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PANEL REPORT: AGRICULTURAL ECONOMICS
CURRICULA – DIRECTIONS AND STRATEGIES FOR CHANGE

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PANEL DISCUSSANTS

Agricultural Education in Institutions of Higher Agricultural Education in India: Needs and Strategies for Change *Vasant P. Gandhi (Indian Institute of Management, Delhi, India)*

Training Agribusiness Managers for the Future: A Challenge for Agricultural Economics in South Africa *C.J. van Rooyen, O.T. Doyer, J. van Zyl and J.F. Kirsten (University of Pretoria, South Africa)*

Agricultural Economics Curriculum Reform in Germany and Europe *Ernst Berg (University of Bonn, Germany)*

Agricultural Economics Undergraduate Education in the United States: Issues and Strategies *John P. Nichols and Kerry Litzenberg (Texas A&M University, USA)*

Economic systems are changing rapidly. The liberalization of both domestic and global relationships continues to advance. Business decision processes and policy arrangements are being dramatically altered. Increasingly, concerns about harmful effects of production agriculture, and its practices, on the environment and safety of food are given more weight in public debates. The challenge to agricultural higher education is to redesign programmes and curricula to address the new issues and decision problems facing farmers, agribusiness managers, government regulators and policy makers, and others involved in the global agricultural and food sector. Much of this agenda falls directly on faculties of agricultural economics in universities around the world. This challenge was taken as the starting point for panel presentations and discussions based on several country and regional perspectives.

The goals for the reform of curricula, departments and faculties include strengthening areas of theory and quantitative decision sciences relevant to the emerging private sector and new public policy issues, each tied increasingly to

global forces. But especially important, and more challenging for traditional programmes, is to increase emphasis on the following:

- active learning methods,
- knowledge acquisition methods and skills,
- critical thinking and problem-solving skills,
- importance of lifelong learning to manage career evolution,
- integration of knowledge about our global economic and cultural environment, and
- communications skills in both written and oral formats.

Evolving business and policy environment

The degree of accommodation or resistance varies from place to place, but the forces of globalization are well known throughout the world. Each of the presentations summarized these drivers of change in different ways and from different perspectives. Some of the pressures on curricula and higher education in general are derived from these global forces. In some cases major institutional changes are linked to specific issues of national or regional societal change. Some generalizations are derived below which set the stage for understanding the strategies being adopted in different university settings.

Liberalization of domestic economies and integration global of markets

Evolving policies in Europe and the United States aim at reducing direct intervention in agriculture and encouraging more market-driven decisions by farmers and agribusinesses. In India, the economy is slowly opening to external investment and competition. Privatization of formerly state-owned enterprises in agricultural production, input supply and food processing is proceeding throughout the world. The completion of the Uruguay Round and establishment of the World Trade Organization have set the stage for much more integration of global markets. These changes are increasing the premium which can be derived from the analysis of market conditions and the behaviour of competitors. No longer is it enough to react to government policy and assume that success for the firm will follow.

In Europe, the integration of markets over the past decade has given rise to major opportunities for firms to engage in massive reorganization in pursuit of new economies of scale. New concerns relating to the environmental impacts of agriculture in the relatively densely populated rural areas of Europe are directing greater emphasis on sustainability and production management consistent with these new expectations.

In South Africa, an entire upheaval of social and political structures is sweeping aside old institutions and commanding others to alter programmes, services and the allocation of resources. New models for the delivery of education, training and outreach are being sought. Agricultural higher education institutions are expected to lead the way because of their traditional strengths in addressing problems of rural areas. This mirrors concerns and expectations

facing university leaders throughout the world where agriculture and rural life is tied more directly to changes and societal expectations at the national and international level.

Changing consumer demand and technology

As the organization and openness of economies has changed, so too has the nature of consumer demand and the technologies available to agriculture and agribusinesses. Increasing incomes, and the accompanying increase in demand for products and services with more convenience and consumer choice, creates a business decision environment unlike anything seen before.

