AN EXAMINATION OF INTERNATIONAL STUDIES IN UNDERGRADUATE AGRICULTURAL CURRICULA AT 1862 LAND GRANT INSTITUTIONS

by

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ABSTRACT

The purpose of this study was to ascertain the status of international agricultural education at 1862 land grant institutions, by answering the question, what are our 1862 land grant institutions doing to integrate international studies into their undergraduate agricultural curricula? There were two investigations conducted, (1) a content analysis and (2) a survey.

A website based content analysis was conducted. A qualitative analysis of the contents of 57 land grant institution's college of agriculture' websites identified current trends in agriculture with regard to international themes. The programs identified were: (1) study abroad; (2) faculty research and/or programs; (3) graduate research and or programs; (4) training and/or visitors; (5) international students on campus; (6) foreign agreements and/or contracts; and (7) majors, minors, certificates, curriculum, and course content.

The data for the survey was conducted using a web based instrument. A census of the population of land grant institutions identified in the content analysis was conducted. All questions were based on information for the 2003-2004 academic year. Of the 57 institutions surveyed, a total of 31 surveys were submitted for a response rate of 54 percent.

The results of the content analysis and the survey provided new evidence about the current state of internationalization in the colleges of agriculture in the 1862 land grant institutions. The nature of these programs is predictable, yet approaches, support and implementation vary widely between institutions.

INTRODUCTION

> "We are laying the groundwork for international education for decades to come. Ten, twenty, or thirty years from now, college students will expect their education to give them a diverse global perspective that enriches their learning. More and more international education will become the norm, not the exception, and students will routinely study abroad and know multiple languages…The process of globalization must proceed hand in hand with advances in international education, or we will miss the opportunities that the 21st century can offer."
>
> Richard W. Riley, Secretary of the United States Department of Education (2000)

Educational institutions all over the United States are examining curricula and revising programs to reflect current trends in internationalization. Increasingly, land grant institutions are looking at their role in teaching modern agriculture and finding that internationalizing agricultural curricula is a priority. Rapid scientific advances in agriculture and food crops, reduced prices of agricultural products from over production, trade barriers, and a decline in enrollments in colleges of agriculture are of considerable concern because our economy depends on domestic agriculture and exportation of agricultural products. The education system must reflect the world as it is today: a global environment in which, "…international education will strengthen our nation for the future (U.S. Department of Education, 2000)." This study looked at 1862 land grant university's agricultural programs and their international education initiatives regarding undergraduate students.

Statement of Purpose

The purpose of this study was to ascertain the status of international agricultural education at 1862 land grant institutions, by answering the question, what are our 1862 land grant institutions doing to integrate international studies into their undergraduate agricultural curricula? There will be two investigations conducted to satisfy the purpose and meet the objectives of this study. The methodology will be described in two sections, (1) content analysis and (2) survey. The purpose of the content analysis is to identify areas of program development in colleges of agriculture and courses offered for undergraduates in agriculture with international themes. The purpose of the survey is to use the areas discovered in the content analysis to focus the survey questions and thus get a professional view of what the 1862 land grant institutions are doing to integrate international studies into their undergraduate agriculture curricula.

Need for the Study

In a study conducted in 1990 at the University of Nebraska, 227 students enrolled in agronomy courses were surveyed to determine their knowledge in international agriculture, world demographics, trade, and related topics. Less than 50 percent of the undergraduate students answered correctly to most questions. Also in this survey, less than 25 percent of both students and faculty correctly answered questions about world trade, population growth, U.S. government foreign assistance, and U.S. agricultural

imports. Not surprisingly, the researchers in this study concluded that students need more exposure to international topics (Mason, Eskridge, Kliewer, Bonifas, Deprez, Medinger Pallas and Meyer, 1994).

In 1992, professional leaders and selected departmental chairs of land grant institutions were surveyed about their issues and concerns for the future of institutions whose origins are in agriculture (Meyer, 1992). The study found that there is a deeper need for curricula to include programs with more relevance to our modern world, including an emphasis on international agriculture. Neither Mason et al. nor Meyer suggested new curriculum, methodology for change, or a timetable for change.

During the early 1990s, internationalizing agriculture curricula was a popular topic with educational organizations. Conferences held by the National Agricultural Research Association, the Association for International Agricultural and Extension Education, and the Washington Conference on Internationalizing U.S. Universities and Colleges of Agriculture all focused on developing an international perspective in agriculture and concluded that internationalization of agricultural curricula should be a priority (King and Martin, 1994). To date, there have been few follow-up studies to see if land grant universities have made changes and what those changes might entail.

