing and production decisions. (3 cr; not available to students majoring in agricultural economics; prereq 3)
- 112 (5-120). Agribusiness Management and Marketing. Business management and marketing problems in the firms and industries serving agriculture; economic interrelationships among industries supplying agriculture and those processing and distributing farm products. (3 cr; not available to students majoring in agricultural economics; prereq 111 or #)
- 113 (5-130). Land Resource Use. Land as a factor of production; rural and urban utilization; rents and land values; land classification, taxation, exchange; public land management. (3 cr; not available to students majoring in agricultural economics; prereq 111 or #)
- 128 (5-280). Marketing Accounting. Accounting methods of agricultural marketing organizations including cooperatives; preparation, interpretation, and analysis of statements and accounts; use of accounting data by management. (4 cr; prereq 25 or equiv)
- 141 (5-410). Dairy Marketing. Principles and problems in milk and dairy product marketing; market institutions and government activities in the dairy sector. (3 cr; prereq 40)
- 142 (5-420). Fruit and Vegetable Marketing. (2 cr; prereq 40)
- 143 (5-430). Grain-Livestock Marketing. Economic relationships in the feed-livestock-meat sector; institutions and policy problems in the marketing of these closely related commodities. (3 cr; prereq 40)
- 144 (5-440). Cooperative Organization. Development of cooperatives in agriculture in the United States and elsewhere; analysis of economic problems of cooperatives, especially marketing cooperatives. (3 cr; prereq 40)
- 148 (5-480). Commodity Markets and Futures Trading. Economics of cash and futures trading on organized markets; futures trading theory; hedging and speculation. (3 cr; prereq Econ 65 or #)
- 151 (5-510). Agricultural Capital Markets. Analysis of capital accumulation in agriculture; finance and credit institutions; farm appraisal and agricultural credit policies. (3 cr; prereq 50 or 82 or Econ 65)
- 156 (5-560). Micro-Economics of Consumption. Offered jointly with AgEc 56. (3 cr; prereq 2 or #, agricultural economics grads by # only)
- 157 (5-570). Macro-Economics of Consumption and Distribution. Trends in U.S. and foreign consumption of food by areas and population groups; market research procedures; concepts and framework for consumption and distribution analysis; food industries and the public. (3 cr; prereq 40 or Econ 66)
- 160 (5-600). Land Economics. Land as a factor of production; land use, classification, and value; sale and rental markets for land; domestic and foreign land policies. (3 cr; prereq Econ 65 and 66 or #)
- 162 (5-620). Regional Economic Analysis. Basic concepts and theories used and problems encountered in economic study of subregions, including those applicable to space and planning, population and employment change, income estimation and social accounting, industrial location, identification of the planning region, intraregional and interregional analyses, planning goals, and national and regional planning programs. (3 cr; prereq Econ 65)
- 163 (5-630). Regional Development Systems. Regional subsystems in resource productivity cycle. Public service delivery subsystems. Public intervention strategies in environmental management. Settlement planning and resource development. (3 cr; prereq 162 or #)
- 171 (5-710). Agricultural Policy. Offered jointly with AgEc 71. (3 cr; prereq 30 and 40 or Econ 65 and 66 or #, agricultural economics grads by # only)
- 172 (5-720). Economics of World Agriculture. Distribution, quality, and utilization of agricultural resources, agricultural organization and structure; location of agricultural activity; national and international agricultural policies. (3 cr; prereq Econ 65 and 66 or #)
- 175 (5-750). Agricultural Trade and Commercial Policy. Patterns of trade in agricultural products; trade policies and practices of export and import nations; commodity

APPENDIX F--Continued

- agreements; agricultural trade policies of common market areas; negotiations and potential trade developments. (3 cr; prereq Econ 65 and 66)
- 179 (5-790). Seminar: World Food Supply Problems. (Same as PlPa 170, Soc 264, VM 150, and HE 172). A multidisciplinary approach will examine the social, economic, and technical problems of feeding the world's growing population. Principles will be sought from the social and economic sciences, the plant sciences, and the animal sciences for their application to food problems. (3 cr; prereq major in agriculture, veterinary medicine, social science field or #, agricultural economics grad by # only)
- 180 (5-800). Farm Records and Business Analysis. Same as AgEc 80 plus a special problem. (4 cr; prereq #)
- 183 (5-830). Farm Planning. Special problems in farm planning. (3 cr; prereq 82 or #)
- 186 (5-860). Economics of Agricultural Production. Production economics applied to agriculture, profitable combination of production factors; comparative advantage and location production. (3 cr; primarily for grad students; prereq 21 cr in economics or agricultural economics)
- 264 (8-264). Resource Economics.
- 273 (8-273). Agricultural Policy.
- 278 (8-278). Agricultural and Economic Development.
- 287 (8-287). Production Economics I.
- 288 (8-288). Production Economics II.
- 335 (8-335). Seminar: Price Analysis.
- 344 (8-344). Seminar: Cooperative Marketing.
- 345 (8-345). Seminar: Agricultural Marketing.
- 346 (8-346). Seminar: Law and Agricultural Economics.
- 356 (8-356). Seminar: Consumption Economics.
- 360 (8-360). Seminar: Land Economics and Tenure.
- 364 (8-364). Seminar: Resource and Regional Economics.
- 373 (8-373). Seminar: Agricultural Policy.
- 378 (8-378). Seminar: Agricultural Development.
- 382 (8-382). Seminar: Farm Management and Production Economics.
- For Graduate Students Only
- 200-201-202 (8-200/8-201/8-202). General Seminar: Agricultural Economics.
- 205 (8-205). Research Methodology in Agricultural Economics.
- 231 (8-231). Agricultural Prices.
- 243 (8-245). Agricultural Marketing Economics.
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- Source: *University of Minnesota Bulletin, College of Agriculture, Forestry, and Home Economics, 1969-71, Vol. LXXII, No. 13, June 20, 1969, pp. 50-53.*
- #Consent of instructor is required.

