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NOTES

NO. 460 ST. PAUL CAMPUS, UNIVERSITY OF MINNESOTA MARCH 1964

The Role of Agricultural Economics in Education

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The primary purpose of the University of Minnesota is to provide educational opportunities for all Minnesotans. Its broad charter is described in the inscription over the University's Northrop Auditorium: "Founded in the faith that men are ennobled by understanding. Dedicated to the advancement of learning and the search for truth. Devoted to the instruction of youth and the welfare of the state."

The land-grant university concept contends that education can be the servant of the masses in improving the welfare of mankind. This philosophy of "universal education" was expressed by Thomas Jefferson: "We should have an aristocracy of the mind, created not by birth but from the strength of individual minds and talents."

The Institute of Agriculture, as a unit of the University, serves the people of the state through its **research, resident instruction,** and **continuing education** programs in agriculture, forestry, and home economics. The Institute offers a steadily growing body of knowledge and the services of a community of scholars.

The Department of Agricultural Economics is one of 14 departments in the Institute (the Schools of Forestry and Home Economics are also in the Institute). It has responsibility for research and resident instruction in agricultural economics. The Agricultural Extension Service, with its staff of extension economists, cooperates with the department to provide continuing education.

RESIDENT INSTRUCTION

The Department of Agricultural Economics offers undergraduate and graduate level instruction. About 160 students are enrolled in the undergraduate program which leads to a Bachelor of Science degree. The graduate program, with about 55 students, leads to the Master of Science and the Doctor of Philosophy degrees.

Undergraduate Instruction

Undergraduate students may choose from two curricula: (1) the agricultural economics option of the agricultural science curriculum, or (2) agricultural business administration curriculum.

In both we adhere to the liberal core. But in the agricultural economics option we emphasize the natural and biological sciences and agricultural production. It is designed primarily for the student who expects to have close contact with agricultural production—as a farm manager, a county agent, a soil conservation specialist, a farm loan supervisor, a fieldman for a food processing firm, etc.

In the agricultural business administration curriculum, we emphasize business organization and management principles. We try to meet the needs of graduates who seek employment in the business community. For this reason, it is a jointly administered program; we require as many credits in the School of Business Administration as in agricultural economics.

Both curricula require training in basic economic and business principles. Beyond this the student is allowed to "tailor" his program to his particular aptitudes, skills, and occupational interests. Approximately one-fourth of the credits required for graduation in both curricula are free electives.

Perhaps the easiest way to describe the undergraduate resident instruction is to discuss the kinds of jobs taken by our graduates. Many graduates serve as farm loan advisors in PCA's or commercial banks; as county agricultural extension agents; as supermarket managers; as public relations men and sales and technical servicemen for pharmaceutical, fertilizer, seed, feed, farm machinery, or other farm supply firms; as buyers for livestock, poultry, grain, and other farm supply firms and cooperatives; as research assistants in corporations and government; as managers of their own farms; as owners or employees of farm management services; as production supervisors and salesmen for farm products processing and marketing firms; and as appraisers for highway departments.

This list is by no means exhaustive. It simply indicates the broad range of occupations that our graduates can accept and the kinds of employers who come to our department for capable and skilled personnel.

What kind of a program will train students with the necessary flexibility and technical competence for such a wide spectrum of occupations? What is our responsibility as educators in developing a curriculum to meet demands of our graduates?

Obviously, an education depends greatly upon the student's attitude and what he does for himself. But we can challenge his intellect—we can give him a sense of exhilaration, of fresh discovery. We can "open doors" for him and transmit, as teachers, this contagious enthusiasm for inquiry. As educators we must provide the student with a fund of facts, concepts, principles, and ideas; we must also assist him in developing the skills to integrate these facts, concepts, and principles.

We give the student opportunity to develop an analytical approach to problems, some creative imagination, good reasoning ability, and a keen sense of observation. This involves stimulating his desire for acquiring the knowledge needed to obtain his highest personal and professional goals.

Above all, our major responsibility is to educate the "whole man." We must help each student understand the broad relationships within our economy and society; we must help him appreci-

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ate his social heritage. Therefore, the heart of our curriculum is a design for a truly liberal education.

We require courses in the natural, physical, and biological sciences; in at least two social sciences other than economics (such as sociology and political science); and in the humanities (such as literature and music). Since the ability to communicate is essential, specific courses are also required to help develop reading, writing, listening, and speaking skills. Courses in mathematics and philosophy are included to help develop the reasoning faculties.

The growing trend is toward fewer but larger farms, combined with a shifting of many farming functions to off-farm businesses. So employment opportunities with agribusiness firms have expanded. This has made agricultural colleges more aware of their responsibility for providing graduates capable of organizing their mental capabilities, of identifying, analyzing, and solving relevant problems, and finally of making decisions.