Likewise, increasing incomes allow for consumers to express their demand for environmental amenities and food qualities which previously were of lower priority. At the same time, choices among technologies facing producers are greater than ever. Managing the assets of farms and agribusinesses requires a capability of accessing and analysing an increasingly complex set of data and information. With the rapidly increasing power of new communication and information technologies, the educational requirements for managers have expanded to include new subject areas and new methodologies. Emerging supply-chain business models present new choices for farmers which require sophisticated analysis of investment and risk management options. Many of our traditional principles of economic analysis are finding their way into new managerial settings, but these applications must be studied, modelled, and taught in the classroom.

Technology for teaching and learning

On the research side, increasing computing power provides the capability of studying and modelling ever more complex systems. A meaningful translation of this power to teaching, training and outreach objectives poses challenges to the traditional curricula and educational methods. As information processing and management capabilities increase, so do the expectations of students and employers. Faculty retraining and increased expenditures on computer software and hardware are straining higher education budgets.

Computer and Internet usage in teaching is expanding, affecting the style and quality of classroom teaching. Computer and web-based, asynchronous learning methods provide the opportunity to reach ever greater numbers of students. The challenge of offering meaningful distance education is being met in many different ways, requiring new models of institutional organization to capture the potential economies of scale and still provide educational results that meet user expectations.

New student expectations and growing enrolment

Another factor affecting the higher education system is increasing demand by growing populations and the effect on that demand from growing numbers of students realizing the importance of a university degree. Students in many

countries, being faced with a job market dominated by a new entrepreneurial vision, are more interested in learning how to 'manage' than they are in the fundamental principles and theories of economics. They are aware of the opportunity costs of their educational investment, even if they do not want to study the concept as a part of economic principles. In short, 'they want a good job' and expect the university to deliver it to them at the end of the prescribed degree programmes.

Whether we agree with them or not, these expectations affect both what is offered and how it is offered. Does the traditional resident student experience at a university fit into the needs of these students? Increasing numbers are returning to universities to complete a degree after being employed. Others desire to take courses and continue employment while doing so. Competing models of education through 'virtual' web-based universities may provide attractive alternatives which agricultural universities cannot ignore. In the agribusiness field, a straight business degree provides an alternative which has high status and which may better meet the requirements of many employers when compared to the more focused applied economics curricula offered by agricultural economics faculties. At the same time, career opportunities in other areas such as agricultural and rural development, resource and environmental management, and policy and international trade are growing as well. Evaluation of these employment markets can lead to other types of curricula changes.

Competition for public resources

In many countries, higher education in the public sector was heavily subsidized for the select few who qualified for entrance to university. With public pressure to offer greater access to a substantially higher share of aspiring students, limited public funds are stretched further than ever before. Public resources for higher education are not increasing fast enough to keep up with increasing demand. In developing and transition economies, where the demand for change in agricultural economics and agribusiness education is the greatest, public resources have not even kept up with inflation. In nearly all countries, public universities are now encouraged to find ways to generate more of their income through private sources, including student tuition and fees. Public/private partnerships are sought to help fund a variety of programmes through endowments, scholarships and other direct support. This increased emphasis on resource acquisition and reallocation should be a motivation for experimentation and redesign, not only for curricula, but for reforming the entire institution of higher education in agriculture, including agricultural economics.

Strategies for change

A significant convergence of ideas was achieved among the presenters regarding how departments, universities and faculties could respond to the challenges posed by economic, social and industrial change in the global agro-food system. These strategies reflect both current institutional responses and those that were identified as yet to be achieved, but which are crucial if departments and

faculties are to remain relevant as providers of educated managers and leaders for agriculture, agribusiness and society.

Increased emphasis on experiential or active learning opportunities

The lecture and exam method has been a benchmark of teaching throughout the world. In nearly every case discussed, it was agreed that a rapid transition of teaching methods to incorporate more opportunities for student-centred learning is needed. The use of interactive teaching methods which encourage greater student involvement in the learning process will better prepare students for employment in business and government positions. Analysis, synthesis and development of problem-solving skills can be encouraged through the use of projects, case studies, increased class discussion, internships and visiting lecturers. Teaching of theory, fundamental principles and methods of analysis is crucial to preparing students to enter productive employment. However, methods of instruction and curricula must change if we are to address the challenges implied by societal change or put forward more directly in the market place for our students.

This was not seen as an easy transition. Many members of faculty are not in a position to make the wholesale changes required in courses and teaching methods. Incentives and resources to encourage change are simply not available in many agricultural universities. Finding and mobilizing resources to allow faculty to reorganize and retrain is a huge task everywhere, but especially in developing and transition economies.