Appendix G. COURSE OFFERINGS IN THE DEPARTMENT OF AGRICULTURAL
AND APPLIED ECONOMICS, 1978-1979

1020. Principles of Macroeconomics. (5 cr. §Econ 1001) Determinants of national income and employment levels; prices and money; the banking system; monetary and fiscal policy; economic growth and development; role of government in the economy.
- 1020H. Honors Course: Principles of Macroeconomics. (5 cr. §Econ 1001; prereq 3rd-qrt freshman and B avg or #) Determinants of national income and employment levels; prices and money; the banking system; monetary and fiscal policy; economic growth and development; the role of government in the economy.
1030. Principles of Microeconomics. (4 cr. §Econ 1002; prereq 1020) Economics of the firm and household; factor and product price determination; theory of production, consumption, and distribution; supply and demand analysis; equilibrium analysis.
- 1030H. Principles of Microeconomics. (4 cr. §Econ 1002; prereq 1020 and B avg or #) Economics of the firm and household; factor and product price determination; theory of production; consumption, and distribution; supply and demand analysis; equilibrium analysis.
1250. Principles of Accounting. (5 cr.) Fundamentals of business accounting; basic finance concepts; use accounting data for income tax and managerial decision making.
1400. Agricultural Markets and Prices. (4 cr; prereq 1030) Economics of agricultural marketing; factors determining prices and price trends of agricultural commodities, demand for and supply of agricultural products, and food and fiber market organization.
3040. Economic Development of American Agriculture. (4 cr; prereq 1030) Economic, political, social, and technical forces that have shaped the development of American agriculture; the role of agricultural development in national economic development in the United States; implications for presently developing countries.
3070. Agriculture and Economic Growth in Developing Countries. (4 cr; prereq 1020, 1030) Agricultural development problems; the contribution of economics to analyzing these problems; the use of economics in agricultural development policy and planning.
3080. World Food Supply Systems. (4 cr; prereq Econ 1001, 1002 or #) Introduction to the systems by which the world is fed; basic economics of food production and distribution; technical, economic, and institutional factors affecting food supply and demand; international and national policies and issues. Industrialized, centrally planned, and third world countries compared.
3101. Microeconomic Theory. (4 cr. §Econ 3101; prereq 1030 or Econ 1002, Math 1111 or equiv or #) Behavior of households, firms, and industries under competitive and monopolistic conditions; factors influencing production, price, and advertising decisions.
3102. Macroeconomic Theory. (4 cr. §Econ 3102; prereq 1020, 1030 or Econ 1001 and 1002 or #) Determinants of national income, employment, and price level; aggregate consumption, investment, and government demand; the money market; the labor market.
3290. Agribusiness Management. (4 cr; prereq 1020, 1030 and Mgmt 3001 for agricultural business majors...3101 or # for others) Application of economic, other social science, and technical concepts to the decision-making process of firms supplying inputs to agriculture and/or processing and distributing agricultural products.
3410. Economic Organization of the Hospitality Industry. (4 cr; prereq 1020, 1030, Mktg 3000 or #) Principles of economics applied to markets and firms serving people away from home, including food, lodging, travel, recreation, health care, and related activities.
3420. Grain Marketing Economics. (3 cr; prereq 1400) Economic relationships in the marketing of grain and grain products; analysis of supply and demand; grain grades, storage, and transportation; market structure, channels, pricing and competition; government programs and policies.
3430. Dairy Marketing Economics. (3 cr; prereq 1400) Economic relationships in the marketing of milk and milk products; analysis of