In a paper published by the U.S. Department of Education outlining the importance of international education, ten key components were identified as imperative to the internationalization of education. Among the ten were two significant components that support the need for this study. The first of these two declared, “Supporting the development of international awareness, knowledge, and skills in the classroom and on

campuses...," and increased investment in undergraduate postsecondary curricula development a priority. The second declared it a priority to ensure that the results of all internationalization efforts in education are measured and reported (U.S. Department of Education, 2000). The current state of internationalization in the U.S. is poorly documented. Data at best is more than a decade old and some findings are vague or conflicting (Hayward, 2000). In an effort to support the internationalization of curricula at the postsecondary level, a study such as this is necessary to increase understanding and guide the direction of developments and changes in international agricultural education at the college level.

Objectives

The objectives of this study are:

(1) To determine if the 1862 land grant institution's colleges of agriculture are incorporating international content and perspective into undergraduate agricultural studies; and

(2) To examine the nature of these programs.

Assumptions

The following assumptions exist for this study:

(1) Professors and university officials respond honestly about their perspectives and beliefs regarding agricultural programs.
(2) The content analysis and survey instruments used in this study are reliable methods for collecting data with relevance to the investigation of the specific information collected.
(3) The methods of identification of international content and perspective in colleges of agriculture are accurate and reflective of current trends and content.

Limitations

One of the greatest limitations of the content analysis portion of this study is that websites might not be the most reliable source for the best information on what is available in the Colleges of Agriculture at our nation's 1862 land grant institutions. However, websites are easily accessible for research purposes and are used by the institutions to reach prospective students and enrolled students. As such, they should be a fairly accurate representation of what the university has to offer students. Threats to the validity concerning content analysis may include the possibility that the websites are not updated with all of the latest courses and programs that incorporate international themes. Also, the College of Agriculture websites do not always provide detailed information on which courses are required and which are electives in undergraduate degrees in agriculture.

The survey is limited by its administration on the World Wide Web and the electronic collection of responses. The survey will be administered in the summer and early fall semesters. These are both absent and busy times for professors and university officials. The survey is a voluntary exercise; the respondents may chose to respond to any and all questions. They may be very knowledgeable or not knowledgeable about the specifics of their institution. They may choose not to respond to all questions. The fact that the respondents chose to respond may skew the survey by eliciting responses from those who have a strong interest in the topic and excluding those who have no interest in the topic and therefore chose not to respond. For this reason, some demographics were collected to ensure that a wide range of land grant institutions and individuals replied to the survey.

For the most part, this is a qualitative study and therefore, another possible limitation that should be taken into consideration is the position of the researcher. There is certainly a bias on the researcher's part to see international studies take on a bigger role in agricultural curricula at land grant institutions. Having spent seven years in the field of international agriculture, it is understandable that the researcher may have considerable interest in the subject of international agriculture. Further, as a graduate candidate in agricultural education and extension, the researcher has an interest in how and to what extent international studies have been incorporated into land grant agricultural curricula.

As shown in the need for the study section of this paper, the need for internationalizing agricultural studies has been expressed by the land grant institutions themselves and by persons within the field of agriculture. Also, as the study consists of

two parts that explore the research question using different methods, the researcher hopes to negate any personal bias while capturing an accurate snapshot of the current state of internationalization of agricultural studies.

Definition of Terms

The following definition of terms will be used:

(1) International: Involving more than one country. All aspects of culture, language, practices, interactions, ideals, and perspectives of countries other than, but not excluding interactions with, the U.S. and its territories.

(2) Internationalization: To have a focus beyond the U.S. and its territories that incorporates more than non-western cultural ideas and perspectives.

(3) International Programs and/or Studies: Any and all programs designed and implemented with the intention of endowing an international or global perspective to the participant.

(4) Study Abroad: Any and all programs designed for and involving study outside the U.S. and its territories. This includes semester long enrollment, short-term programs, and all overseas learning programs. It may also include internships that occur before a degree is conferred.

(5) Faculty Programs and Research: Any and all programs designed for and involving faculty members of educational institutions.

(6) Graduate Programs and Research: Any and all programs designed for and involving students who have already received an undergraduate degree.

(7) Training and Visitors: Any and all programs designed to train non U.S. citizens both in the U.S. and abroad; visitors being any non U.S. citizens who may or may not be involved in these trainings in the U.S. or who are on campus, yet not enrolled in the institution.