We try to do this but not by practicing techniques required in a given job at a given time. Instead, we give training in principles and facts which can be adapted to many problems. Therefore, we require courses in accounting, business law, business management, production management, general economics, marketing and price analysis, farm management, production economics, public policy, and finance and banking. These are in addition to courses in the agricultural sciences such as soils, agronomy, and animal sciences.

Graduate Instruction

The M.S. degree requires approximately 1½ to 2 years of specialized work in agricultural economics, economics, and business courses beyond the B.S. degree. M.S. graduates enter jobs similar to the B.S. degree holder but often in more responsible positions. And they proceed more rapidly to offices of greater responsibility.

Ph.D. candidates take 3 to 5 years work beyond the B.S. level to become professional economists. They find employment in research or managerial positions in financial or business firms. Others are employed in various government research and action agencies. Moreover, many Ph.D. graduates assume academic positions in universities.

CONTINUING EDUCATION[1]

The Institute of Agriculture provides continuing educational opportunities. Members of the Agricultural Extension Service, as a part of the Institute, communicate and interpret the body of knowledge, the results of scholarly research, to the people of the state, the nation, and the world. The staff of 240 county extension agents and 65 extension specialists are backed by the competence of 14 subject matter departments such as agricultural economics.

The Agricultural Extension Service provides continuing education opportunities in nine program areas. Over 175,000 farm and nonfarm families are reached each year. These areas include:

1. Efficiency in Agricultural Production.
2. Marketing, Distribution, and Utilization of Farm Products.
3. Conservation, Use, and Development of Natural Resources.
4. Farm and Home Management.
5. Family Living.
6. Youth Development.
7. Leadership Development.
8. Community Improvement and Resource Development.
9. Public Affairs.

The Agricultural Extension Service and the resident teaching and research departments extend the Institute's continuing education effort by cooperating with the Department of Agricultural Short Courses and branch experiment stations. Over 70 specialized short courses were conducted last year, enrolling 13,149 people of the state.

A review of a few continuing education programs for which our 13 extension economists and the Department of Agricultural Economics have carried responsibility or have participated in will illustrate the scope of the educational effort.

Rural-urban leadership seminars are oriented to the citizens as community leaders. These seminars are designed to help rural and urban leaders understand local and national socio-economic issues. In this setting leaders develop skills for analyzing situations and issues in their own communities.

Topics covered are important to all Minnesotans—economic growth, education, taxation, zoning, agricultural policy, foreign policy, and international issues. A seminar on "Economics in Government" is currently underway for an eight-county area around Waseca. Topics include: alternative economic and political systems, principles of taxation, and impact of taxes and spending on economic growth.

Rural Area Development concerns educational work with problems and issues of the local community in cooperation with local agencies. This program provides educational assistance to communities so that they might develop an inventory of resources, analyze alternatives, and organize action programs. The aim is to help them achieve more effective use of community resources. Rural Area Development committees are active in over 80 counties.

Farm and Home Development Workshops operate at the cutting edge of the agricultural adjustment problem—decision-making on individual farms. This educational effort consists of a series of all-day study sessions.

It is directed toward younger, recently established farm families who wish to make farming a career and plan their businesses to meet family goals. Their key adjustment problems center around their ability to: (1) acquire sufficient land, labor, and capital resources; (2) manage these resources effectively to reach family goals; and (3) perceive and analyze off-farm opportunities.

This educational program serves 600 to 800 farm families in 74 counties each year.

Outlook educational efforts are many and varied. A major challenge is helping producers, processors, retailers, and consumers keep abreast of rapidly changing demand and supply trends in the crop and livestock industry.

Our educational efforts include preparation of this publication's Outlook Corner, news and radio releases, county data handbooks, slide and tape sets, and other special articles. We make a concentrated effort to carry out an annual comprehensive livestock outlook program in Minnesota.

Furthermore, we hold over 50 outlook meetings each year for over 5,000 producers, marketing firms, educators, and agricultural finance representatives. Program content includes economic situations, demand-supply trends, profit prospects, and cattle and hog feeding guides designed to help the

[1] This section is adapted from reports prepared by the extension economist staff.

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Prepared by the Department of Agricultural Economics and the Agricultural Extension Service.

Published by the University of Minnesota, Agricultural Extension Service, Institute of Agriculture, St. Paul, Minnesota 55101.

producer in decision-making.

Organized management projects in Minnesota support the educational and research objectives of the Department of Agricultural Economics. We use the summary of records of cooperating farmers for cost analysis studies, demonstration purposes, or educational information in the classroom and field.

