

## IMPROVING AGRICULTURE STUDENTS' UNDERSTANDING OF GLOBAL PRODUCTION SYSTEMS THROUGH DISTANCE LEARNING

Dan Bernardo<sup>1</sup>  
Donald Cameron<sup>2</sup>  
Daniel Conforte<sup>3</sup>  
Pavel Sorokin<sup>4</sup>

### ABSTRACT:

Globalization is a fundamental force currently shaping agricultural sector throughout the world. To make sound decisions in a globalised economy, agricultural producers and agribusiness managers must have a high level of understanding of the international dimensions of their industry. To address this need, we are developing a course aimed at helping agricultural students better understand the managerial environment faced by producers worldwide. This course will provide students an opportunity to learn about agricultural production, and the context in which it occurs, by analyzing real-world farm case studies in various countries on four continents in both hemispheres of the globe.

Eight case studies are being developed to exemplify the production and managerial environment in five different countries (Russia, Australia, Uruguay, Brazil, and the U.S.). Each case study will include a written description of the case, as well as a video tour of the farm and surrounding region and an interview with the farm manager. The case studies will provide the principal building blocks for the comparative farm management systems course to be taught at each of the four cooperating universities. Through the comparative farm management systems course, students will: (1) obtain a better understanding of the production agriculture sectors of the world, (2) discuss regional agricultural economic issues with instructors who are experts from each country, and (3) gain real-world problems solving experience in international settings through case study analysis. The case studies and course curriculum will be made available to other universities through a project web page and distribution of case study CD-ROMs.

**Key words:** globalization, international, comparative farm case studies, distance learning

### INTRODUCTION

Globalization is one of the fundamental forces currently shaping the agricultural sectors of both developed and developing nations. Technological and political events of the past two decades have lowered economic barriers and contributed to a new world order of competition. A global marketplace means more opportunities for market expansion, competing supply sources, and greater price volatility. Agricultural producers worldwide have felt the impacts of these trends. To make sound decisions in a global economy, agricultural producers and agribusiness managers must have a high level of understanding of the international dimensions of the agri-food industry.

In helping to meet this need, the authors, from universities in the US, Russia, Uruguay and Australia, are involved in developing a tertiary course aimed at helping agricultural students

<sup>1</sup>Head of the Department of Agricultural Economics at Kansas State University. (e-mail: [dbernar@mail.agecon.ksu.edu](mailto:dbernar@mail.agecon.ksu.edu))

<sup>2</sup>Head of agribusiness study programs at ORT University in Montevideo, Uruguay. (e-mail: [conforte@ort.edu.uy](mailto:conforte@ort.edu.uy))

<sup>3</sup>Faculty member at Moscow State Agro-Engineering University and has a Ph.D. in Farm Mechanization from the Moscow Institute of Agricultural Engineers. (e-mail: [pavelorokin@hotmail.com](mailto:pavelorokin@hotmail.com))

<sup>4</sup>Research Postgraduate Co-ordinator and Lecturer in Rural Management in the School of Natural & Rural Systems Management at The University of Queensland, Gatton. (e-mail: [dcameron@uqg.uq.edu.au](mailto:dcameron@uqg.uq.edu.au))



better understand the social, economic, and production environment faced by agricultural producers worldwide. This course will prepare students to enter the global agricultural economy by providing an understanding of various production systems across the globe. Students will learn about agricultural production in various countries by analyzing real-world case study farming situations. Through the comparative farm management systems course, students will obtain a better understanding of the production agriculture sectors of the world, discuss regional agricultural economic issues and analyze each region's agriculture production in-depth. With instructors from each country to lead relevant sections of the course and contribute to designing and evaluating assessment instruments, students will be able to gain real-world problem solving experience in international settings through case study analysis.

In developing this project, three key issues have been addressed (1) curriculum design and materials development, (2) instructional delivery systems, and (3) student experiential learning.

This course will be available to students in each university in February 2006. Because of its distance education format, it will be possible to make it wholly or partially available to staff and students in other institutions once any initial implementation problems have been resolved.

### **Internationalisation of agriculture**

Globalization has had a profound impact on production agriculture worldwide. An opening of global markets has already resulted in unparalleled shifts in production patterns and fluctuation in commodity prices. As countries protection of their agricultural sectors continues to be stripped away by multilateral trade negotiations such as GATT and NAFTA and country to country free trade agreements, these changes will become even more pronounced. For example, economists project that in the USA alone, at least \$60 billion in food and raw materials – over one-third of the nation's productivity – will be sold overseas (U.S. Department of Agriculture, 2002). A recent survey of agribusiness leaders commissioned by the Farm Journal identified globalization as the factor that will most significantly influence the agricultural industry over the next ten years. At current rates of expansion, the proportion of agricultural production traded globally will increase 12 fold over the next 20 years to almost 80%. The increasing per capita GDP and purchasing power in the world's two most populous nations, China and India, will have a huge impact on all aspects of world trade, including food.

