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International
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**Proceedings of a Conference on
Institutional Innovation in Agricultural
Research, Teaching, and Extension in
Italy, Europe, and the U.S.A.**

Sponsored by

Italian Society of Agricultural Economics

University of Padova

Center for International Food and Agricultural Policy
University of Minnesota

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FOREWORD

These papers were presented at a Conference on "Institutional Innovation in Agricultural Research, Teaching, and Extension in Italy, Europe and the U.S.A." held at the University of Padova, in Italy on June 19, 1996. The Conference was sponsored by the Italian Society of Agricultural Economics, the University of Padova, and the University of Minnesota's Center for International Food and Agricultural Policy. The Conference was held to celebrate the 50th Anniversary of the College of Agriculture at the University of Padova and was held at Agripolis, the new agricultural campus at Padova. This Conference on June 19th followed the Fifth Joint Minnesota/Padova Conference on Agriculture, Food, and the Environment held at Abano Terme, near Padova, June 17-18, 1996. All the papers presented at the Conference are being published in Italian by the Italian Society of Agricultural Economics. This volume contains only those papers presented in English.

Benjamin Senauer
University of Minnesota

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Ten Years of Exchanges
University of Padova - Minnesota*

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*Opening comments prepared for the Conference on "Institutional Innovation in Agricultural Research, Teaching, and Extension in Italy, Europe, and the U.S.A.", Agripolis Campus, University of Padova, 19 June 1996.

Ten Years of Exchanges

University of Padova - Minnesota

First, let me say what a pleasure it is to be here on the beautiful new Agripolis campus to participate in the 50th Anniversary Celebration of the Faculty of Agriculture at the University of Padova. Many of us from Minnesota remember visiting Agripolis four years ago when it was still under construction during our last joint Conference held in Italy in 1992.

I will begin with a particularly relevant quote from Shakespeare's The Taming of the Shrew, Act 1, Scene 1, which Professor C. Ford Runge at Minnesota found several years ago:

To see fair Padua, nursery of arts
I am arriv'd...
Here let us breathe, and haply institute
A course of learning, and ingenious studies.

I am to Padua come, as he that leaves
A shallow splash, to plunge him in the deep,
And with satiety seeks to quench his thirst.

The interaction between the University of Minnesota and Italy can be traced back to the 1950s when Professor Philip Raup visited Italy to lecture at several agricultural universities. Leading Italian agricultural economists in the 1950s and 1960s, Professor and later Senator Guiseppe Medici, and Professors Carlo Vanzetti and Osvaldo Passerini, were well-known in the United States, especially in the area of land economics. While working at the FAO in 1960-61, Professor Raup gave a seminar at the University of Padova on Russian agricultural policy and became acquainted with the faculty.

The first discussions of a possible formal collaborative research arrangement between Padova and Minnesota were initiated in 1983. Those initial discussions included Viterbo and Oxford Universities in the possible collaboration. The key participants in these discussions were Professors Danilo Agostini and Giuseppe Stellin at Padova and Professor Maurizio Grillenzoni from the University of Bologna. Both Professors Agostini and Grillenzoni had studied agricultural economics in the United States. Professors Raup and Vernon Ruttan played an important role in the early discussions. Professor Raup visited Padova in April 1983. Professor Ruttan gave a seminar in November 1984 on his new book Agricultural Research Policy which was being translated into Italian. Both Professors Raup and Ruttan have visited Padova a number of times since their first trips. There was then an important exploratory meeting in Padova in April 1984. Another meeting was held at the International Association of Agricultural Economists Conference in Malaga, Spain, in 1985. Professors Runge and Harald von Witzke at Minnesota played an active role in moving the discussions to a formal exchange agreement. Professor Runge visited Padova in 1987 to work out the details while he was assigned to the U.S. Trade Representative's Office in Geneva.

A formal Linkage Program and Exchange Agreement was signed in 1988 after the Center for International Food and Agricultural Policy (CIFAP) was established at the University of Minnesota with Professor Runge as its first Director. The agreement was renewed for another five years in 1993. The agreement is specifically between the Istituto di Estimo Rurale e Contabilita at the University of Padova and the now Department of Applied Economics as represented by CIFAP at Minnesota. From the beginning the exchange has included the participation of the Centro di Studio Sulla Gestione dei Sistemi Agricoli e

Territoriali (the Land and Agri-System Management Research Center) at the University of Bologna and also Ente di Sviluppo Agricolo Veneto - ESAV (the Veneto Regional Agricultural Development Agency). Professor Agostini was President of ESAV during the first several years of the exchange agreement and Dr. Tommaso De Marco of ESAV has been an active participant in the exchange. Professor Secondo Tarditi from the Università di Siena has also been an active participant. Recently the University of Perugia's Istituto de Estimo Rurale e Contabilita with the leadership of Professors Paolo Abbozza and Adriana Ciani has become active in the collaboration with Minnesota through an agreement with the Center for Farm Financial Management directed by Professor Richard Hawkins at Minnesota.

We are now holding our fifth joint Conference on Food, Agriculture, and the Environment under our exchange agreement. The first was held in Motta di Livenza, north of Venice, June 19-23, 1989. The second at Douglas Lodge in Itasca State Park at the headwaters of the Mississippi River in Minnesota, September 24-28, 1990. The third was back at Motta di Livenza, June 22-26, 1992, after moving to a biannual schedule. The fourth was at the Spring Hill Conference Center, west of Minneapolis, September 4-9, 1994. The conferences now involve the presentation of papers by about 20 participants from each side, in several cases they are jointly co-authored papers. The first two days of our fifth conference were held at Abano, just west of Padova, on Monday and Tuesday.

Some of the major topics of the research collaboration have included:

- (1) Agricultural policy reform in Europe and the U.S., especially as it related to GATT;

- (2) The impact of agriculture on the environment, especially water use and degradation;
- (3) Linkages between agricultural, trade, and environmental policy;
- (4) The valuation of land, particularly land values and environmental quality issues;
- (5) Agriculture as part of the total food system from farmer to consumer; and
- (6) Institutional innovation and environmental quality.

Finally, let me say that for the Center for International Food and Agricultural Policy at Minnesota the agreement with Padova has been our longest and one of our most successful exchanges. The perspectives of colleagues from other countries concerning similar issues and problems are a great source of enriching new insights for all of us.

**AN OVERVIEW OF THE REPORT OF THE NATIONAL RESEARCH
COUNCIL'S COMMITTEE ON THE FUTURE OF THE LAND GRANT UNIVERSITY
COLLEGES OF AGRICULTURE***

G. Edward Schuh**

It is a special pleasure to be with you again here in this beautiful part of Italy, and as part of what is now becoming a regular biennial tradition of meetings. It is a double pleasure to discuss one of my favorite topics, the U.S. system of Land Grant Universities.

My specific assignment is to discuss a report recently completed by a committee appointed by the U.S. National Research Council three years ago to look at the future of the Land Grant University Colleges of Agriculture. I will approach that assignment in three steps. First, I will provide some brief background on the system since some of you are perhaps not familiar with it in any detail. Second, I will describe the study and how it was organized. Third, I will present some of the main findings and recommendations from the study. At the end I will have some concluding comments. Most of the material presented is drawn directly from the Executive Summary of the report.

Background on the System

The Land Grant Universities are a uniquely American institutional innovation. Their beginning is associated with the passage of the first Morrill Act in 1862, and as a

* Presented at the Fifth Joint Conference on Agriculture, Food, and the Environment, sponsored by the University of Padova, the University of Minnesota, the University of Bologna-CNR, and the University of Perugia, and held at Padova, Italy, June 17-19, 1996.

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reaction against the elitism of the dominant colleges and universities of the day. The system was expanded with the passage of the second Morrill Act, in 1890, which mandated access for African Americans to higher education. Additional legislation was passed again in 1994 which mandates access to Native Americans. I will not say much about this latter group, however, other than to take note of this legislation. The colleges covered by this legislation are 24 in number, and are for the most part two-year colleges.

When the Land Grants were established in 1862 almost 50 percent of all U.S. residents lived on farms, which in turn employed almost 60 percent of the labor force. The main economic activity of the nation was agriculture and the land grant college of agriculture (LGCA) system was mandated

. . . to teach such branches of learning as are related to agriculture and the mechanical arts . . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life (1862 Morrill Act).

As one can note, the mandate was actually quite broad in its conception, despite the goal of providing practical education to what were then the masses. It thus imposed few restrictions on the character of what was later to evolve. This lack of restrictions probably accounts for the longevity of the system. It was able to adjust to changing conditions.

The 1862 Act eventually produced land grant colleges in every state and territory and the District of Columbia. The 59 colleges that resulted are known as the 1862 colleges, or more simply, the "1862s." The second Act gave rise to a set of historically Black colleges located in southern states and known as the 1890 colleges, or "1890s." There are 17 1890 institutions - 16 public state colleges and Tuskegee University.

The history of the system is that full-fledged universities eventually grew up around the original colleges. As these universities evolved they took on many of the characteristics provided by the mandates of the original Morrill Acts, and complemented by later legislation which helped give the system its unique characteristics. The 1897 Hatch Act promoted agricultural research, in a way that will be described below. The 1914 Smith-Lever Act provided a mandate to extend the knowledge produced in the system to the larger society. The three pieces of legislation thus gave the system its distinctive tripartite mission of teaching, research, and extension.