The Southeast and Southwest Associations provide information of a current and longrun nature on costs and returns of various farm enterprises and factors affecting earnings. The Waseca and Northwest Farm and Home Management Associations serve as test vehicles for carrying on an intensive management educational program with individual farm families.

A pilot education program in **farm records** is now underway. This will utilize high speed electronic computers to facilitate the management education programs for farmers. The use of computers could simplify record keeping and supply more farmers with more detailed business analyses. These developments hold exciting possibilities for future educational programs.

Educational work in marketing focuses on the economic activity of agriculturally related off-farm firms. These include grain elevators, dairy manufacturing plants, and farm supply firms. One area of our work in this field is management short courses aimed, for example, at elevator and retail feed firms. We offer these short courses at various locations around the state. Topics considered include grain grading, storage, financial management, employee relations, advertising and promotion, and credit.

Boards of directors of cooperatives also receive educational assistance. We have conducted 28 meetings recently with them. Discussions center on credit, finances, and managerial problems.

We have also contracted with the Federal Extension Service to develop an educational program related to reducing costs of distributing farm inputs and increasing the effectiveness of firms supplying farm inputs. Our particular emphasis in this project is related to operational efficiency, inventory control, store and warehouse layout, scale economics, distribution, organizational structure, management decision-making, management and director development, and controlling and planning. This is a cooperative effort between the extension economists, Department of Agricultural Economics, and the School of Business Administration.

Consumer economics education is based on objectives for improving: (1) consumers' performance in the market place and (2) decision-making on legislative matters related to their interests.

This winter we are conducting consumer protection forums for homemakers. Discussion topics center on the role of the consumer, the need for consumer protection, the Federal Food and Drug Administration, and current consumer problems in Minnesota.

A farm income tax short course has been conducted for Minnesota tax practitioners for the past 20 years. For this we cooperate with the Department of Agricultural Short Courses, Minnesota Department of Taxation, and the Internal Revenue Service. The 504 participants in the 1963 course have assisted 40 to 50 percent of Minnesota taxpayers who file income tax returns.

The property tax short course is offered for Minnesota assessors. It is sponsored by the Departments of Economics and Agricultural Economics and the Agricultural Extension Service.

Preparing youth to meet the challenges of the future is as complex a job as the society about them. The capacity to get the most of what is desired with available resources is basic for all youth.

Economic opportunities in farming careers exist for about 1 out of 10 rural youth. But career opportunities in agribusiness fields are increasing for young people with proper training. So we are emphasizing career exploration and economic principles and management concepts of decision-making.

Extension economists are continually developing economic educational materials for 4-H projects. Pilot efforts are underway to: (1) develop town and country business clubs—organized to study complexities and opportunities in agribusiness, and (2) conduct career exploration programs for youth.

RESEARCH

Research programs of the Department of Agricultural Economics undergird our resident instruction and continuing education programs. Previous issues of *Farm Business Notes* devoted major emphasis to reports of results of research by the department. So in this issue we merely list a few of the research studies underway:

- Costs of manufacturing butter or milk powder in various size plants.
- Costs of transporting milk in bulk or cans.
- Barriers to movement of milk between different regions of our country resulting from governmental programs or state and city health ordinances.
- Changes in land prices and factors that cause them.
- Impact of the interstate highway system on farms or rural communities and urban areas.
- Changing organizations of marketing systems for livestock, poultry, grain, and other commodities and their relative effect on prices received by farmers and paid by consumers.
- Lending practices of cooperative lending associations and commercial banks.
- Impact of taxation on land owners, farmers, and others.
- Effect of government programs such as supply control on farmers, marketing firms, and consumers.
- Relative costs and returns from various farm enterprises.
- Profitableness of owning versus renting farm machinery.
- Profitable adjustments in farming to meet changing technological and marketing conditions.
- Impact of foreign trade and aid on farmers and others in the agribusiness community.
- Changing food consumption habits and their significance to marketing firms, food processors, and producers.
- Adjustments that are being made or that should be made by rural communities to declining farm population and changing use of land and resources.

The Department of Agricultural Economics constantly reviews the research and education programs in the light of the following goals:

1. For farm families: a higher return for land, labor, and capital invested through improved understanding of socio-economic concepts, principles, and analytical tools.

2. For agribusiness firms: an improved management knowhow and increased operational efficiency in serving the farmer and consumer while maintaining their own economic health.

3. For consumers: the wise use of resources for personal and economic satisfaction.

4. For communities: the development of human, natural, and institutional resources through the increased ability of people to identify, understand, and solve problems affecting their welfare.