(8) International Students: Students who are not U.S. citizens who are enrolled and attending a U.S. educational institution.

(9) Foreign Agreements and Contracts: Agreements and contracts between a U.S. institution of higher education and a foreign government or institution; including programs, grants, and other agreements originating through U.S. federal institutions and including foreign governments and/or institutions.

(10) Curricula/Curriculum: The content of course(s) taken for credit(s) in the pursuance of the receipt of a certificate or in partial or whole fulfillment of a degree.

REVIEW OF LITERATURE

In the past decade, the agricultural industry has evolved from a production-centered industry into a competitive field that demands a blend of scientific, technological, and business skills. Our country is experiencing rapid scientific advances in agriculture and food crops, reduced prices of agricultural products from over production, trade barriers, and a decline in enrollments in colleges of agriculture (Huffman and Just, 1999). The National FFA Organization, one of the U.S.' primary youth agricultural organizations which is dedicated to developing youth potential for premier leadership, personal growth, and career success, estimates that only 2 percent of the jobs in agriculture are in production. The other 98 percent of jobs in agriculture are in support areas, which include such jobs as animal and plant science; food science; domestic and international agribusiness; and horticulture. Agriculture is the U.S.'s largest employer, with 22 million people working in some form of the agricultural industry (National FFA Organization, 2003). Since our economy depends on domestic agriculture and exportation of agricultural products, our 1862 land grant institutions should be addressing our nation's need for future leaders in agriculture who can address global agricultural issues.

However, in a 1989 survey of U.S.' undergraduate students at a number of colleges across the nation (Love and Yoder, 1989), three out of every four non-agricultural students perceived agriculture as interchangeable with farming, ranching, or production of crops and livestock. Surprisingly, one out of every two agriculture students

held this same view. It is not surprising then that efforts to attract students to Colleges of Agriculture through traditional marketing techniques that target students with production agriculture backgrounds are not as successful as they have been in the past, now that agriculture has become a worldwide industry (Meyer, 1992).

In 2002, $53 billion in foreign sales of U.S. agricultural products resulted in an economic impact in the U.S. of $127 billion and generated more than 800,000 jobs (USDA, 2003). With 96 percent of the world's population living outside the U.S., one in every three U.S. farm acres is planted for export. The nation exports $49.1 billion in agricultural products annually (National FFA Organization, 2003). More than half the nation's wheat and rice crops, a third of our soybean and meat production, and nearly 60 percent of cattle hides are exported annually (USDA, 2003). The U.S. produces 46 percent of the world's soybeans and 41 percent of the world's corn (National FFA Organization, 2003). Today's U.S. farmers and ranchers, who annually produce more than our nation can consume, depend on international agricultural trade for their livelihoods. Farmers and ranchers all over the planet, both small and large-scale operations, are impacted by world events. In order to have a viable system of domestic farming and ranching in the U.S., it is important for U.S. farmers and ranchers to understand how agricultural systems interact in a global context (Cardwell and Larew, 2002).

With this link between domestic agriculture and our global environment, we can see why agriculture is a key factor influencing modern world trade disputes. Indeed, agriculture and agricultural politics are more important determinants of international

cooperation than any other aspect of international relations (Kastner and Powell, 2002). Because of the agricultural industry's strong tie to domestic affairs and its dependence on international trade, it causes more problems than any other area in world trade and it has earned a reputation as a chief sticking point to progress in world trade negotiations.

In his book, Anderson outlines the need for international development agencies to consider the sharing of agricultural technology as a key part of agricultural development around the world, especially in developing countries (Opara, 1997). Sustainable development and improved economics in both developed and under developed nations depends on access to improved agriculture and agricultural technology (Opara, 1997).

In 1995, the federal government, through the U.S. Department of Agriculture (USDA), funded 56.7 percent of public agricultural research. However, the agricultural research system established under the land grant institution endowment is even more extensive, spending twice the public agricultural research dollars that USDA spends (Huffman and Just, 1999). The establishment of land grant universities was a federal directive, in part funded by public tax dollars, with a mission to teach agriculture, the mechanic arts, military tactics, literary arts, and scientific studies (Nevins, 1962). They are at the forefront of providing our future leaders in agriculture with an education that is relevant to today's world of agriculture.