In addition to the original mandate to provide higher education to the masses, the later legislation created two distinct features of the system. First, the Smith-Lever Act, which created the extension component of the system, created a system designed to link the colleges' academic and research programs to societal needs through a public service function that included extended education and technology transfer. Second, the Hatch Act created a federal-state partnership in agricultural research and technology transfer.

This was motivated by the desire to draw each state and territory into supporting science and education related to agriculture.

The partners in this relationship have traditionally been the U.S. Department of Agriculture (USDA) at the federal level, and every state and territory, through their land grant colleges and associated state agricultural experiment stations and extension services. The partnership is bound together by a financial arrangement. Each state and territory receives federal funding through the USDA for its agricultural research and extension programs, contingent, however, on each state and territory matching these federal funds. (The 1890s are exempted from this contingency.)

Institutional funds for both research and extension programs are allocated according to formulas for which the major components are the percentages of the nation's rural and farm population located in each state. This "formula" funding, in contrast to competitive grants which dominate in the rest of the federal funding of research in the U.S., is a continuing source of criticism from both inside and outside the system.

In recent years about 30 percent of all research expenditures by the experiment stations in the system is derived from federal funds. State appropriations and private funds have accounted for 51 percent and 19 percent, respectively. Of the 30 percent of total funding supported from federal sources, about one-third (or ten percent of the total funding of the system) comes from formula funds, 10 percent from competitive research

grants administered by the USDA and specifically designated for food and agricultural system research, 13 percent from congressionally designated special grants, and 44 percent from other non-USDA agencies. These latter agencies include the National Institutes of Health, the U.S. Agency for International Development, the National Research Foundation, and others. The funding of the research system is thus quite diverse.

The extension services in the system are supported from an even broader range of sources, including federal, state, and local government, and private funds. In recent years state appropriations have contributed 47 percent, federal funds 29 percent, and local government and private support 24 percent. The federal funds are drawn from USDA-administered formula funds (69 percent), congressionally designated funds (28 percent), and other federal sources (3 percent).

Federal funding for teaching programs in food and agricultural sciences has been minimal in relation to support for research and extension. USDA-administered programs currently total only \$18 million, and a formula has never been used for the allocation of these funds.

The Study

The business of farming has changed dramatically since the land grant system of colleges of agriculture were first created. First, agriculture is a much smaller part of the

economy, accounting for less than 2 percent of both GPP and employment. Second, farming today is an industry based on science and technology, not on the physical inputs of land, labor, and capital. Third, the profile of a farm has changed dramatically since the LGCA system was originally created. In addition to being more business-like, the industry has become much more highly concentrated, with a relatively small share of the number of farms producing a relatively large share of total output. Fourth, some segments of the U.S. food and agricultural sector are increasingly industrialized. Farming, processing, and marketing are increasingly coordinated activities controlled through ownership or contractual arrangements by a single firm or "integrator."

In addition to these changes within the food and agriculture sector, public expectations of the sector have broadened significantly. The modern food and agricultural sector encompasses primary production, processing, marketing, and retailing - activities that in their totality now provide 18 percent of U.S. employment, 16 percent of value added to domestic production, and substantial contributions to the nation's foreign exchange earnings. Expanding global population, tightening global resource constraints, and environmental quality and food safety concerns combine to underscore the need for continued improvement in the productivity and sustainability of the food and agricultural system and the quality and safety of its products.

Given these enormous changes in the food and agricultural sector, and the similarly large changes in the economy at large, the National Research Council felt an

assessment of whether the long-standing institutional arrangements continued to work to the advantage of the nation, and indeed to the advantage of the LGCA system itself. It thus commissioned the study, which was carried out by a committee which it appointed.

The study was three years in length. The first part of the analysis was dedicated to taking stock of the system, and the results of this research were reported in a separate publication. The Committee itself was made up of some 20 people who were drawn from a diversity of sources and backgrounds. Each of the three main components of the system were represented, and there were people from both the farm sector and from sectors related to food and agriculture. The membership of the Committee included critics of the system, as well as staunch defenders.

The Committee met twice a year, and was staffed with a small cadre of people who did most of the collation and analysis of the data. We had an outstanding chair in Tony Earl, a former Governor of Wisconsin. Contrary to some such Committees, and somewhat surprising in light of the potential controversies latent in the evaluation of such a system, the Committee reached near consensus on most of the recommendations and conclusions.

Major Conclusions and Recommendations

The Committee assessed the adaptations of each of the three functions of the LGCA - teaching, research, and extension - to the colleges' contemporary environment

and the U.S. public's changing needs and priorities. It agreed that in broad terms a national science and education infrastructure that underpins continued advances in performance of the food and agricultural system, and federal support of that infrastructure, remain in the national interest. However, the Committee identified four principal arenas for change within the system:

1. The need for greater relevance and accessibility through programs that embody an expanded view of the modern food and agricultural system, and through greater inclusion of students, faculty, and clientele of diverse backgrounds and perspectives in the decision-making process.
2. The need to remove historic barriers and, indeed, encourage research collaborations that cross disciplines and regions, to encourage student exchanges, and to make all extension programs in the system accessible to as wide a variety of stakeholders as possible. There is a firm need for a "new geography" that cannot be confined to a locality.
3. The need for stronger linkages among the equally important functions of teaching, research, and extension to reinvigorate the colleges' role as models of the land grant concept and philosophy.

4. The need for heightened accountability and quality through competitive processes for funding, guiding principles for the use of public (especially federal) resources, and more regular and critical evaluations of publicly funded programs.

Twenty recommendations were developed to enhance the ability of the LGCA's to respond to the challenges posed by these themes. In what follows I will identify some sixteen of these recommendations, with only minimal elaboration. Most of them stand alone, given the above themes.

Relevance and Accessibility of the LGCA System

LGCA's should garner effective input from a wide variety of stakeholders. Receipt of federal funds should be contingent on the demonstration of such input. (These stakeholders should include urban and suburban residents and environmental interest groups, which under present arrangements often have little knowledge of or connections to the LGCA's.)

Federal funding programs should augment efforts of LGCA's to bridge and link academic programs of 1862 colleges, 1890 colleges, and 1994 colleges. ("Bridging agreements" that facilitate the automatic transfer of students from one institution to another, once specified academic requirements have been met, may be key to advancing the role of minority group professionals in scientific research

and education, as well as in the management, technological, and policy-making arenas of agriculture.)

- In response to the increasingly complex and diverse structure of U.S. agriculture, LGCAAs must recognize the diversity of producer groups and target priorities, programs, and delivery mechanisms accordingly.
- To enhance the role of the 1890 colleges as providers of access to under-represented producers and consumers, the federal government should require that states match federal formula funds for research and extension for 1890 colleges in the same manner as required for 1862 colleges.

A New Geography for the LGCA System

- Federal programs and policies should be structured so that significant shares (e.g., 25 percent or more) of current USDA administered extramural funds (both formula and competitive) designated for food and agricultural teaching, research, and extension be used to provide incentives for programs and projects that effectively integrate and mobilize multistate and multi-institutional resources. (This was seen as a means of bringing organizational efficiencies to the system by creating a "new geography" based on multistate, multi-institutional, and multidisciplinary collaborations and partnerships.)

- Competitive challenge grants should reward teachers and teaching teams that develop innovative multidisciplinary and systems-based course material and curricula.
- Linkages should be developed among programs at non-USDA agencies and USDA-based extension programs. (The goal is to have the colleges of agriculture and the USDA to develop linkages and partnerships with both university units and government agencies outside the LGCA system. The reason for this goal is that extension programs, for example, now encompass many nonfarm issues such as nutrition education and economic, community, and human resource development.)

Reinvigorating the Tripartite Mission

- Federal formula funds for research and extension should be combined into a single allocation, with 50 percent of the combined funds used to fund programs, projects, and activities that integrate teaching, research, and extension or the work of multiple disciplinarians. (The concern is that the organizational format at the LGCA's, which reflects the independent sources of funds, creates too much segmentation among the tripartite functions.)
- Federal incentives and signals are important but not sufficient. The entire university should be accessible and responsive as the research base for extension programs. (The goal is to reach across the university of which the colleges of

agriculture are a part so as to access the knowledge sources consistent with the broadened mission of the colleges.)

- Students should be required to serve an internship in any of a wide range of settings representing diverse career opportunities. (This recommendation is in part a reflection of the fact that a larger share of the students in the colleges of agriculture now come from non-agricultural parts of the population than in the past.)
- To strengthen the research base for extension programs, the applied research capacity in economics, sociology, public health, and related disciplines should be improved, as should their applications to extension programs. (Historically, the social sciences have been weakly supported in the colleges of agriculture. These disciplines are needed to address the broader range of problems the colleges now address.)

Federal Funding. Levels and Guiding Principles

- The federal partner should increase its use of competitive research grants to fund projects and individuals on the basis of merit as determined by peer review. (This recommendation is designed to draw a compromise in the controversy over formula funding. It recommends an increase in federal funding, but recommends that the increased funding be allocated on a competitive basis.)