5. For youth: a greater contribution to national productivity through improved understanding of science, research, technology, and citizenship responsibilities.

6. For society: a greater return from resources through research and education.

Education, Income, and Growth

Paul R. Hasbargen

People with more training and education generally earn more money. They also have a lower incidence of unemployment than people with less education. Furthermore, higher productivity of trained people contributes to the growth rate of a country.

Education and Personal Income

The relationship between formal education and earning power is indicated in table 1. In 1961 the average income of men with 4 years or more of college was almost three times that of those who had completed less than 8 years of school.

A recent University of Chicago study of adult education showed that one out of five adult Americans was pursuing some voluntary education program. Three-fourths of the total in continuing education programs had a formal education level of high school or more. Although this group was considerably younger than the average population of adults—57 percent were under 40 years—their median annual income was $1,200 above the national average.

Education and Economic Growth

Investments in education may have contributed more to economic growth of the United States than have investments in physical capital.

Denison[1] estimated that 42 percent of the 1929 to 1957 increase in the real national income per person employed was due to the increased educational level of the labor force. Another 35 percent of this growth he found related to advances in knowledge during this period; of course, this factor is closely connected with education.

In contrast, Denison estimated that only 9 percent of the increase in real income per person was due to increases in physical capital stock in this country. Projecting ahead for the next 20 years, Denison expects a similar division of importance: education, 40 percent; advance in knowledge, 46; and physical capital, 9 percent.

Table 1. Average income of males, age 25-64, by education level in United States, 1961

Schooling	Average income
Less than 8 years	$3,483
8 years	4,750
9-11 years	5,305
12 years	6,102
College:	
1-3 years	7,392
4 or more	9,530

[1] Edward F. Denison, *The Sources of Economic Growth in the United States and the Alternatives Before Us*, Supplementary Paper No. 13, Com. for Econ. Develop., Jan. 1962.

In research work at Minnesota, 17 percent of the variance among counties in median family income levels was accounted for by variations in formal education levels. For every 10-percentage point increase in the proportion of adults in a county with a high school education or more, the median family income was up by $337, holding other factors constant.

Educational Levels Vary

One reason that average income levels are lower in rural areas than in urban areas is that educational levels are lower in rural areas. This difference in educational levels is shown in table 2 for Minnesota. In 1960 almost 50 percent of the urban male population of 25 years old and older had at least a high school education in contrast to only 20 percent of rural farm males.

However, comparing rural farm males by age groups shows that 45 percent of those aged 25-34 had a high school education or more in contrast to only 7 percent of those aged 55-64. In the younger group, 36 percent had gross farm incomes of over $10,000 in contrast to 19 percent of the older group.

Table 2. Percentage distribution of highest grade completed by males 25 years of age and older for urban and rural farm Minnesota, 1950 and 1960

	1950		1960	
	Urban	Rural farm	Urban	Rural farm
Elementary:				
Less than 8 years	16.2	29.7	13.5	22.9
8 years	25.9	48.1	21.7	46.7
High school:				
1-3 years	15.0	8.7	16.4	10.5
4 years	21.1	9.3	24.7	16.1
College:				
1-3 years	9.5	2.2	11.0	2.9
4 years or more	9.3	0.8	12.7	0.9
High school or more	**39.9**	**12.3**	**48.4**	**19.9**
Not reported	3.0	1.2	0	0
Median years	10.3	8.4	11.7	8.6

Table 3. Projected percent change in employment, 1960-70, and average educational levels of job holders, 1959

Occupational group	Percent change expected	Average schooling, 1959
Professional and technical	43	16.2
Proprietors and managers	22	12.4
Clerical and sales workers	28	12.5
Skilled workers	22	11.0
Semiskilled workers	20	9.9
Service workers	23	9.7
Unskilled workers	0	8.6
Farmers and farm workers	—20	8.6

Future Educational Needs

Tomorrow's job market will place an even greater premium upon education. The unskilled worker will face an increasingly bleak future since little or no growth is expected in the number of unskilled jobs.

In contrast, job opportunities for professional and technical workers are expected to increase over 40 percent between 1960 and 1970. Table 3 shows the growth expected in different occupations during this decade as well as the average educational level of holders of these jobs in 1959.

Implications

The implications of these facts are:

- Young people should have little question about the desirability of continuing formal education—with high school completion a minimum and vocational training or college if possible.
- Adults should view education as a life-long process necessary to avoid human obsolescence and to attain a fuller and more satisfying life.

Agricultural Extension Service
Institute of Agriculture
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ROLAND ABRAHAM, Acting Director
Cooperative Agricultural Extension Work Acts of May 8 and June 30, 1914
OFFICIAL BUSINESS
2-64 2,635

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