Active engagement with industry

Certainly the first order of business is to assess the needs of the market. Most departments of agricultural economics understand that economic liberalization and globalization of food and agriculture are dramatically shifting the requirements of employers. An active involvement of agribusiness leaders and other employers in assessing programmes and curricula and in advising and developing institutional strategies is an important part of reform. Surveys of employers in the USA, South Africa and Europe have provided key ideas regarding the skills and knowledge areas most valued in entry-level employees. Faculty development leaves spent with agribusinesses provide experiences that can be brought back to the classroom.

Consultancies could be actively encouraged, not just as a source of income to supplement salaries which often are too low, but as an active way to gain knowledge of important private sector decision problems. In addition, the problem-solving methods of executives and entrepreneurs can be observed and lessons brought back to the academic environment, improving both teaching and academic research endeavours. Centres for agribusiness management have been established at a number of universities to advance this interaction. The offices of the Agribusiness Chamber of Commerce of South Africa are co-located with the centre, giving even more direct engagement between academics and industry.

Other strategies for increasing involvement include engaging food industry and agribusiness managers, executives and leaders from the public sector in classroom presentations and faculty seminars. Development and offering of postgraduate programmes and short courses aimed at executive development offers another avenue for faculties and institutions to reach out to the business and public sectors where their students will be employed. The process of planning and marketing successful programmes of this type will enhance understanding and help in the transformation of faculty thinking and priorities. The ideas generated in this way can then be incorporated into curricula designed for degree-seeking students as well.

Institutional reorganization and design

Perhaps the most dramatic of strategies involve the restructuring of entire universities. In the case of South Africa, a total reform was undertaken in response to the political and economic imperatives of the last decade. Declining enrolments and high overheads associated with traditional agricultural colleges and departments have also contributed to a sense of urgency in testing new structures, to the point where existing departments were abolished and a smaller number of new ones put in place. At the University of Pretoria, the concept of a new 'strong school' was adopted in 1999, with an enlarged Faculty of Natural and Agricultural Sciences including a few semi-autonomous schools, each with fewer departments and the flexibility to establish more involvement with its many constituencies among students, industry and society at large. A holistic, supply chain approach is encouraged across the entire faculty.

In India, where the liberalization of the domestic economy is now gaining momentum, the evolution of the many traditional agricultural economics programmes is less dramatic. Involvement of leaders of the increasingly free private sector food and agribusinesses will be a force towards change. Other institutes and universities offering business management degrees provide alternatives for employers looking for educated entry-level employees. As with the wide availability of general business education in the USA, business schools or institutes in India may play a role in forcing change in agricultural economics curricula and departments. The Indian Institute of Management, Ahmedabad (IIMA) uses case study teaching methods and organizes short courses for updating knowledge and skills of managers and food and agribusiness executives. The existence of alternative sources of education and training in business management, even where not explicitly a part of an agricultural university, provides an alternative for the private sector. Competitors can be powerful models for institutional reform.

In the USA many departments of agricultural economics are located in large universities where general business education is strongly established. Many agribusiness firms, especially those at the consumer packaged food end of the supply chain, look to business schools as their primary packaged source of entry-level managers. In recognition of this, several agricultural economics departments have sought ways to develop formal joint degrees. At Texas A&M University,

university-level degrees in agribusiness, at both the baccalaureate and masters levels, are jointly offered through the cooperation of the College of Agriculture and Life Sciences and the College of Business Administration. These degree programmes, directed by an intercollegiate faculty of agribusiness, are designed to meet international business school accreditation standards. Most departments of agricultural economics in the USA have created specific agribusiness options in their degree programmes or entirely new programmes. This evolution follows clearly from the analysis of competitive degree programmes and seeks in various ways to combine the traditional strengths of applied economics found in the agricultural economics traditions with the specific business management, marketing and finance education offered in business schools.