- The formula by which food and agricultural research and extension funds are allocated should be redesigned so as to reflect the full range of food and agricultural research and extension beneficiaries. (The goal is to have the formula reflect the wider range of issues of concern to the U.S. public, such as diet and health, food safety, and families and youth at risk.)
- The congruence of federally funded programs with well-justified guidelines for federal funding should be reviewed periodically, and should include a provision for enhancement of public goods of regional or national significance. (This recommendation is designed to enhance public accountability. Public goods in the context of the food and agricultural system include fundamental knowledge; protection or enhancement of environmental quality; knowledge about food and product safety risks and protection from undue risk; improved human health through diet and nutrition; protection against genuine national food security risks; and knowledge essential to the accomplishment of national goals such as social equity, economic efficiency, and informed public policy making.)
- New approaches to augmenting extension financing should be pursued. (This recommendation is designed to reflect the increasingly diverse missions of the extension services in today's world, and the diverse political constituencies which they serve.)

- The federal government should increase the use of competitive grants and merit-based review to allocate federal dollars appropriated for innovative extension initiatives.

Federal Policy versus Institutional Leadership

Most of the recommendations in the report address issues of federal policy. This is appropriate given that the federal funding sends clear signals to the system as a whole.

However, the Committee lauded the many innovations the system has spawned in response to the changing economic, political, and social environment in which it operates, and wanted to encourage this kind of institutional leadership from within the system.

Concluding Comments

It has been 134 years since the first legislation was passed that eventually led to the land grant system. The U.S. economy, political system, and social structure have undergone enormous changes in the intervening period. The system itself has changed enormously over this period - a significant tribute to the leadership it has had. Today there are many challenges to the system, both from outside and inside. It is interesting that at no time did any member of the Committee argue that the system had outlived its usefulness. To the contrary, the driving motivation of the Committee was to identify ways the system could be strengthened by making it more congruent with the economic, political, social, and technological problems it was designed to address. The Committee

believes the system still has a vital role to play in the further development of the U.S. economy.

CHANGES IN U.S. AGRICULTURAL RESEARCH, TEACHING, AND EXTENSION: A DEAN'S PERSPECTIVE

Chester O. McCorkle

Thank you, Dr Grilisone, for your kind introduction. It is an honor to participate in this celebration of the 50th anniversary of the College of Agriculture of Padova. The opportunity to share ideas and experiences about institutional innovation in our agricultural research, teaching, and extension activities, I regard as a particularly welcome and stimulating one.

Before proceeding, it is only fair that I set the record straight. It is my good fortune to be with you because Professor Michael Martin, Dean of the College of Agriculture, University of Minnesota, had to be in Minnesota to meet some of the challenges we will be discussing. My perspectives come from a slightly different backdrop. I did serve as Dean of the College of Agriculture and Environmental Sciences at the University of California, Davis during a period when we made substantial changes in our college instructional programs to meet the evolving needs of our 3500 undergraduate students.

Additionally, I had the opportunity to support the further development of the College of Agriculture and Environmental Sciences while serving as Vice Chancellor for Academic Affairs at Davis. Later, as Executive Vice President of the U.C. system, I collaborated closely with the Vice President for Agricultural Sciences in the research program planning and funding for programs at the Davis, Berkeley, and Riverside campuses, and the several research field stations.

Incidentally, one of the highpoints while in the systemwide office was oversight of the University's Education Abroad Program which brought me to the University of Padova for the first time nearly twenty years ago. Earlier, when your Rector visited the Davis Campus to discuss our joint interests in the Education Abroad Program, we shared a most pleasant -- and extended -- lunch in the wine cellar of the Department of Enology followed by a late afternoon tour of the campus -- on bicycles.

Paper presented at the 50th Anniversary Celebration of the College of Agriculture, University of Padua, Agripolis, Italy, June 19, 1996.

My comments this morning will draw primarily on University of California experiences augmented with some national perspectives. I will comment briefly on some of the more recent changes our agricultural research, teaching, and extension programs in the US have been through and then turn to what I see as a primary factor on the current scene --budgetary reductions-- that is forcing further evaluation of our research, teaching, and outreach activities.. Finally, I will comment briefly on what characteristics in our institutions seem to improve our ability to meet the challenges and to capitalize on the opportunities that lie ahead.

Agricultural research, instruction, and outreach in the US, measured by almost any standard, must be given high marks for achievement. The US Department of Agriculture and the Land Grant College system, both established by federal law in 1862, and later augmented by the Hatch Act of 1887 (institutionalizing the experiment stations) and the Smith-Lever Act of 1914 (institutionalizing the outreach programs of the state universities) provide the structure through which these functions are largely financed and administered. It was not until the turn of the century that these institutions really began to exert the positive influences on the U.S. economy and society they were designed to provide.

Over the next half century, by creating new scientific knowledge, creating a cadre of persons (developing human capital, in today's parlance) trained in the scientific and applied dimensions of agriculture, and reaching out to those in the agricultural industry with new information, these institutions helped propel agricultural development and the growth and economic strength of the American economy to ever higher levels. An abundant endowment of natural resources waiting to be efficiently utilized should not be overlooked as a major contributing factor to the success of US agricultural development. Mandated by federal law and supported jointly by the federal and state governments, the Land-Grant colleges met the needs of a growing economy admirably and contributed significantly to the quality of life of both a rural and expanding urban population.

Until the late 1940's our efforts in agricultural research, teaching, and outreach focused sharply on increasing the productivity and efficiency of rural America, the expectation being that such improvements would provide more and better food and fiber at lower prices for a growing industrial nation. With the rapid growth of urban populations during and following World War II, our programs were challenged to serve a broader spectrum of the domestic economy and society. In the post war period, American agricultural colleges entered the international development field extensively and enthusiastically. Faculty members, including extension faculty, became involved in trying to help countries around the world increase their

ability to produce and distribute food. These programs quickly broadened to include assistance with development of economic policy and institutions.

Domestically, while we struggled to solve the ever more complex agricultural production problems that were arising, we were pressed into additional research and outreach activity in such fields as land use and taxation, water allocation and pricing, and community development. Where the problems could be solved by applying basic biological and physical sciences and/or engineering, our agricultural research and outreach organizations proved highly successful. In the process of solving problems that appeared in the field or processing plant, extensive additions to our knowledge of the basic sciences were made, particularly in such fields as botany, microbiology, biochemistry and genetics. When confronted with the social issues our record was far less impressive. With the partial exception of the discipline of economics, applying the theory and methodology of the social sciences quickly uncovered their shortcomings in tackling the emerging practical problems of a diverse urban population

Many of the research, teaching and outreach programs in our colleges were quickly evaluated in the search for "social relevancy" and how the emerging broader societal needs could be better served. In fact, the concern went well beyond the colleges of agriculture. In 1968, the theme of the incoming University of California president's inaugural address explored how the agricultural model could be extended to other academic programs to increase the University's ability to help solve the rapidly emerging urban challenges.

Traditional home economics programs quickly evolved into discipline-based activities embracing human development, design, and nutrition. Plant science departments which were focused narrowly on the improvement and management of agricultural cultivars were challenged to broaden their scope of work to embrace such issues as creating and managing better quality urban environments through the use of plant materials. With encouragement from the federal government, the concept of an urban extension service was explored. Because of the existing organizational structure and historical successes in agricultural outreach, the conventional wisdom was to try to develop such programs in that framework.

The UC experience was not unique. Community development programs were quickly advanced by several colleges of agriculture as a way of entering the urban arena. Unfortunately, many of these efforts including the University of California's failed because of the lack of experienced faculty and staff capable of dealing with the problems of low income urban neighborhoods where the needs and challenges were the greatest. After some twenty-

five years of trial and error, two programs have gained real momentum and acclaim in California.

The ENEP program which assists low income and primarily immigrant families achieve an acceptable level of nutrition economically is a success now that those who speak the many languages represented by these groups have been trained to serve as the frontline teachers. It took a surprisingly long time to realize and resolve the basic communication and user acceptance issues. The 4-H ASAP (After School Activity Program) in the inner cities is targeted primarily at minority low income students as an alternative to gang activity. The extension 4-H program leaders have for years tried to start such programs but, now that they have the financial and participatory support of major businesses in such communities as San Diego, Los Angeles, Oakland, San Jose, and Sacramento, these programs are serving as models for several states encountering similar problems in their inner cities. The leadership required for success in these environments was found to be significantly different from that which was so successful in the traditional 4-H program setting. We learned that it takes time to understand and assemble a proper mix of capital and human resources and a new set of institutional relationships to sustain such programs long enough to have a discernable impact. We also learned the importance of avoiding overpromising results in the short run, and the all important need for patience with the university community as it very slowly adapts to the challenges of such changes in its mission.

A second major change impacted research and graduate instruction. This was the commitment of the federal government to the support of basic research, primarily in the sciences, through competitive peer reviewed grants. The science departments in nearly all colleges of agriculture realized significant increases in their research and graduate training budgets and the growth in size, sophistication and output was unprecedented. However, since the grants were competitive, the stronger programs tended to be further enhanced and the rest gradually saw their comparative status decline.