- supply and demand; market structure, channels, pricing and competition; federal milk market price regulations; dairy programs and policies.
3440. Livestock Marketing Economics. (3 cr; prereq 1400) Economic relationships in the marketing of livestock and livestock products; analysis of supply and demand; livestock grades, inspection, and transportation; market structure, channels, pricing and competition; government regulations and policies.
3500. Farm and Agribusiness Finance. (5 cr; prereq 1030, 1250 or Acct 1050 or equiv) Analysis of financing and investment policies for farm and agribusiness firms with reference to effects on liquidity, solvency, and profitability. Introduction to financial intermediaries in agriculture.
3610. Community Resource Development. (4 cr; prereq 1020-1030 or Econ 1001-1002 or #) Basic concepts of resource use including physical and economic classifications; physical and economic feasibility; benefits and costs; external effects; cost sharing; selected resource use problems. Economic areas and units for planning and development; generating alternative program elements and developing consequences; problems in choosing elements for an optimum resource development program.
3640. Public Finance: Concepts and Practices. (4 cr; prereq 1020, 1030 or Econ 1001, 1002) Survey of government revenue systems, expenditures, taxation, and debt in the United States. Federal, state, and local fiscal institutions; intergovernmental fiscal relations; budget analysis; and policy issues.
3710. Agricultural and Market Policies. (4 cr; prereq 1400 or 3101, 3102 or Econ 3101, 3102 or #) Analysis of public problems and issues concerning U.S. agriculture and the welfare of rural residents; economic problems of the food and fiber industry and of rural residents and communities; critical appraisal of past and present public programs; economic and social implications of alternative policies and programs; political decision making in policy formulation.
3820. Farm Management Economics. (4 cr; prereq 1030) Introduction to the use of farm accounts in planning; application of economic principles and budgeting procedures to the development of enterprise budgets and whole farm plans; development of projected cash flows; and evaluation of investment alternatives.
3830. Organizing the Farm Business for Entry, Growth, and Transfer. (4 cr; prereq 3820, 3850 recommended) Focuses on business and personal considerations and analytical procedures for evaluating opportunities and arrangements for gaining entry into farming; in analyzing business expansion alternatives; and in deciding how best to transfer the farm business between generations. Acquisition of land and machinery and management of labor.
3831. Organizing the Farm Business for Entry, Growth, and Transfer Lab. (1-3 cr; prereq 3830) Development of a detailed production, marketing, and financial plan for either the student's home or another actual farm business.
3850. Farm Business and Enterprise Analysis. (4 cr; \$5800; prereq 3820) Concepts to use in selecting a record system; data requirements and procedures of analysis to provide tax information, total business evaluation, and enterprise evaluation.
3900. Special Topics in the Economics of Public Services. (1-3 cr; prereq 1020 or #) Upper division seminar on public service issues; discussion of principles of analysis followed by case studies on topics of current interest such as economics of income maintenance, education, transportation, health services, housing, municipal services.
3980. Agricultural Law. (4 cr; prereq 1030) Legal and economic principles and institutions central to farm and agribusiness decision making.
3990. Problems or Independent Study. (cr ar; prereq #) Independent study, supervised reading, or research on agricultural economic problems not covered in regularly offered courses.
5000. Professional Experience Program. (1-6 cr; prereq #; not for grad cr) Professional experience in agribusiness firms or government agencies obtained through supervised practical experience; evaluative reports and consultations with faculty advisors and employers.
5020. Applied Linear Programming. (4 cr. for undergrad; 3 cr. for grad; prereq 1030 and Math 1111 or 1131) Application of linear programming to farm and agribusiness firms. Emphasizes economic concepts using minimal

- mathematics. Develops skills in computer use for decision making. Profit maximization, cost minimization, and transportation analysis.
5120. Agribusiness Management and Marketing. (3 cr. not open to majors in AgEc Dept; prereq 1020-1030) Business management and marketing problems in firms and industries serving agriculture; economic interrelationships among industries supplying agriculture and those processing and distributing farm products.
5130. Land Resource Use. (3 cr. not open to majors in AgEc Dept; prereq 1020-1030) Land as a factor of production; rural and urban utilization; rents and land values; land classification; taxation; exchange; public land management.
5140. Agricultural Production. (3 cr. not open to majors in AgEc Dept; prereq 1020-1030) Application of managerial and economic analysis to the planning and evaluation of farm firms. Use of hand procedures and computerized decision aids in obtaining credit, budgeting, and evaluating farm plans.
5150. Agricultural Policy. (3 cr. not open to majors in AgEc Dept; prereq 1020-1030) Application of economic analysis to agricultural price and income policy issues; development of present-day price and income programs.
5271. Bayesian Decision Making. (4 cr. §Econ 5271; prereq Stat 5133) Axioms for personal probability and utility. Elements of statistical decision theory. Bayesian analysis of linear models.
5272. Bayesian Decision Making. (4 cr. §Econ 5272, §Stat 5272; prereq Econ 1002, Stat 5122...5271 recommended) Expected utility models for economic decisions made under conditions of uncertainty. Applications to portfolio selection, forward and futures trading, betting, contingency markets, and business planning.
5400. Intermediate Market and Price Analysis. (4 cr. for undergrad; 3 cr. for grad; prereq 1400 or 3101 or Econ 3101 or Econ 5151) Development of analytical models and their application in various market situations. Unique market institutions that have developed in response to marketing problems and policies.
5440. Cooperatives and Agribusiness Organization. (4 cr. for undergrad, 3 cr. for grad; prereq 1400) Analysis of economic problems and issues facing agricultural cooperatives, including changing market organization, financing, taxation, antitrust regulations, and others.
5480. Futures, Markets and Prices. (4 cr. for undergrad, 3 cr. for grad; prereq 1400 or #) Economics of cash and futures trading on organized markets; futures trading theory; hedging and speculation.
5500. Advanced Agricultural Finance. (4 cr. for undergrad, 3 cr. for grad; prereq 3500) Analysis of financial institutions and financial markets. Managerial policy issues confronting managers of financial intermediaries with reference to those operating in an agricultural setting. Current problem issues confronting financial intermediaries.
5560. Economics of Consumer Policies. (4 cr. for undergrad, 3 cr. for grad; prereq 3101 or Econ 3101 or #) Impact of legislative, regulatory, and judicial policies on consumers examined for their tendency to promote efficiency, equity, consumer sovereignty and freedom of choice. Policies for dealing with information, prices, consumer protection, consumer redress, public goods, and regulatory institutions evaluated.
5580. Economic Organization of the Household. (4 cr. for undergrad, 3 cr. for grad; prereq 1030 or Econ 1002; not open to agricultural economics grads) Economic concepts applied to the analysis of household production, market and nonmarket work, family formation and size, and household consumption activity.
5591. Consumption Economics. (4 cr. for undergrad, 3 cr. for grad; prereq 3101 or Econ 3101) Analytical and empirical treatment of consumer behavior. Modern adaptations of theory to explain household consumption activities.
5600. Land Economics. (4 cr. for undergrad, 3 cr. for grad; prereq 3101, 3102 or Econ 3101, 3102 or #) Land as a factor of production; land use, classification, and value; sale and rental markets for land; domestic and foreign land policies.
5610. Institutional Factors in Land Use. (4 cr. for undergrad, 3 cr. for grad; prereq 1020, 1030) Public laws and administrative rules, public and private contractual arrangements, monetary and tax policies, public spending, and legal procedures that affect land use and development.