In a 2003 study of colleges of agriculture at land grant institutions, respondents identified, "fostering appreciation of diversity and development of global perspectives," as a key issue facing agricultural education in the future (Fields, Hoiberg and Othman, 2003). Land grant institutions today recognize the drive of cultural diversity and

globalization in transforming education; it is essential for agricultural students to become more knowledgeable about other countries, cultures, world economics, and worldwide interactions (Zhai and Scheer, 2004). Colleges of agriculture prepare students to enter a diverse workforce that operates on a global scale and there is considerable interest in developing internationalized curriculum to foster this process (Crunkilton, McKenna and White, 2003).

There is no debate on the necessity of incorporating international studies into curricula at colleges of agriculture (Crunkiltion et al., 2003), but there is considerable diversity in method (Fields, et al. 2003). Limitations occur at institutional, faculty and student levels and include a wide range of hindrances such as financial and time limitations (Fields et al., 2003). For example, some land grant institutions recognize that incorporating subjects or a few lectures of international topics into curricula is not sufficient to provide students with appreciation, consideration, and empathy for different cultures (Crunkiltion et al., 2003). They recognize that first-hand experience and travel in other countries is the best method for teaching an international perspective. Undoubtedly, study abroad programs in which students travel and study overseas are an effective method of teaching an international perspective. However, the national average in 2000 was less than 3 percent of all U.S. undergraduate students studied abroad (Hayward, 2000). The challenge that land grant institutions face today is to integrate international studies into agricultural curricula in a lasting and meaningful way, so that the majority of students benefit (Fields et al., 2003).

METHODOLOGY

This chapter consists of two parts. The methodology is organized into two sections, (1) Content Analysis and (2) Survey. Each section will have five different parts: (1) Population Selection, (2) Instrument Design, (3) Instrument Reliability and Validation, (4) Data Collection and (5) Data Analysis.

Content Analysis

As Meyer's survey of land grant universities demonstrated, just eleven years ago land grant university officials expressed that there was a deep need for agricultural curricula to include programs with international themes (1992). Therefore, through a content analysis, the researcher sought simply to capture the current state of international studies. Because there is very little documentation of international themes in post secondary agricultural studies, a comparison of agriculture course content at land grant universities from eleven years ago to now was not appropriate. An investigation of integration of international themes into undergraduate agriculture curricula through a content analysis of the websites of the 1862 land grant institutions was valuable because it identified the current types of programs that were available. The themes discovered through this content analysis were used to design the survey portion of this study.

Population Selection

Pilot Study: The land grant system is extensive and includes several mandates, with the first originating in 1862 and allowing for one institution per state and U.S territory (Nevins, 1962). The establishment of land grant universities has since been extended to include many satellite campuses, some of which are now independent of their original campus. It also includes the 1890 institutions and tribal colleges, which makes for a system of over 100 land grant institutions. For the purposes of population selection, the researcher has chosen only the 1862 land grant institutions as a sample to represent the land grant system, which also included seven 1862 land grant institutions located in U.S. territories.

A small pilot study was conducted to further define the population. First, the researcher used an electronic random sample generator to select a sample of 1862 land grant colleges of agriculture websites to analyze. Each of the fifteen randomly selected institutions was assigned a number (see Appendix A for a complete list of these institutions). Then the researcher narrowed the sample down based on the accessibility of the websites in the sample. Using the institutions' websites, a college of agriculture homepage was found for each institution, if there was one. The homepage was then searched for a link to international agricultural programs of any kind. If no direct link was available through the homepage, a search was conducted with keywords: international, internationally, global, globally, world, worldwide, trade + international, import, export, world + market, and world + marketplace (see Appendix B for a complete list of the web links used). The intent of this search was not to catalogue the occurrence

of the keywords, but simply to ascertain if there were any international activities in agriculture available at each university within each respective college of agriculture. The keywords were used as standardizing search guides to evaluate the contents of each website and not as measurement units.

Seven of the fifteen land grant institutions surveyed did not have an international studies link on their college of agriculture homepage. Two of these seven did not have colleges of agriculture or agricultural studies within their institutions and were therefore discarded from the content analysis. Eight of the land grant institutions surveyed did have links to international studies on their colleges of agriculture homepage. The following table illustrates the nature of the international programs offered in agriculture at each of these eight institutions.