Just some of the other emerging trends that will influence farm production and management in coming decades include the declining political and economic importance of the agricultural sectors of many countries, the increasing interest in and oversight of the environmental effects of farming by the rest of the community, the trends for healthy eating, and organic/ biodynamic/ chemical free farming. The increasing importance of nutritional genomics (functional, genotype-specific foods) and nutraceuticals (purified non-drug food additives and supplements) will also be of increasing significance. The growing dominance of major multinational companies is an increasingly significant factor in the agrifood sectors of sovereign nations. To remain competitive in a global economy requires that individuals entering the food and agriculture industry have knowledge of the diversity of agricultural systems not only in their own country and region, but also worldwide.

### **Internationalization of education**

Internationalization is today one of the most important curricular issues facing higher education institutions. Authorities maintain that a global knowledge base is fundamental to providing the critical lessons students must learn about the world in which they live. A recent report on internationalization of curricula by the National Association of State Universities and Land Grant Colleges (NASULGC) defines this global knowledge base as having three elements: (1)

global competence, (2) global confidence, and (3) global comfort. Among the strategies recommended to obtain this knowledge base are internationalization of the curriculum and promoting student involvement in significant international opportunities (NASULGC, 2001).

Colleges of food and agriculture have been active participants in the internationalization movement within higher education and are seeking unique classroom and out-of-class experiences to strengthen the international dimension of their students. Study abroad activities and international tours serve as excellent opportunities for students to gain an appreciation of international agriculture; however, only a small portion of students are able to pursue these opportunities. Activities are needed to supplement these international experiences and provide a broader array of international experiences to a larger percentage of students.

Within farm management, agribusiness and agricultural economics curricula, several programs have added or emphasized courses to strengthen the international dimension of their students. Most of these courses have focused on two topics: international trade and international agricultural development. Educational experiences are needed in other subject matter areas to broaden students' understanding of the international dimension of food and agriculture. A recent study in the USA by Boland et al. (2002) inventoried 108 agribusiness programs nationwide and did not reveal any courses similar to the comparative farm management systems course being proposed.

The Department of Agricultural Economics at Kansas State University (KSU) has led this project, building on its experience in the development of distance education curricula in the food and agricultural sciences. Its Master in Agribusiness program has been recognized in winning several national awards in continuing and distance education. This project builds upon the department's expertise in distance education and case study applications with the expertise of three global partners to develop a state-of-the-art comparative farm management systems course. ORT University, Moscow State University, and the University of Queensland all have extensive experience in distance learning and teaching using the case study approach. ORT University and Moscow State University have proven track records of distance learning in the U.S. through their collaboration in KSU's Master in Agribusiness program. For over ten years the BAgrribusiness program at University of Queensland has been providing international experience to students through its 'Thinking of Asia' program; to date around 300 final year students have participated in practical in-country market research projects for 40 clients in 15 SE Asian countries.

### **Multidisciplinary and/or Problem-Based Focus**

By definition, farm management is a multidisciplinary topic. The case studies developed for this project will require students to synthesize information from a variety of disciplines, including, but not limited to, financial management, agronomy, horticulture, animal science and agricultural technology management. The principal investigators involved in this project represent a multidisciplinary team with academic specializations spanning several disciplines (agricultural economics, agricultural engineering, business management, and agronomy) and considerable experience in multidisciplinary teaching and research.

### **OBJECTIVES**

The objectives of the project are:

1. to develop farm management case studies that describe the production and managerial environment in South America, Russia, Australia, and the U.S.;
2. to integrate the case studies into an integrated comparative farm management course



simultaneously taught in four countries; and

3. to disseminate the case studies to interested parties for use in undergraduate curricula and producer education.

## **METHODOLOGY**

Completion of this project involves two phases: (1) development of the farm management case studies, and (2) organization and delivery of the comparative farm management course.

### **Development of Farm Management Case Studies**

Two farm management case studies are being developed by each of the four participating universities. To capture some essence of the diversity of each continent's agricultural production sector, one case study will involve a traditional family operated grain/livestock farm, while the other will focus on a larger, corporate farm involved in specialty crop production. All farm case studies prepared will follow the same format to promote ease of use by the students and facilitate comparison across countries. Each case study will include both written and video components.

Case studies have proven to be an effective learning tool for students to gain experience by applying managerial concepts and tools to real-life situations. The farm management case studies will be developed to provide the student a better appreciation of the production and economic environment faced by international producers by working through a real-world decision making scenario. The cases are being developed by the participating collaborator(s) in each country, in close consultation with the managers of the actual farm units.