5620. Regional Economic Analysis. (4 cr. for undergrad, 3 cr. for grad; prereq 1030 or Econ 1002) Analysis of regional industry and community structure; role of resource, transportation, and institutional constraints; trade, migration and investment in regional growth and change. Use of regional economic information in business investment and location planning.
5630. Regional Development Systems. (4 cr. for undergrad, 3 cr. for grad; prereq 1030 or Econ 1002) Population, income, and employment disparities in regional growth and development in selected countries. Regional development strategies and institutions for public intervention in regional development process. Regional systems analyses and forecasts for economic policy and development planning.
5640. Financing State and Local Governments. (4 cr. for undergrad, 3 cr. for grad; prereq 3101 or Econ 3101) Problems and issues in financing state and local public services in the United States. State and local revenue systems, debt, and expenditures. Intergovernmental fiscal relations. Budget analysis.
5650. Economics of Natural Resource Policy. (4 cr. for undergrad, 3 cr. for grad; prereq 3101 or Econ 3101 or Econ 5151 or #) The application of economic analysis, including project evaluation, to current natural resource issues. Emphasis on conservation and resource scarcity, environmental quality, population growth, and resource use issues and their implications for public policy.
5660. Economics of Public Services. (4 cr. for undergrad, 3 cr. for grad; prereq 3101 or Econ 3101 or Econ 5151 or #) Introduction to the issues of finance and supply and demand for public services; pricing, producing, and financing public goods; bureaucratic decision making; implementation of policies.
5720. Economics of World Agriculture. (4 cr. for undergrad, 3 cr. for grad; prereq 1020, 1030 or #) Distribution, quality, and utilization of agricultural resources; agricultural organization and structure; location of agricultural activity; national and international agricultural policies.
5750. Agricultural Trade and Commercial Policies. (4 cr. for undergrad, 3 cr. for grad; prereq 3101, 3102 or Econ 3101, 3102) Patterns of trade in agricultural products; trade policies and practices of export and import nations; commodity agreements; agricultural trade policies of common market areas; negotiations and potential trade developments.
5790. World Food Supply Problems. (4 cr. §P1Pa 5220, §Soc 5675, §LACS 5280, §FScN 5643; prereq ag, pre-veterinary medicine, home economics, or social science majors of #... agricultural economics grads with #) A multidisciplinary approach will examine the social, economic, and technical problems of feeding the world's growing population. Principles sought from the social and economic sciences, plant sciences, and animal sciences for their application to food problems.
5840. Management of the Farm Business. (4 cr. for undergrad, 3 cr. for grad; prereq 3820 ...3830, 3850 recommended) Decision-making procedures under conditions of uncertainty; development of an information system to monitor and control the ongoing operation; control of crop and livestock enterprises; labor management; and cash flow management.
5860. Economics of Agricultural Production. (4 cr. for undergrad, 3 cr. for grad; primarily for grads; prereq 21 cr. in economics or agricultural economics) Production economics applied to agriculture; profitable combination of production factors; comparative advantage and location of production.
5890. Independent Study: Advanced Topics in Farm Management. (1-6 cr.; prereq #) Special topics or individual work suited to the needs of particular groups of students.

For Graduate Students Only

(For course descriptions, see the Graduate School Bulletin)

- 8200-8201-8202. General Seminar: Agricultural Economics.
8205. Research Methodology in Agricultural Economics.
8206. Foundations of Applied Economics.
8220. Applied Mathematical Programming.
8231. Agricultural Prices.
8245. Agricultural Marketing Economics.
8264. Resource Economics.
8266. Applied Regional Economics.

APPENDIX G--*Continued*

- 8278. Agricultural and Economic Development.
- 8287. Production Functions: Theory and Estimation.
- 8288. Dynamic Production Economics.
- 8335. Seminar: Price Analysis.
- 8344. Seminar: Cooperative Marketing.
- 8345. Seminar: Agricultural Marketing.
- 8346. Seminar: Law and Agricultural Economics.
- 8356. Seminar: Consumption Economics.
- 8360. Seminar: Land Economics and Tenure.
- 8364. Seminar: Resource Economics and Policy.
- 8366. Seminar: Applied Regional Economics.

- 8373. Seminar: Food and Agricultural Policy in the United States.
- 8378. Seminar: Agricultural Development.
- 8382. Seminar: Farm Management and Production Economics.

Source: *University of Minnesota Bulletin, College of Agriculture, 1979-81, Vol. LXXXII, No. 13, August 8, 1979, pp. 83-87.*

§Credit not granted if equivalent course listed after section mark has been taken for credit.

#Consent of instructor is required.

¶Concurrent registration allowed (or required) in course listed after paragraph mark.

Appendix H. A SUGGESTED SECOND PH.D. TRACK FOR
STUDENTS WITH A POLICY ORIENTATION

(A memo from Willard W. Cochrane to G. Edward Schuh, May 20, 1981)

The existing graduate program track leading to the Ph.D. degree is designed in large measure to produce teachers and researchers in agricultural economics. This track could, I believe, be improved by placing less emphasis on techniques and specialization and more emphasis on providing students with the "big picture." But I shall say no more about this program of study, or make any specific suggestions regarding it.