This major entry by the federal government broadened collaborative research opportunities and upgraded graduate education largely through the program's post-doctoral provisions. But it also opened the way for individual faculty members to lessen their commitment to their own college and university since their efforts to attract research resources and laboratory collaborators were now largely externally directed. This has had long term consequences for our colleges and universities in terms of attitudes of individual faculty members toward participation in departmental and college governance, in faculty reward criteria

and relative performance, and faculty bargaining power and mobility. On the other hand, individual campuses have been able to substantially upgrade their teaching and research equipment, laboratory facilities, and service units well beyond the bounds of the individual grants by the propitious withholding and expenditure of overhead levied on the individual grants.

A third important influence on research, teaching, and outreach programs has been the recognition of externalities often arising out of application of previously developed science and technology. In California, the first specific challenge was brought against the agricultural engineers who developed the mechanical tomato harvester. The specialty crop growers and processors of California had historically cooperated closely with the University agricultural engineers in mechanizing these industries. The periodic scares of labor shortages and threats of strikes at harvest were motivating factors but eliminating an undesirable type of field work also provided impetus.

The tomato harvester debate began on campus in the late 1960's, and found its way into the State legislature in the mid-seventies where an attempt was made to hold the entire University budget ransom until the University was willing to agree to research the social and economic consequences of any potential technology before embarking on the actual technical research and development. The University finally prevailed in the courts but the decision was not forthcoming until the mid-1980's and the University paid a high political price to retain authority over its setting of research priorities.

During this long encounter, substantial progress was made in shifting research priorities toward soil, water, and air contamination associated with continuous and heavy applications of chemical fertilizers and pesticides. Evidence of contaminated ground water in the coastal vegetable growing areas was reported by a University of California soil scientist as early as 1934 but was not pursued for nearly 50 years. A substantial part of the scientific faculty and staff of the College is now engaged in assessing damage and working on multiple and integrated approaches to alleviating the many externalities associated with previous technical breakthroughs regarded at the time as highly effective and totally beneficial. Within the College, this shift has induced substantial multidisciplinary collaboration among the researchers. It has also expanded the dialogue between college research and outreach personnel and community and political leaders.

The expanded interest in developing, allocating, improving and protecting our natural resources -- primarily land and water -- has shifted the teaching, research, and outreach efforts of a number of college departmental and interdisciplinary programs, particularly in the western US. Population growth and rising disposable incomes have increased the demand for the products of these resources and the supply is not easily increased in the short run. For example, federally funded research to improve the productivity of the western rangelands focused initially on raising the seasonal livestock carrying capacities but quickly expanded to include the joint production of livestock and game species, development of recreational opportunities, and damage to the resource caused by all forms of overuse.

Environmental interests are also being reflected in college programs as campuses are called on to share their expertise on how specific environments should be managed. The impacts of off-shore drilling for oil, population pressure on the California coastline, and management of a variety of natural habitats and land and water reserves in California are now subjects of agricultural experiment station research. Responding primarily to student and faculty, interests has fostered entirely new majors such as ecology, environmental horticulture, avian science, and fisheries and wildlife biology. Environmental research and teaching programs developed quickly and are now integral components of nearly all agricultural college programs.

It is only fair to point out that the early entry of research, teaching, and outreach activity into environmental issues -- particularly when focusing on externalities of previously introduced technology -- has been largely in response to outside stimuli, including growing funding opportunities from non-traditional sources. Even when urged by university and college administrators and by legislators, faculty and staff have often shown considerable reluctance to risk moves into less potentially controversial arenas. U.S. researchers have tended to evaluate research in terms of the potential opportunity for academically acceptable scientific publication. While some of the research opportunities in externalities fell in this category, faculty concluded they were risky. It is surprising how quickly we forgot the primary purpose for which tenure was established in U.S. universities.

Another major trend in research emphasis has been toward the improvement of the nutritional value of foods and the reduction in characteristics considered harmful to human health. This research has captured the interest of a large number of food scientists and plant and animal breeders, reinforced in the last twenty years by the growing numbers of genetic engineers. Reducing fat in many food products, particularly in meats and increasing and/or

maintaining vitamin and mineral content in the growing and processing of many food products are examples.

In the U.S. the basic science underlying genetic engineering applications has come primarily out of university laboratories but the development work and applications are being carried out in the private sector. The large sums of venture capital required to develop marketable products is one reason. This relationship has provided excellent opportunities for some faculty members to participate in, or at least advise, on the application of sophisticated science. In a number of cases, biotechnology companies have been started by former college faculty scientists.

This is an example of the growing interaction between the universities and the private business sector. This relationship was viewed with some skepticism for many years except for the agricultural production and processing sector. Slowly this relationship has been established more broadly as university and college funding has tightened, the cost and complexity of scientific research has grown, and as the roles of each party in these relationships have been better defined and understood. We can expect these partnerships to grow in the future since the benefits accrue to all parties.

Since the early 1980's federal and state financial stringency and competing demands have created a budgetary environment on most campuses that has necessitated substantial changes in research, teaching, and outreach programs. In my judgement, we have not seen the end of the financial woes in US higher education. In fact, I would be surprised if budgets were to return to the levels of the "golden era" in U.S. higher education. I do not believe the institutional responses to date have been as far reaching nor as creative as will be required in the next several years. Public institutions have escalated their efforts to restore appropriations they have lost, searched for new sources of funds, raised student tuition and fees, initiated user charges for most services previously provided free of charge, and made some adjustments in program. Some of these actions have blurred the traditional distinctions between private and public research universities in the U.S.

The more serious outcomes for agricultural colleges have been the fear that research and teaching programs can not be kept at the cutting edge and at top quality, that programmatic emphases will be difficult to shift in a timely manner when faculty resources are fixed, that facilities and equipment will continue to deteriorate and become more obsolete, and that serving the many constituencies that these institutions rely on for support will become even more difficult. In some institutions in the US, entire academic programs have been eliminated to stay

within budget. Others have been reduced substantially to free resources to achieve excellence in other programs. Student enrollments may no longer justify such programs and they should be abolished, perhaps to make room for a better program. In other cases "downsizing" is an absolute fiscal necessity if the programs retained are to be good enough to continue to attract students. In either case, the academic tradition of tenure is being challenged and, for the first time in many decades, the arguments for retaining tenured faculty in the face of fiscally induced program reductions are difficult to make.

One of the more novel changes being negotiated is the merging of the University of California, San Francisco and Stanford University medical schools. Driven by economic stringencies and the need to exercise power in negotiating contracts with large HMO's and PPO's, the new organization will still be subject to oversight by both universities but operated as an independent free standing entity.

My university, the University of California, has come through an overall 25% budget cut in the last three years. Some units in the College of Agriculture absorbed 80% cuts. It was able to do so because of careful planning, unusual internal candid communication and lot of luck.

My own academic department had a reduction of 30% in faculty positions (about 50% of the departmental academic staffing budget) with no reduction in total teaching workload. A retirement buyout program and a fortuitous distribution of age and professional expertise made the downsizing relatively painless for the faculty that were retired and minimized the disruption in matching teaching talents of remaining faculty to the students' programs needs.

Internal evaluation and the necessary processes to implement the resulting choices have become largely institutionalized. If further cuts in budget occur, the decisions as to where they should be made will be easier and more defensible on both academic and political grounds. The fact that more complete and accurate information is now available and being used internally has, in itself, eased the legislative pressures on the University for further reductions.

While our public institutions will continue to operate by raising additional money from other sources to offset the shortfalls in federal and state funding, more creative management at all administrative levels is necessary.

My comments from here on reflect the results of an ongoing interest in managing and leading higher education in the U.S. A fortuitous grant in 1978 from the Ford Foundation to my wife, Dr Sandra Archibald, and me to study how major universities were coping with reduced funding and a variety of challenges to the academic "status quo" focused our experiences and allowed us to work with thirteen of the top U.S. public and private universities.

What are some of the characteristics of institutions and their administrators that have proven successful where used, or that might have helped, in weathering the fiscal turbulence of recent years?

1. The ability to motivate faculty and staff to commit to, and strive for, intellectual excellence, open exchange, and integrity with respect to all aspects of the college and university programs and operations.
2. The ability to shift research, teaching and outreach program directions by prudent management of academic positions and support funds(banking a portion of vacated academic provisions and salary funds, planning retirements and leaves carefully, controlling the size and tenure distribution of the faculty, managing the faculty age distribution over time, and restricting the meaning of tenure to that defined by AAU and AAUP policies.)
3. The ability to forge and maintain a varied and changing constituency (traditional food and agricultural production, processing, and marketing groups; faculty and administrators with related interests elsewhere on the campus and in other institutions; community and political leaders; funding source managers and potential donors)
4. The ability to provide leadership and vision to faculty and staff and elicit their full participation and cooperation in carrying out sound strategic planning, rigorous program review and effective budgetary planning and implementation -- the basic processes underlying all programmatic adjustments in any well run organization.
5. The ability to achieve a balanced program of research, both basic and applied, a high quality instructional program, both on and off campus, that meets students needs and desires, and an effective and efficient outreach effort.

6. The ability to instill in faculty and staff a mutual respect for each element of the program.
7. The ability to work with external constituencies, including advisory committees, and to actively involve the faculty and staff and advisory groups as a two-way learning experience.
8. The ability to select, consistently, administrators with experience, integrity, and high energy levels who can work cooperatively and effectively with their faculties, staff members and administrative peers.