Each case study will begin with a description of the general agricultural economic setting in which the farm operates. This background information will include a description of the physical characteristics of the region (climate, soils, water availability, etc.), the agricultural practices (crop and livestock enterprises, farming practices used, etc.), and economic setting (prices, marketing channels, credit availability, etc.). Supplemental resources will also be referenced to enable the student to explore particular issues in greater detail. The next section of the case will describe the specific physical and economic characteristics of the case farm. The physical description will include soils, crop history, field layout, buildings, livestock inventory, machinery and equipment inventory, etc. A complete set of financial statements (income statement, cash-flow, and net worth statement) and enterprise budgets will provide the background economic information necessary to analyze the case. The final section will present the managerial challenge to be addressed by the students. The specific management scenario to be addressed in a case may be a factor such as adding a particular enterprise, investing in machinery inputs, purchasing additional land, or implementing an alternative production system (e.g., crop rotation, grazing system).

The video portion of the case study will provide an opportunity for the student to gain a better appreciation of the production environment and the specific farm situation. The first section of the video will include a "virtual tour" of the farm and surrounding region. This segment will include a 10-15 minute guided tour of the farm and surrounding area. The second section will involve a 10 minute interview with the farm manager. This segment will provide a more detailed explanation of the managerial environment and the decision to be evaluated by the students.

Teaching notes will also be developed for each case study. While there is no specific answer to a case study, the teaching notes will provide instructors guidance as to the key issues addressed in the case and suggestions for facilitating student discussion of the cases. Examples of case summaries are included in Appendices 1 and 2.

### **Organization and Delivery of the Comparative Farm Management Course**

The eight case studies will provide the principal building blocks for the comparative farm management course. This course will be taught in each of the four cooperating universities and will provide students an opportunity to better understand agricultural production in other countries by working through the eight case studies.

The course will begin with a one-week introduction provided by the collaborator at the host institution. In this segment, the structure of the course will be explained, and the students will receive a brief introduction to worldwide issues related to farm management. Students will also be introduced to the case study method and receive instruction on how to approach case study analysis. The students will first work through one of the case studies developed in their own country to familiarize themselves with the case study format and learning process. Each case study will be introduced using a distance education lecture provided by the faculty expert from that particular country. This introductory lecture will be developed using the Tegrity distance education delivery system used by Kansas State University and consists of Power Point slides with accompanying audio and video streaming.

After completing their analysis of the case study, the students will have the opportunity to interact with the faculty expert who developed the case through threaded message board and live chat rooms held on the K-State Online system. The faculty expert will answer questions concerning the case and provide the students additional feedback on their solutions to the managerial challenge presented in the case.

Student assessment will be based on their contribution to on-line discussion, and to small group case write-ups common to all institutions, in addition to individual integrative/comparative projects. The group assignments will be designed to aid students to address each of the eight cases, with each to be assessed by the instructor in the relevant country, as well as the instructor in the student's home institution. The larger, individual assignments will be set and assessed by instructors for students at their own institution.

### **Evaluation Plans**

Each case study will be subject to rigorous review during its development. In each country, a review panel consisting of a faculty member, agricultural producer, and technical expert will be provided a copy of the written materials and accompanying video. Input from the review panels will be used to improve the case studies prior to completion.

Students will be regularly requested to evaluate the effectiveness of the case studies and the comparative farm management course. These evaluations will be conducted each time the course is offered at each of the four participating institutions. Adjustments will be made to the course delivery and case studies based upon student input. In addition, outside parties requesting a copy of the video case studies will be sent an evaluation form requesting information on the audience using the cases and soliciting input for improvement.

### **Dissemination Plans**

The eight case studies will be made available to interested parties through distribution as CD-ROMs. Quality case studies are in short supply; agribusinesses case studies with accompanying video tapes previously developed at KSU have been heavily demanded and used by peer institutions. A second target audience for dissemination of the case study videos will be agricultural producer groups. Many producer groups are attempting to provide their members a better understanding of international production through seminars and tours. The case studies will provide an affordable and effective supplement to these activities. The case studies



and video material will also be made available through a project web site located on the KSU Agricultural Economics server.

### **Continuation Plans**

It is anticipated that the comparative farm management course will become a regular annual course offering, available through conventional and distance education modes, at each of the partnering institutions. Pre-requisites for the course will be minimal (one introductory course in farm management or agribusiness management). Updates of the farm management case studies will be completed regularly and funded through course revenues. It is anticipated that the comparative farm management course will be popular with students across all disciplines in food and agricultural sciences, and instructors in a variety of disciplines will use the case studies.

The comparative farm management course and case studies can be readily adopted by other institutions. In addition, the cases can be used individually to “internationalize” existing courses in farm management or related topics.

The comparative farm management systems course can also be used as a model to conduct similar multi-institutional educational activities that provide global experiences to food and agriculture students. Lessons learned will provide important assistance to individuals wishing to provide similar courses aimed at enhancing the global knowledge base of food and agriculture students worldwide.

### **CONCLUSION**

The authors hope to report on successful implementation of this project at the next IFMA congress in Ireland in 2007. We welcome comments and expressions of interest from others, especially those who may be interested in making use of some of the case material.