It is the purpose of this memorandum to recommend a second track--a policy-oriented track--leading to the Ph.D. in our Department of Agricultural Economics. I am not suggesting a cheap, or second-class, degree at this point. I am suggesting a program of study that is designed to turn out policy-oriented Ph.D.s with an appreciation of our changing economic organization, the development of our economic institutions, and the political process wherein major economic decisions are made. I am suggesting a program of study designed to continue to produce people like Hathaway, Brandow, Paarlberg, Maddox, Bonnen, and Cochrane in our profession.

Graduate students selecting this second track would be required to gain a level of proficiency in six fields of study. Those fields are:

1. Economic theory.
2. A subfield of agricultural economics (e.g., agricultural development, production economics, marketing).
3. Quantitative methods.
4. Economic history (in most cases this would be the economic history of the United States, but it could be the economic history of some other region, if such a course were offered, or it could be a functionally designed course in economic history).
5. Policy analysis as offered in the School of Public Affairs, or political theory as offered in the Department of Political Science.
6. The thesis field (e.g., agricultural development, production economics, or marketing. *But a different field from that selected in (2) above.*)

The student would stand examination in four of

the above nonthesis fields in the Preliminary Examination, in which economic theory and one subfield of agricultural economics would be required.

The critical question for this or any other track leading to the Ph.D. degree is the level of proficiency. My ideas regarding the level of proficiency are outlined below.

The student would take, as a minimum, nine credits at the graduate level in each of the five subject matter fields and whatever course work seems desirable in the thesis field. In economic theory this would be a sequence of courses beyond the intermediate theory level, *but something different from what our students are receiving in the Economics Department at the present time.* This graduate-level course should focus on providing an explanation of how all parts of the economy operate (i.e., monopoly behavior as well as atomistic behavior, and modern problems of "stagflation" as well as the pure theory of growth). Leadership in the Agricultural Economics Department would need to work with the leadership in the Economics Department in developing such a graduate-level sequence.

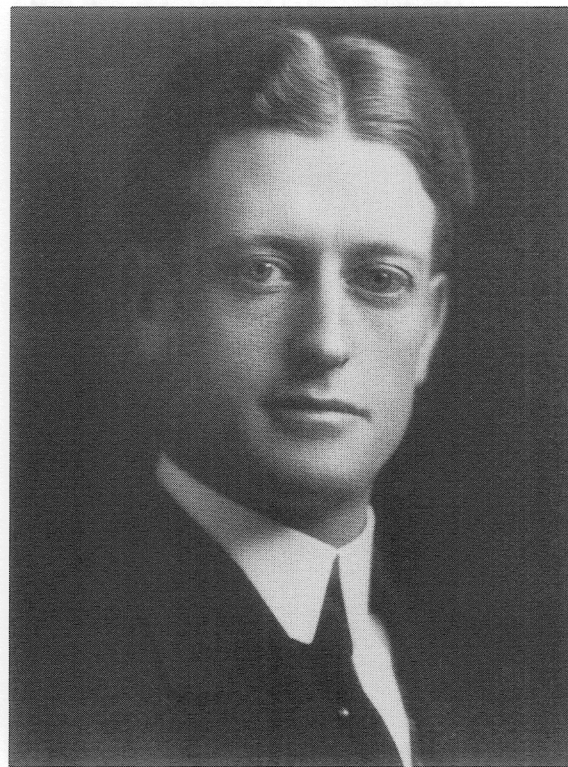
The student in the Ph.D. program of this policy-oriented track would be required to take at least one-half of the course work described above in addition to any work done for a master's degree.

To get the sequences needed for this Ph.D. track in the fields of economic history and policy analysis or political theory, it seems probable that leadership in the Agricultural Economics Department would need to work with the History Department, the School of Public Affairs, and the Political Science Department to either develop the needed sequence or to select from current offerings the proper sequence.

In sum, I doubt if the proper courses are currently in place in the Economics Department, the History Department, the School of Public Affairs, and the Political Science Department to make this second track a viable track. But with work and vision I am sure that the needed courses could be developed. And it is my understanding that some of our graduate students are crying out for a course of graduate study along the lines suggested in this memo.