As the struggle to grow stronger with fewer resources continues there is growing evidence that the above attributes are being put in place on more and more campuses. Looking to the future, I believe the greatest challenges facing U.S. colleges of agriculture and our public and private universities will be budgetarily induced for the next several years. Part of the pressure will come from continuing decreases in funding from conventional sources. The remainder will come from two sources: (1) increasing external and student demands for greater services and (2) internal inertia or outright political resistance to further reallocation of resources whose distribution still too often reflects institutional history and not recent shifts in programs that have occurred. Conquering these budgetary problems is the primary challenge to administrators and faculty for the next several years. Until this is accomplished it is difficult to see how the opportunities that will inevitably arise -- or that will be created -- can be effectively assimilated.

Thank you for the opportunity to share in your 50th Anniversary Celebration of your College of Agriculture here at the University of Padua. May the next 50 years bring even greater distinction to your College and to your magnificent university.

Humboldt - Universität zu Berlin
Landwirtschaftlich-Gärtnerische Fakultät
Fachgebiet Internationaler Agrarhandel und Entwicklung



Prof. Dr. Harald v. Witzke

DRAFT

**Agricultural Economics Teaching and Research in Europe:
Issues and Perspectives**

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1. Introduction

The task I have been assigned, namely to survey changes in agricultural economics teaching and research in Europe is undoable in the space available for this paper. It would even be difficult to address these issues comprehensively in a one day conference. The reason for this is simply that Europe is large, and it is quite diverse. Even within one nation state there can be significant differences from one administrative unit to the other. For instance, in Germany (much like in the United States) the organization of school, high school and university training is in the autonomy of the federal states. What I would like to do in my paper, therefore, is to compare agricultural teaching and research in the two countries I know best: the US and Germany. In some cases it may be possible to generalize the German issues to be characteristic for a lot of Europe. In other instances this will not be the case.

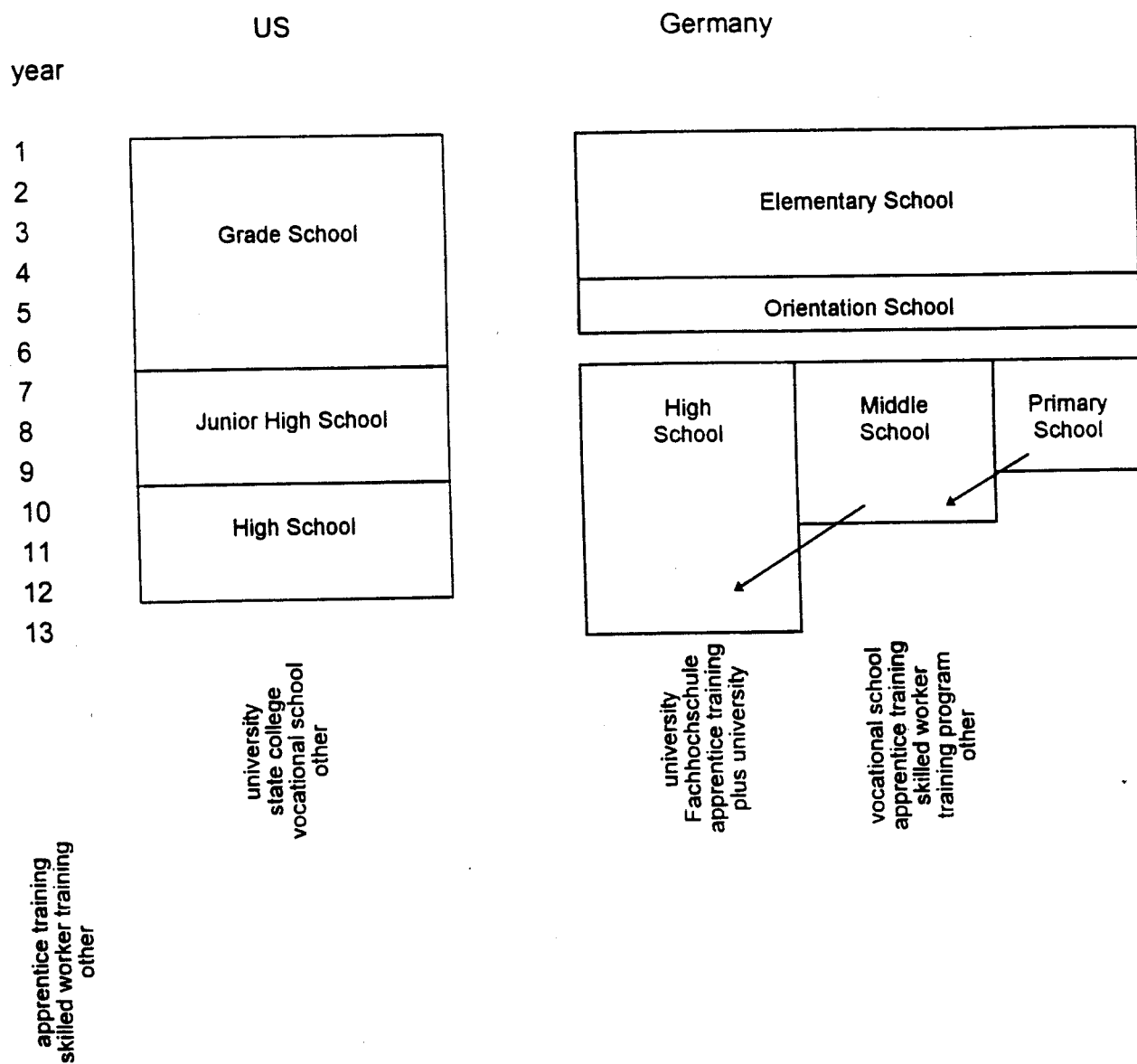
I will begin with a survey of elementary, and high school training because it tells us something about students' preparation for university education. Second, I will give an overview of the undergraduate and masters' programs. Third, I intend to discuss issues related to Ph. D. programs and the training of future university researchers and teachers. Then, I will try to point out some of the differences in incentives in research and teaching for university professors, and I will conclude with some thoughts on the changing perception of research and teaching in universities and the growing competition among European colleges of agriculture for students from the EU.

2. High School Training

High school training in Germany and the United States are quite different. The most obvious difference is that German students spend 13 rather than 12 years in high school as in the United States. Moreover, the only high school diploma in the U.S. is awarded after 12 years, while in Germany students can finish school with different levels of academic accomplishments after 9, 10 and 13 years. Only students who finish the final exam successfully at the end of grade 13 are eligible to enter university programs. Universities do not have entry exams yet but in certain fields there are national and / or university quotas (e.g. human medicine). However, there is no competition for the best students between German universities. This includes fields in which there are quotas. In fact, in the disciplines with quotas, students are assigned to universities by a federal agency. The main criterion for admission to a restricted discipline is the average high school grade scores.

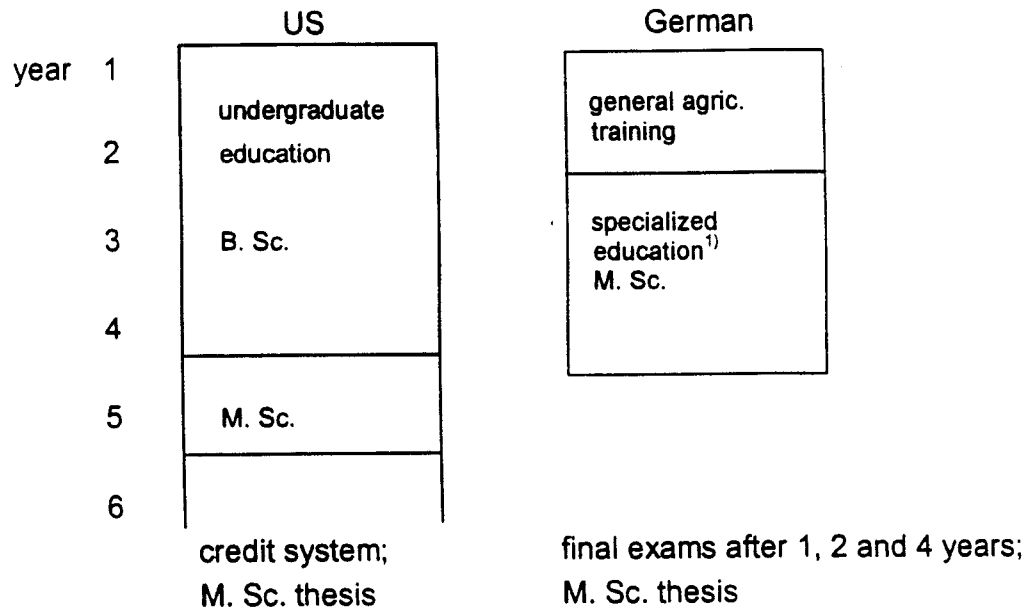
The author of this paper is not an expert on high school training. However, it has frequently been pointed out, that the quality of German high school training is better than U.S. high school training, as evidenced by various measures of academic accomplishments. In my view, there are two major reasons for this. One is the additional year of high school training, the other is the more rigorous academic program in Germany.