In Europe, yet another set of choices is being addressed. The tradition of 'binary differentiation' exists in most European Union countries, where there are both university and applied sectors in higher education. In Germany, university-level degrees in agriculture have been heavily science-oriented and comprise a single stage leading to qualification for a PhD programme. More emphasis is being given to reorganization of higher education. Continuous analysis of relevant job markets is called for. Some German universities are introducing a 'two-stage scheme' leading to a shorter completion time for an undergraduate BSc degree, followed by a two-year graduate programme leading to an MSc degree. This is being strongly promoted by policy makers as an effort to make German higher education more internationally compatible and attractive. This trend is in line with the forces of integration within the EU which encourage the mobility of students so that they may be educated in a way that will provide a strong basis for employment in firms which are looking across all of Europe, and beyond, for markets and business opportunities. In such transitions of degree programmes, concerns still exist that emphasis on strong theoretical education not be lost as time in residence is reduced and new business subjects are introduced. Clearly this is a difficult balancing act, but the market for graduates and public funding for higher education will be forces that cannot be ignored.

Another approach is development of multi-institutional coordination so that students can move more efficiently among institutions to get broader educational experience. This is one of the purposes of looking at standardized BSc degrees in Europe. In the USA, similar discussions have developed as a means of maintaining viable programmes in the face of declining enrolment in some regions. This approach deserves more attention. The development and adaptation of distance learning technologies should enhance the possibility of success.

Improved information and analysis of employment markets

In contrast to the agricultural and food markets that economists analyse in the normal course of their work, little effort has been spent on analysis of the markets for graduates. One of the primary limitations found in all countries is the lack of consistent market data on current and potential fields of employment. In the USA, a tracking system of students enrolled in agricultural disciplines pro-

vides data on supply-side trends. Periodic estimates are made of demand for graduates from primary disciplines. However, the redesign of curricula in every country could benefit from much greater effort to track market changes. Market demand is changing rapidly, as revealed by periodic surveys of employers, but curricula are slow to change. A better estimate of supply and demand on a regular basis would provide guidance for altering programmes and should give some stimulus to proactive reallocation of teaching resources.

More flexibility in faculty development and structure

Most of the strategies discussed above need to be initiated by faculties. One of the major challenges over the next decade is to retrain current faculty members extensively and to replace a large cohort of senior faculty nearing retirement age. This aging faculty population is observed in nearly all countries. For those who are eligible, greater emphasis should be given to sabbatical programmes and other opportunities to gain knowledge in new subjects relevant to the emerging privatized, entrepreneurial economies. Techniques which incorporate more interactive approaches to the teaching environment must be learned, often through study and observation of successful faculties, programmes and institutions. Experience of work in an agribusiness firm can provide invaluable lessons for faculty to bring back to the classroom. Another trend may be towards the employment of more part-time faculty staff in non-tenured positions. For other disciplines this is a trend that is already well under way. Such flexibility would allow the institution to adapt more quickly to changing market demands. Combining appointments with industry consultancies could also enhance interactive relationships between industry and academia. Such approaches need to be carefully designed and managed to avoid losing the core academic focus of university programmes. Nonetheless, in order to make the transition to new teaching models, and respond to new employment opportunities, flexibility in faculty recruiting will be a necessity.

Challenges for the profession

While the goal is clear and strategies are understood, the will to change and the availability of resources remain as crucial limiting factors. There is a need for more leadership in the global professional organizations to cope with changing requirements of society for market-ready graduates.

- *More emphasis on education–employment partnerships:* better links through our professional organizations with industry leaders are needed to develop industry executive education and to bring ideas back to the degree curricula. Emphasis should be given to application of the tools of economic analysis to the emerging strategic business decision problems facing agriculture and food businesses.
- *A need to expand our interdisciplinary vision:* we need to focus more on the subject content of other social and behavioural sciences which are required to understand how information links to decision making.

- *Expansion of international dialogue on teaching and curricula:* a broader comparative discussion of agricultural economics education and training across national boundaries is imperative if we are to stay in tune with employers. Our graduates will be challenged to develop their career in a business environment that is truly global in terms of markets, production technologies and societal expectations.

A forum to address these needs exists within the international professional organizations to which agricultural economists belong. But these organizations should be challenged to go beyond passive support for such efforts, taking the lead in addressing them as well. Economic structures in agriculture are being driven by changing consumer demand, technologies of production, processing and distribution. Employers of our graduates know this. While universities play a primary role, disciplinary societies and professional associations must actively seek to guide and direct these changes if they, and their members, are to play a significant and long-lasting role in the institutions that survive and thrive in the 21st century.