Andrew Boss
1909-1912



Carl W. Thompson
1912-1913



L. D. H. Weld
1913-1915



E. Dana Durand
1915-1917



W. W. Cumberland
1917-1919



John D. Black
1920-1927



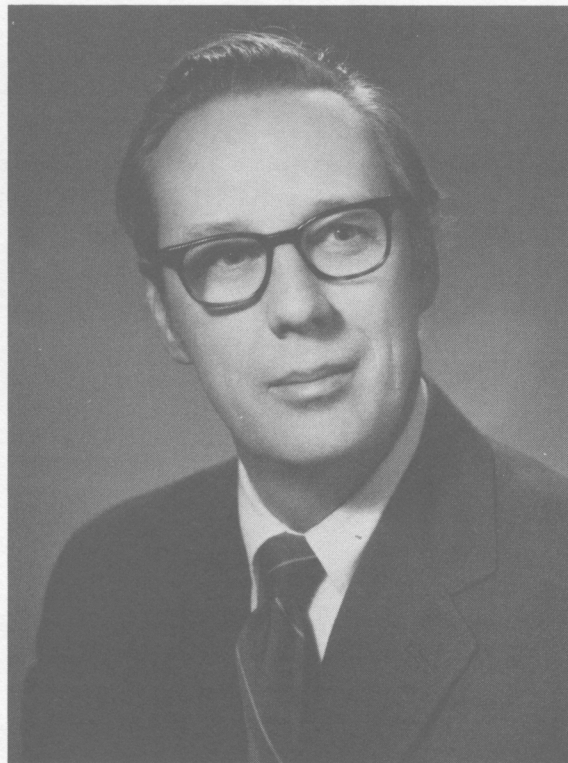
Oscar B. Jesness
1928-1957



Sherwood O. Berg
1957-1963



Elmer W. Learn
1963-1964



Vernon W. Ruttan
1965-1970



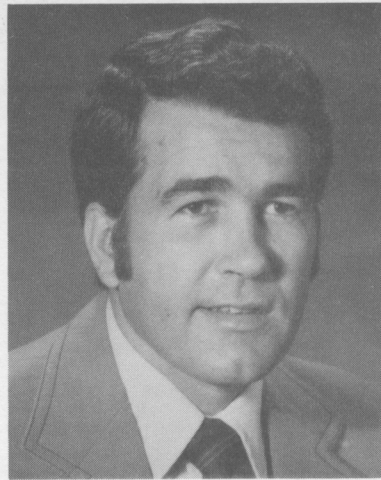
Wesley B. Sundquist
1971-1979



G. Edward Schuh
1979-



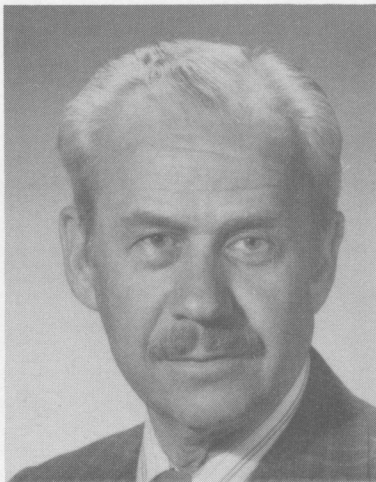
Willis E. Anthony



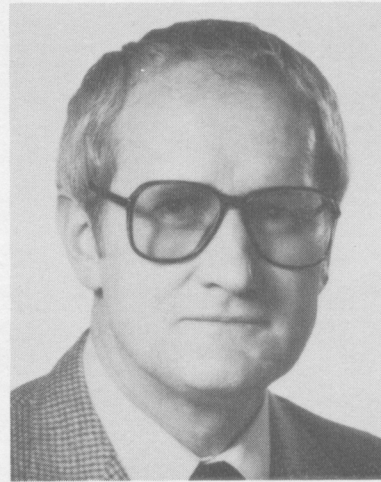
Fred J. Benson



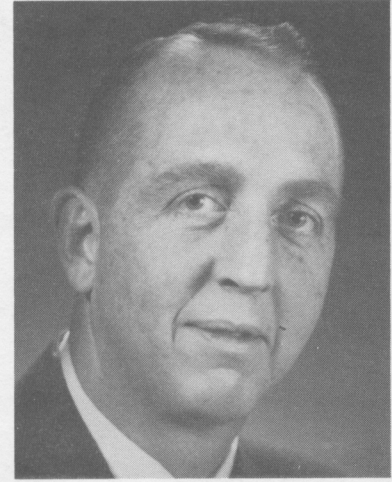
John Blackmore



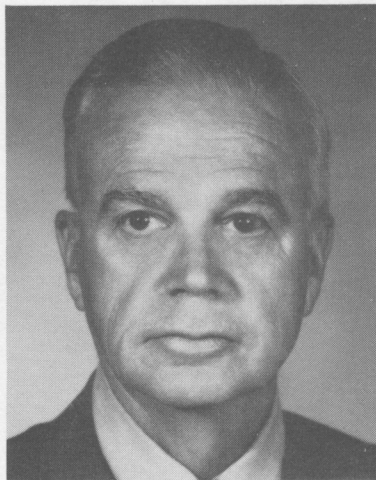