Figure 1: Elementary through High School Education



3. Undergraduate and Master's Program

Figure 2: US and German Undergraduate and Master's Programs



¹⁾ At Humboldt University specializations include:

- General Agricultural Sciences
- Plant Production
- Animal Sciences
- Agricultural Economics
- International Agriculture (Plant Production, Animal Production, Economics)
- Horticulture
- Horticultural Economics
- Fisheries' Economics

The differences in High School training between the U.S. and Germany are reflected to some extent in the undergraduate and master's programs. In the United States there usually is a four year undergraduate training, followed by 1 - 2 years or so of master's training. The German training in agricultural economics or in agricultural

sciences is different. There is no undergraduate degree. All students enrolling in German universities spend two years in general agricultural training which includes basic sciences, biological sciences, statistics, as well as agricultural economics courses. In year 3, students begin to specialize in a number of different tracks. At Humboldt University special tracks in the social sciences include for instance agricultural economics, international agricultural economics and horticultural economics. Another major difference is that the M.Sc. program is a four year program. Ideally, after four years students finish the exam requirements and receive a Diplom degree, which is equivalent to a Master's degree. However, it takes most students four and a half to five years to actually finish the exam.

The typical master's student's command of agricultural economics at the University of Minnesota and Humboldt University would be at about the same level. Of course, excellent students are good anywhere in the world. Besides not offering a bachelor's degree, the major difference in the German system is that during the first two years the courses in the sciences are a little more advanced than some of the courses typically offered by American universities and, of course, there are no rhetoric classes, no foreign language classes. In effect, I think Germany can train M.Sc. students in 4+ years because students enter the university better prepared. For the most part, this appears to be the case because of their high school training.

Another major difference between the programs in the U.S. and Germany, is that German students typically take a lot more courses per semester than American students. Likewise German university professors generally teach more than American professors. For a full professor, the teaching load would typically be eight hours per semester, each semester being about 15 weeks long.

In tables 1 and 2 I have listed the first year course program of Humboldt University students. As you can see, students take a lot of courses, they spend a lot of time in the class room. Of course, this is quite a challenge for teachers. Students don't have enough time to read. So, generally they have not read much in preparation of lectures. Therefore, teaching is much less intense. To get the same amount of information across requires about one and a half to two times what it would take in the United States. In my view, it would be most desirable to move towards a situation in which there is less course work, and professors as well as students spend fewer hours in the class room. Unfortunately, I do not think it is feasible, given the present political atmosphere in German universities. Increasingly, legislators and the public ask why university professors are teaching only eight hours per week, and what they are doing the rest of the time. In fact, in Germany, there are serious attempts right now to increase the teaching load of university professors.

4. Ph.D. Programs and Future Academic Leaders

The typical Ph.D. program in the United States is a four to five year program depending on whether students enter the program with a Bachelor's degree or a Master's degree. Typically, this means three years of class work and one to two years of work on the thesis. In Germany, Ph.D. programs typically are quite different. German Ph.D. programs are thesis programs. It takes the typical German agricultural economics student about five years to finish a thesis. There is no class room work involved, so Ph.D. students have to acquire additional theoretical knowledge through self study. This obviously results in much narrower theoretical training than the typical training of a U.S. Ph.D. student. In my view, the overall quality of the training is not as good as that provided by good U.S. Ph.D. programs.

Another problem with the German approach is that the academic progress of the students in the Ph.D. program is difficult to monitor both for students and for advisors, because there is no course work required. Another implication is that a typical German thesis is much broader in scope, because the student has to demonstrate that he or she has acquired sufficient additional theoretical expertise. Given that theoretical foundation of Ph.D. students is much narrower and not as solid as that of U.S. students, the theses tend to be less deep and less innovative than those of U.S. students.

German Ph.D. training is rather patriarchal in that students work predominantly with their advisor and very little with other faculty. This is reflected also in the expression 'Doctor-Father' (few 'Doctor-Mothers' yet in agricultural economics) for the advising professor. Hence, the quality of the thesis is highly correlated with the quality of informal training a Ph.D. student receives from his or her advisor, which in turn is also a function of the advisor's academic skills. To some degree, this is certainly the case in the United States, as well ; but I think it is much more pronounced in Germany.

To compensate for these shortcomings, there are rather generous post doctoral fellowships in Germany that those who plan to enter an academic career can apply for. Typically, under these programs post-docs would spend a year or so at a U.S. university doing course work and making up for what Ph.D. students in the U.S. do at the beginning of their Ph.D. programs. These activities are made possible through the Deutsche Forschungsgemeinschaft and they are generously funded. Sometimes, outstanding students join Ph.D. programs in the United States right away, after having finished the German Diplom degree. One of my assistant professors right now has a Ph.D. from Cornell University. Some of you may remember Ulrich Hausner who is about to finish his Ph.D. thesis at Minnesota. He has an assistant professor position at Kiel University. In my experience, those students who have gone through an American Ph.D. program are excellently trained and they typically adjust quickly to the German university system.

Therefore, there are some plans at Humboldt University and elsewhere to move the Ph.D. program more towards a U.S. type of program; that is to offer Ph.D. level courses and to require that students take at least some Ph.D. level courses. We envision doing that in cooperation with our Economics Department. The Economics Department at Humboldt University is a rather special department in Germany. It was newly founded at Humboldt University after unification, and more than 50 % of the faculty have a Ph.D. from American universities and / or are American citizens also. This has also resulted in abolishing the German examination system in the Economics programs which requires a theses and six oral exams covering the fields of study, and replacing it by a U.S. type of credit system. At the College of Agriculture and Horticulture we have started to move in this direction.

5. Tenure Requirements and Academic Ranks

In the United States an academic teacher and researcher usually starts his or her carrier at the assistant professor level. Ideally, he or she is being offered an assistant professor position right after finishing the Ph.D. In order to move up the ranks, there is a six year period in which an assistant professor is expected to write refereed journal articles, get good teaching grades and be actively involved in service activities. After six years, it is up or out. If he moves up, he will be an

associate professor and is expected to do more of the same. Tenure usually is awarded with

promotion to associate professor. After more high quality research has been published an associate professor may be promoted to full professor. Moving up the ranks does not require to change the university.

The German system is quite different. In Germany an assistant professor has a maximum of six years to finish his or her habilitation thesis. This is just another research thesis. If the quality of the thesis is judged to be acceptable, our candidate does not have a tenured position yet, but he or she is eligible to apply for a tenured position at some university other than the one he is at, provided that there are job openings. Whether he or she can actually launch an academic career, however, depends on whether he actually is being offered at a position from elsewhere.

In my view, the habilitation procedure is another shortcoming of the German academic system. Assistant professors have six years to write another research thesis; a thesis that is being graded by a committee of professors from his own university and perhaps one or two professors from other universities and / or other disciplines. In agricultural economics, it is a requirement that an economics professor is present. In practice, the habilitation requirement means that the candidate writes a thesis for his or her committee. Unfortunately, it is not always the case that the members of this committee are really at the frontier in the candidate's

area of research. Not surprisingly, there is a lot of risk aversion on the side of the assistant

professors. In writing the thesis they try to avoid issues that may be innovative because it may be controversial. And what they write is not necessary being published in academic journals where it is rigorously reviewed by colleagues who are at the top of the profession.

In essence, assistant professors spend a lot of time - perhaps their potentially most productive time - writing a thesis that is being graded or considered for acceptance by university professors who not necessarily have the qualification to do so. On the other hand, when they have finished their habilitation thesis and it is being rated acceptable by the committee this does not necessarily mean that they actually have a job. And in a small market such as agricultural economics in a small country such as Germany there is a lot of risk involved that people become unemployed or that they work on temporary contracts for extended periods of time. Of course, this makes it very difficult to develop a long term research program of high quality. Once assistant professors have finished their habilitation they may apply for tenured positions in any of the ranks, which are C2, C3 and C4. C4 is the traditional chair or full professor position, while C2 and C3 are equivalent to the associate professor level.

6. Hiring Practices and Incentives for Research

Many of us are as critical of the hiring practices in Germany as we are of the habilitation procedure in Germany. The reason is that there is not enough emphasis on high quality refereed journal articles and a lot more emphasis on other aspects, particularly the habilitation.

The promotion requirements in Germany are completely different from those in the United States. In the United States it is common that one moves up from assistant professor to associate professor to full professor in the same university. In Germany that is not the case. Promotion is usually possible only if one is being offered a position of higher rank from another university. Promotion and / or to move from an untenured to a tenured position within the same university is a rare exception. Moving up the ranks and changing the university, or being offered a faculty position of the same rank from another university is the only way to receive significant pay raises.

There are two reasons for this. One is the rather patriarchal system of training of future academic leaders in the Ph.D. program and during the habilitation phase. The other has to do with the fact that the German market is relatively small. Both appears to have resulted in 'insider trading' when promotion in the home university was still allowed.

Usually, people are older than in the United States when they move to a tenured position. Unfortunately, it is only then that they can actually develop an independent research program and have the freedom to publish primarily in refereed journals.

This phenomenon has three drawbacks. One is that people sometimes move to a tenured position only after the prime time as academic researchers is behind them. The other is that a tenured position in Germany typically involves a higher teaching load than in the U.S. The third is that a tenured position typically still comes with significant administrative duties, because departments are small and the German university bureaucracy is not very efficient. For instance, hiring a Ph.D. student for an R.A. position takes about six months and a many man days on the side of the faculty who wants to work with the student. In essence, this means, once people move to a tenured position which potentially allows them to do independent work and to develop a research program with a more long term perspective, they are not only relatively old but they also do not have much time anymore to actually do research.