Uel O. Blank



Boyd M. Buxton



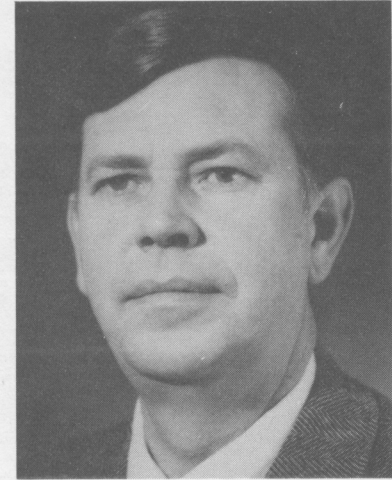
Martin K. Christiansen



Willard W. Cochrane



Dale C. Dahl



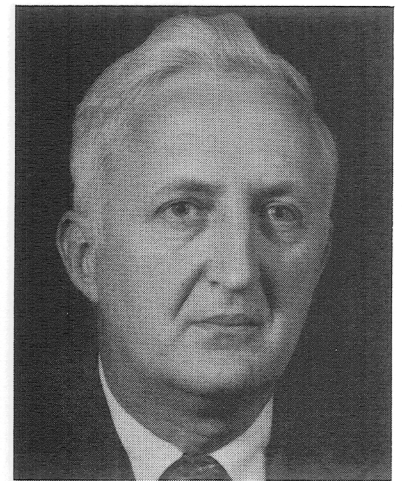
Reynold P. Dahl



K. William Easter



Kenneth E. Egertson



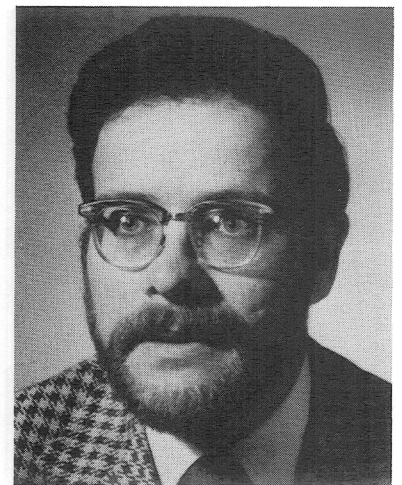
Earl I. Fuller



Jerome W. Hammond



Paul R. Hasbargen



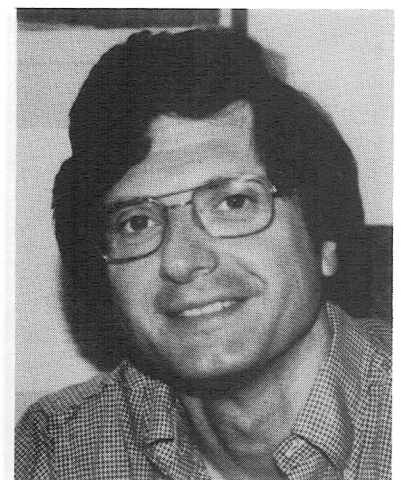
Richard O. Hawkins



John D. Helmberger



Clifford G. Hildreth



James P. Houck



John S. Hoyt



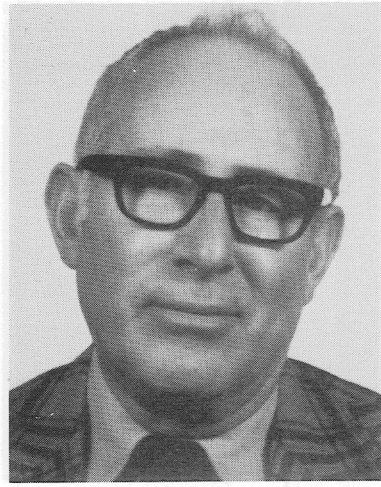
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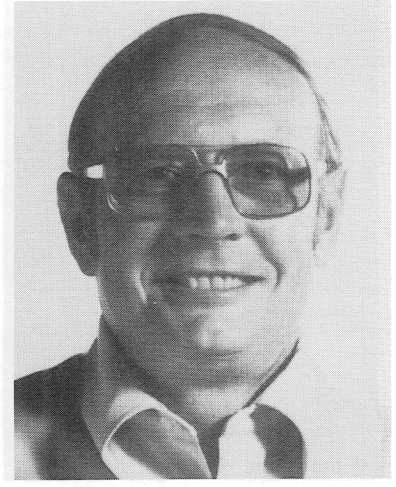
Jean D. Kinsey



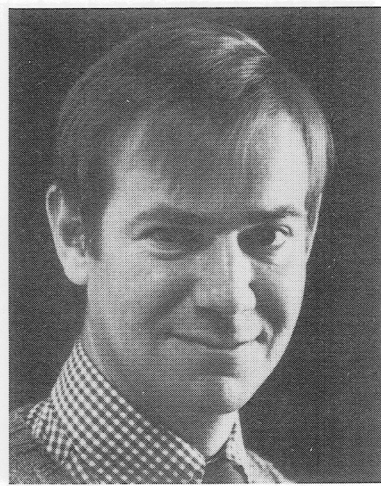
Wilbur R. Maki



Lee R. Martin



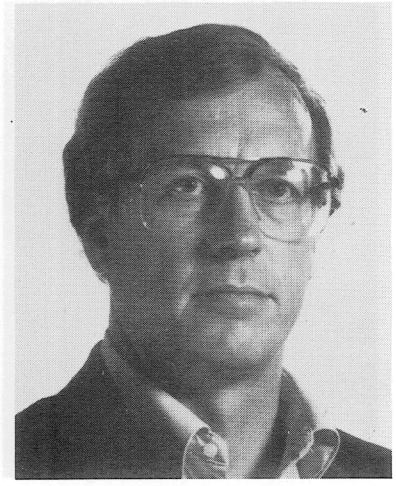
Willis L. Peterson



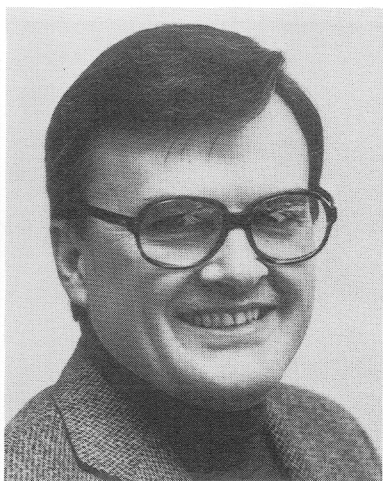
Malcolm J. Purvis



Philip M. Raup



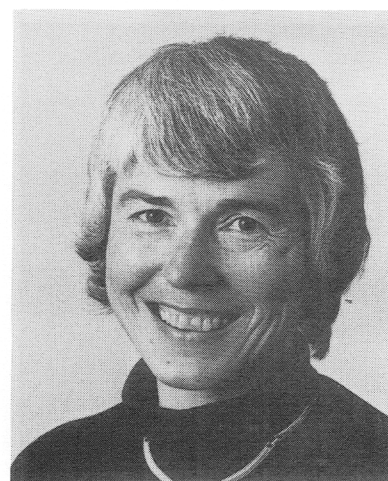
Terry L. Roe



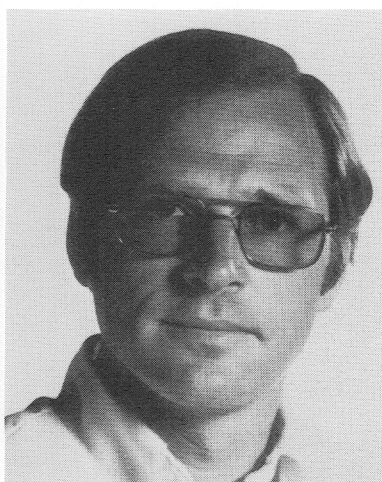
Gordon D. Rose



Vernon W. Ruttan



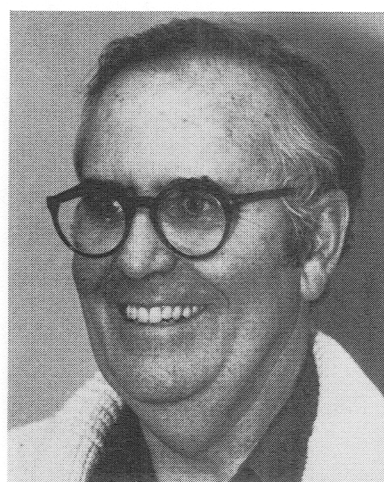
Mary E. Ryan



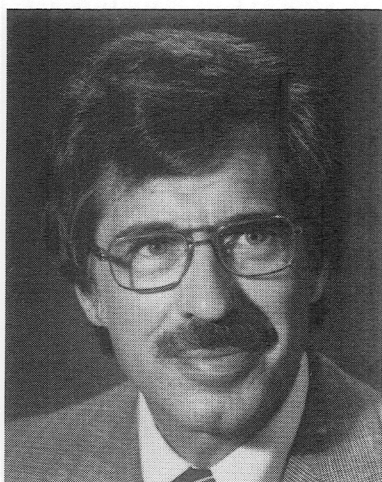
Benjamin H. Sexauer



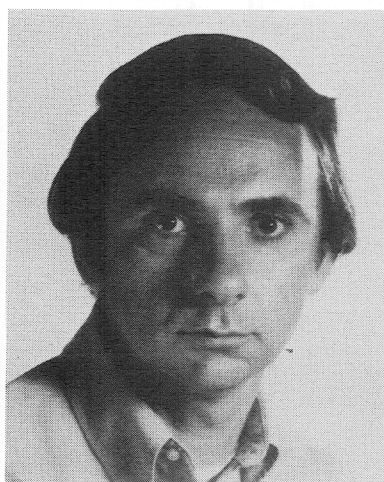
Mathew D. Shane



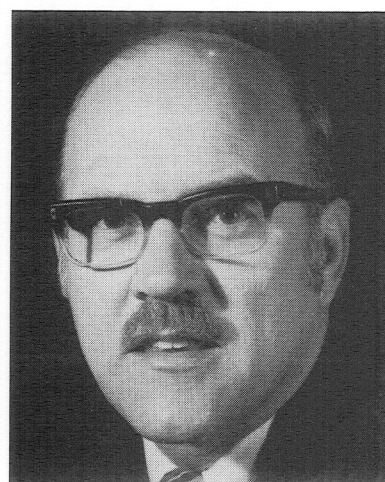
Frank J. Smith



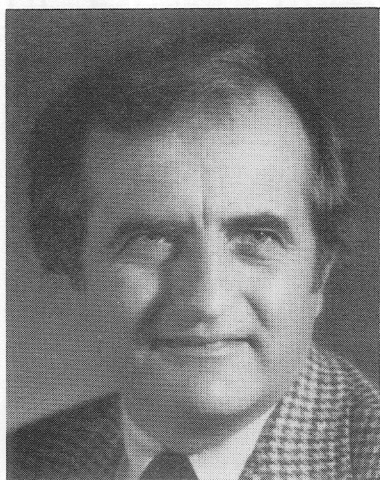
Robert W. Snyder



Thomas F. Stinson



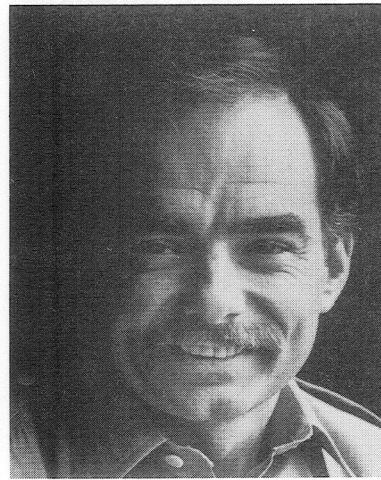
Wesley B. Sundquist



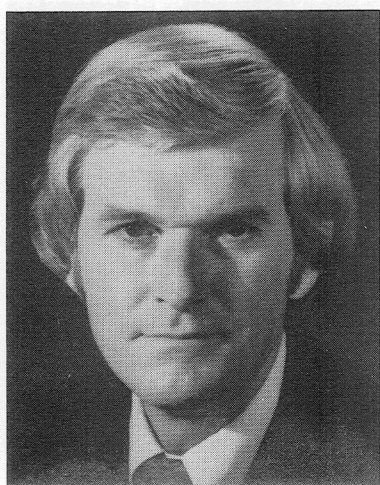
Kenneth H. Thomas



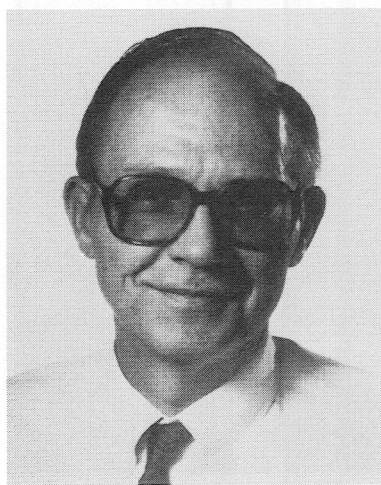
Jerry L. Thompson



John J. Waelti



Arley D. Waldo



Delane E. Welsch



Carole B. Yoho