7. From Domestic to Intraeuropean Competition

Some of the particularities of the German academic system are certainly due to the fact that, compared to the United States, Germany is a small market for scholars.

The traditional organisation of the university that has made German universities so very successful until World War II was based on a university system in which only a few per cent of the population had access to university education. With the opening of the universities and more than 50 % students graduating from high school with grades that make them eligible for university training, this organisation of research was no longer appropriate.

The Germans have reformed the university system in the 70s. But the reform was incomplete and in part it went into the wrong direction. There is not enough space to discuss these reforms at length. But one thing appears to be clear. The university administration, in principle, is still organised as it was 100 years ago when universities were small. Associate deans, deans, even vice presidents are expected to do their job in addition to their regular research and teaching assignments. Today, German universities are billion DM operations run by a part-time lay-person management team, and supported by a black hole bureaucracy.

Occasionally you may find somebody who is a natural talent in managing a university. Unfortunately, there are a lot of people in those positions who are not.

Again the consequences that each and every normal mortal faculty in a German university spends a lot of time doing administrative work. The teaching load is heavy anyway. The result is that there is little time left to do research.

With European unification there now is a large market for agricultural economists in academia. This should make it even more obvious that what is needed are more elements of competition in German universities. In my view this should include

- salary adjustments based on individual performance in research, teaching and service rather than across the board;
- hiring, and tenure decisions based on refereed journal articles rather than the traditional habilitation;
- allocation of public funds based on performance (individual and academic unit), including the number of students in the programs;
- buy-out of classes with outside research funding.

Moreover universities should be reorganized to be more efficient administratively. This should include full-time university and college administrators, other than the president and chancellor.

8. Conclusions

All in all, I think it is fair to say that German students tend to enter the university better prepared academically than their U.S. counterparts. This is due to the longer high school training and the relatively more efficient production of human capital in German high schools. In agricultural economics the German Diplom, a four year degree, is comparable to a U.S. Master's degree.

However, the German Ph.D. programs (thesis programs only) are inferior to U.S. programs because no course work is required, and Ph.D. level courses are not offered by German universities.

Moreover the incentives for German assistant professors are distorted under the present system. Rather than publishing competitively in leading professional journals, where their accomplishments can be refereed by the best in the profession,

they have to spend a lot of time writing a thesis that is judged by a committee which has a monopoly and is not necessarily made up of scholars who are at the top of the profession or knowledgeable in the candidates field of research. Generally, I think that there should be much more emphasis on published journal articles in Germany, not only for assistant professors.

There also is much room for improvement in the organization of academic life in German universities. Teaching loads are rather heavy and too much time is spent by the average senior professor with administrative work.

In economics we are convinced that competition, division of labor and market incentives are superior mechanisms for efficient production. I think it is now time to introduce these principles into the German university system. For the training of future academic leaders, Germany has relied heavily on what has so been provided so generously by American universities.

In my view, it is time to stop free-riding on the American university system and to improve the German system. Leading land grant universities in the United States are in my view excellent models for public universities in Germany. Germany, in other words, should remember the principles of academic research and teaching first introduced by Alexander and Wilhelm von Humboldt at what is now Humboldt University in Berlin, Germany.

TABLE 1

Stand: 15.09.95

Landw.-Gärtn. Fakultät Wintersemester 1995/96 Agrarwissenschaften/Fischwirtschaft u. Gewässerbewirtschaftung, Grundstudium, 1. Semester

Zeit	MONTAG	DIENSTAG	MITTWOCH	DONNERSTAG	FREITAG
8-10		Biochemie (P) Coch IN 1	Biochemie (P) Coch IN 1		Anatomie (P) Berg/Budras, Düppel, Kosersstr. 20
10-12		Chemie (P) Coch IN 1	Biologie der Pflanze (Botanik) (P) Rank/Brückner IN 222	Chemie (P) Coch IN 1	Angewandte Entomologie (Z) Sermann, IN 11 Physiologie (P) Martens/Tönhardt Düppel, Kosersstr. 20
12-14	Zoologie (P) Tanner PH 1		13-16: Physik (P) Düsterhöft IN 10	Biologie der Pflanze (Botanik) (P) Rank/Brückner IN 222	
14-16	Mathematik (P) Jechitschka IN 2	14-18: Volkswirtschaftslehre (P) Hagedorn PH 4		Volkswirtschaftslehre (P) Übungen Beckmann PH 4	
16-18	Mathematik (Z), Übungen Jechitschka, IN 2 Genetik (Z) Pohlheim IN 2		Botanisches Praktikum (Z) Rank PH 1, Mikroskopierraum ab ca. November	Volkswirtschaftslehre - Tutorium (Z) Brunzema PH 4	

P= Pflicht IN= Hörsaal Invalidenstr. 42

PH= Hörsaal Philippstr. 13

Z= Zusatzfach

Montag, 16.10., ab 13 Uhr wegen Eröffnungsveranstaltung H 7, keine Lehrveranstaltungen

TABLE 2

Stand: 15.09.95

andw.-Gärt. Fakultät Wintersemester 1995/96, Agrarwissenschaften/Fischwirtschaft u. Gewässerbew. GRUNDSTUDIUM, 3. Semester

Zeit	MONTAG	Dienstag	MITTWOCH	DONNERSTAG	Freitag
5-10	Einführung Pflanzenernährung (P) Peschke IN 3 (nicht für Fischw.)	Einführung Tierhaltung (P) Lindemann, PH 5 (bis ca. Dezember, dann: Futtermittelkunde (P) Kaiser	Einführung Ökologie (P) Eschner IN 7	Einführung Tierhaltung (P) Lindemann PH 3	Einführung Tierzüchtung (P) Horst u.a. LE 75
10-12	Einführung Ackerbau (P) Metz IN 3 (nicht für Fischwisch.)	Einführung Tierernährung (P) Münchow PH 5	Bodenkunde (P) Pagel IN 3 Praktikum nach Vereinbarung	Agrarmeteorologie (Z) Hübner PH 3	Grundlagen der Agrarmarktlehre (P) Lorenz LE 75
12-14	Einführung Ökologie (P) Eschner IN 7 14tgg. ab 2. Woche	Einführung Agrarsoziologie (P) Purgand PH 5	Statistik (P) C. Richter IN 1	12-15: Einführung Landw. Betriebslehre (P) Odening IN 7	Einführung Tierzüchtung (P) Übungen Horst LE 75 14tgg. 1. Woche (ab 20.10.)
14-16	Einführung Phytomedizin (P) Bochow, IN 7 (nicht f. Fischw.) Englisch, Allg. sprache (Z) Böhm, IN 12	Landtechnik I (P) Hahn PH 5	Statistik -Übung (Z) Gruppe 1 Kroschewski, PC-Pool	15-18: Statistik-Übung Gr. 3 Kroschewski, PC-Pool	Statistik -Übung (Z) Gr. 4 Kroschewski PC-Pool
16-18	Genetik (Z) Pohlbeim IN 2 16-20: Englisch, Hochschulgrundstufe Böhm IN 12	Englisch Fachsprache (Z) Böhm Clara-Zetkin-Str. 26/28	Statistik -Übung (Z) Gr. 2, Kroschewski PC-Pool 17-19: Englisch Allgemeinsprache (Z) Böhm IN 12		Samenkunde (Z) Schenk IN 20
18-20					

P= Pflicht IN= Hörsaal Invalidenstr. 42 WP= Wahlpflicht PH= Hörsaal Philippstr. 13

Z= Zusatzfach LE 75= Dahlem, Lentzeallee 75

Montag, 16.10., ab 13 Uhr wegen Eröffnungsveranstaltung H 7, keine Lehrveranstaltungen

Padova, Italy
Fifth Joint Conference

CHANGES IN U.S. AGRICULTURAL ECONOMICS DEPARTMENTS: AN INFORMAL VIEW

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One of the things that we agricultural economists like to do most is to engage in introspection about ourselves and our profession. Even a partial listing of U.S. papers, speeches, published articles, and letters to editors on this "professional introspection" topic over the past 10 years might be a kilometer or more in length. We revel in self-examination. We always have. Self-examination has become a major industry in agricultural economics lately because of the large and unprecedented changes rapidly overtaking us and shredding our traditional views about our work and our worth. In this brief paper, I will comment on these changes and highlight some adjustments already underway and then suggest a few implications for further adjustments that may yet occur. My major focus will be on academic departments and programs in agricultural economics and its closely related fields.

Developments Shaping Our Professional Environment

Here are the four most important forces altering the traditional approach and scope of teaching, research, and outreach in agricultural economics sharply away from that which existed just a few years ago:

1. The number of farmers and rural residents has continued to decrease steadily. Even

though agricultural production continues to expand modestly, the number of actual decision makers in production, those who support them, and those who handle and process their output dwindle daily. Yes, they are larger and more complex, but they are simply fewer and fewer in number. Moreover, their needs for information and support are different

2. Society's concerns about agriculture and food have changed and become more complex. These concerns now include, along with supplies and prices, issues in food safety and health, environmental and resource maintenance, international competition, and broader concerns about rural and non-metropolitan communities. These issues emerge and grow in importance even as fewer and fewer people in the vastly dominant urban and sub-urban populations have the slightest idea what occurs on a farm, a ranch, or a feedlot. In addition, for most citizens (though certainly not all) food expenditures are now a relatively minor part of household budgets.
3. Public funding and support for higher education and research in virtually all areas is decreasing in real terms. Social and demographic changes are placing a heavier and heavier claim on society's resources for welfare, health care, criminal justice, and primary education. These trends are occurring in a society which has (a) absolutely no taste for the tax increases that would be required to offset them, and (b) decreasing respect for public institutions of higher education, research, and government in general. Hence, the pool of public funding available for support of universities and research organizations is rapidly drying out.
4. The academic field of general economics has become heavily focused on theory and

methodology with a corresponding reluctance to engage in applied research projects pointed directly at problems important to political and commercial decision makers. This is not true everywhere, but it is true enough so that much introspection among general economists is devoted to this matter. Agricultural economists on the other hand simply ache to be relevant to people other than one another.

You might wish to express these basic trends somewhat differently, but I am willing to bet that your formulation would encompass these four basic forces in one way or another.

Pressures Lead to Diversification

These basic trends in our professional environment have created steadily increasing pressures to adapt and change. In my view, these pressures, in many universities, have become stronger and more wrenching than normal academic evolution can withstand. The most compelling imperative is for agricultural economics departments to diversify away from the traditional nucleus of farm management, marketing, prices, and policy.

I have often made the argument that the only way many departments, including ours, will be able to maintain strength in this nucleus is to build additional strength in newer areas. Otherwise the entire enterprise will dry up and blow away in downsizing and funding retrenchments. What these newer areas are is not necessarily the same in each and every department. How the four basic trends play out in any one region, state, university, and (perhaps) college, will shape the new diversity of both highly successful and modestly successful departments.

At the University of Minnesota, for example, these newer areas include resource and

environmental economics, international trade and development, food consumption and retailing, state and local organization and finance, economic education, community development, regional economics, transportation, strategic business management, and some others. Our particular menu of diversification is the result of (a) expertise already on hand, (b) the foresight of previous administrators, (c) our university's location adjacent to the Minnesota State Capitol, (d) the inclinations of our colleagues in the Economics Department, (e) the two-campus geography of the University of Minnesota in the Twin Cities, (f) the strong and collegial academic environment in our department, (g) economics activity elsewhere at the University including at the Humphrey Institute, the School of Public Health, and the Carlson School of Management, and (h) just plain accident. Other diversification menus will and do arise in other situations and locations. There is no single prescription for success--or failure either, I suppose.

Diversification and Funding Support--The Core and the Periphery

Federal and state public support for research and education is dwindling. Almost no one who watches these trends predicts a change in the foreseeable future. Financial pressures and cuts are passed down the system to the colleges and then to departments where most of the institution's money is committed to faculty salaries and program support. Very few deans and department heads escape. Since becoming department head in 1990, I have participated in 7 annual budget-setting exercises. I have been forced to cut the annual core budget of our department 7 times. I have removed something over one-half million dollars of permanent funding from our core funding over this period. This has not been easy. Yet,

I know that my counterparts all over the university and all over the country have been doing the same thing, with more or less intensity.

However, the academic strength of our faculty and the willingness of individuals to adapt and change has created a very interesting pattern--a pattern that is repeated to some extent in many other places around the country where agricultural economics has long been important. As the core has dwindled, the periphery has grown. New and diversified programs have emerged with major focus within the department as faculty members have sought and secured grants, contracts, and special funding endowments. The new activities have created lively hubs of activity in research, outreach, and, to some extent, in the classroom. Let me list a few of our high-profile peripheral activities:

The Center for International Food and Agricultural Policy

The Retail Food Industry Center

The Minnesota Council on Economic Education

The Business Retention and Expansion Program

The Center for Farm Financial Management

The Center for Political Economy

The Economic Development Center

There is, of course, an uneasy relationship between the core and the periphery at Minnesota and elsewhere. Under some circumstances and in some places, the relationship between the core and periphery has broken down in misunderstanding, squabbling, and overall deterioration. We have been very fortunate at Minnesota in being able to maintain a generally good and mutually advantageous balance between the two. There are several

reasons (or characteristics) for this result, reasons which seem to me to be important for every agricultural economics program facing wrenching change and diversification. And that is each and every one of us.

The first reason for our relative success is that most people involved recognize the crucial symbiotic relationship between the core and the periphery. The dictionary defines that the definition "symbiosis" as:

"The living together of two dissimilar organisms in close association, especially where this is advantageous to both--as distinguished from parasitism."

The core now depends on a strong and cooperative periphery to maintain its collective service and support to the entire department. The periphery depends upon a strong and externally well-respected core so that it can bring in grant and contract funding for research and other functions no longer supportable in full by the core. One sector cannot be successful these days if the other sector is not.

The second reason is closely linked to the first. A manageable and symbiotic relation between the core and periphery hinges largely on a majority of faculty and staff having professional respect for one another and an appreciation for every person's contribution to the departmental enterprise no matter what that might be. Our tradition at Minnesota is certainly in this direction and supports the evolution that is unfolding.

The third reason is that relatively few senior faculty at Minnesota operate as if they were engaged in a small-scale private medical practice. Most senior faculty seek out collaborators and professional partners in their work. They take at least some responsibility for the health of the collective enterprise and do not simply labor alone in their offices,

closing the door on a changing world.

Departments which cannot evolve a healthy periphery, put these three characteristics into play, and, thus, avoid the free-rider problem of non-involved faculty will surely have a difficult time surviving in coming months and years, in my opinion. One important consequence of a growing periphery, in the way I have described it, is that the goals and objectives of faculty research are increasingly being set by others, namely the organizations which provide the grant and contract support. A healthy balance in externally directed research versus individual inquiry for a single faculty member or for a department as a whole is not and will not be easy to achieve.

Names, Names, and More Names

University departments and other organizations which pursue some aspects of agricultural economics, broadly defined, have evolved a large variety of names with which to label themselves. This evolution has been underway for a long time, but it seems to be picking up speed in recent years. The attached table of department names, taken from the 1995 AAEEA Directory, is already out of date. But it does give a clear impression of the many, many ways we have devised to identify ourselves, including the traditional term, "Agricultural Economics." In almost all cases, the alternative names attempt to convey a broader purview than the traditional field.

Notice that there is only one "Department of Applied Economics." That, of course, is us. The story of the particular name change is the subject of another paper, but I know we are the first and only department in our field with that simple, clean name. We were also

Name of Department	Freq.	%
Dept. of Agri. Economics & Business	3	3.53%
Dept. of Agri. Economics & Economics	1	1.18%
Dept. of Agri. Economics & Farm Management	1	1.18%
Dept. of Agri. Economics & Marketing	1	1.18%
Dept. of Agri., Resource & Managerial Economics	1	1.18%
Dept. of Agribusiness	1	1.18%
Dept. of Agribusiness Management	1	1.18%
Dept. of Agricultural Business	1	1.18%
Dept. of Agricultural & Applied Economics	2	2.35%
Dept. of Agricultural & Natural Resources	3	3.53%
Dept. of Agricultural & Resource Economics	10	11.76%
Dept. of Agricultural Business, Management & Agri. Economics	1	1.18%
Dept. of Agricultural Economics	27	31.76%
Dept. of Agricultural Economics & Rural Sociology	6	7.06%
Dept. of Agricultural Sciences	2	2.35%
Dept. of Agriculture	13	15.29%
Dept. of Agronomy, Hort & Agri. Economics	2	2.35%
Dept. of Applied Economics	1	1.18%
Dept. of Food & Resource Economics	2	2.35%
Dept. of Natural Resource & Environmental Studies	1	1.18%
Dept. of Resource Economics	1	1.18%
Dept. of Resource Economics & Development	1	1.18%
Dept. of Resource Economics & Policy	1	1.18%
Dept. of Resources Management	1	1.18%
Dept. of Rural Economics	1	1.18%
TOTAL	85	

(Source: AAEA Directory & Handbook 1995)

the first to take the intermediate name of "Agricultural and Applied Economics." That move occurred 26 years ago, in 1970. I do think it is fair to say that these changes indicate that the faculty members of the department at the University of Minnesota have always been trend-setters and forward-looking professionals. It is not clear to me that there will soon be a second or a third "Department of Applied Economics" evolving from our counterparts around the country, but we shall see.

Concluding Comments

Here are few concise conclusions and predictions that I am prepared to advance today. I may change my mind tomorrow, but for now I predict that:

1. Some existing departments in our field will collapse or be merged with others. This has already happened in a few places.
2. Continuing and surviving departments will mostly diversify their fields of inquiry and expertise into other applied areas.
3. A very few departments may be successful in further specialization on a relatively small scale.
4. Core programs will shrink and peripheral programs will expand driven by the interests and objectives of outside funders. This will help some departments survive and will speed the demise of other.
5. The most successful departments over the long run will be those which best identify and exploit the regional and local niches available to them.

A Few Suggested Readings

Dobson, William D., "Strategies for Declining Academic Enterprises," Choices, Amer. Agr. Econ. Assoc., Third Quarter, 1995: 29-33.

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