Table 1. The Nature of International Programs in Agriculture

Institution	**Nature of the Link?**
1	Study abroad, faculty experience, faculty research, grants for visiting foreign university officials or ministry officials, foreign students, grants for international training programs overseas
6	Study abroad
7	Study abroad, faculty exchange, faculty experience, faculty research, grants for international training programs overseas, international students on campus
10	Study abroad, university lead research center for international marketing and trade for state residents**, international curriculum for veterinary science (4 elective courses)**
11	Study abroad, *International Research* graduate certificate conferred with 6 credits international curriculum outside the college of agriculture, **faculty grants to internationalize course content**, faculty research, donor funded collaborative research projects, **3 senior level** & 1 graduate level **course(s) in international agriculture**
12	Study abroad, faculty exchanges, faculty research, faculty based overseas technical assistance programs, international visitors on campus
14	Study abroad, links to student internships (international elements involved) with the federal government, study abroad fellowships, international students on campus, scholarships and fellowships for international students on campus, masters and doctorial student fellowships and scholarships for international work, faculty research
15	Study abroad, international agreements and contracts, faculty research, faculty development through international projects, on campus seminars and workshops, short term training for international visitors, hosting international visitors

Of the international agricultural activities offered at each institution, only three involved undergraduate curricula and course content (see bold type in table above), all of which were elective activities not required for conference of an undergraduate certificate in international studies or an undergraduate degree in any agricultural discipline. All of the institutions utilized study abroad programs for undergraduate agriculture students. Faculty based programs; international students and visitors to campus; and agricultural agreements and contracts with outside agencies (usually for foreign aid and development) were also prevalent. The table below further illustrates the breakdown of international activities within the schools of agriculture in the sample.

Table 2. International Programs in Agriculture

Institution	Study Abroad	Faculty Research and/or Programs	Graduate Research and/or Programs	Training and/or Visitors	International Students on Campus	Foreign Agreements and/or Contracts	Major, Minor, Certificate, Curriculum, Course Content
1	√	√		√	√	√	
6	√						
7	√	√		√	√	√	
10	√	√					√
11	√	√				√	√
12	√	√		√			
14	√	√	√		√		
15	√	√		√		√	

Instrument Design

Although the research method was qualitative, the analysis methods attempted to keep the standards of the analysis equivalent for each website surveyed in the sample. Using a qualitative approach to analyze the contents of the websites gave the content

analysis an additional vantage point and a more holistic view of the current trends in agriculture with regard to international themes. For example, it may lead to discoveries about trends in international agricultural studies coming from specific geographical areas of the country; or that courses are being offered, but are not required; or perhaps that there is a greater prevalence of international themes in specific disciplines of agriculture such as agricultural economics. If a university website or the department of agriculture's homepage on the website was not functioning or was still under construction, it was noted and not incorporated into the results.

There was no standard format for universities to present the catalogue of courses to the students, or even a requirement that they included an on-line catalogue. Also, curricula and majors offered within the colleges of agriculture varied. One institution may have offered only a handful degree options, others may have offered hundreds of different degrees, all with their own curriculum and course requirements. The implication of researching the curricula and course content for each degree offered within each college of agriculture at each university in the sample was beyond the researcher's scope and abilities. However, the pilot study that used a random sample of just 15 institutions was enlightening and defined the population selection for the full content analysis. It also was invaluable for developing the instrument design; it outlined the relevant areas of interest for the full content analysis and the survey.

Instrument Reliability and Validation

To ensure the reliability of the content analysis, the random sample study described in the previous section was performed in order to identify appropriate areas of interest and define the population. Using the same methods outlined in the random sample study, the researcher completed a full content analysis through a census of all 57 of the 1862 land grant institutions (see Appendix C).

Data Collection

For the full content analysis, a census was conducted using the same methods as the random sample content analysis. Using the institutions' websites, a college of agriculture homepage was found for each institution, if there was one. Each homepage was then searched for a link to international agricultural programs of any kind. If no direct link was available through the homepage, a search was conducted with keywords: international, internationally, global, globally, world, worldwide, trade + international, import, export, world + market, and world + marketplace (see Appendix B for a complete list of the web links used). The intent of this search was not to catalogue the occurrence of the keywords, but simply to ascertain if there were any international activities in agriculture available at each of the 1862 land grant institutions within each respective college of agriculture. The keywords were used as standardizing search guides to evaluate the contents of each website and not as measurement units.

Eight of the 57 land grant institutions did not have schools of agriculture or agricultural studies within other departments at the institution and were therefore discarded from the content analysis (see Appendices B and C, institutions 3, 4, 9, 25, 34, 45, and 52). Twenty of the 49 remaining did not have international programs in agriculture or an international link of any kind on their college of agriculture homepage (see Appendix C for a complete table illustrating findings). Of the remaining 29 institutions (where n=49), 59 percent did have international programs in agriculture; 13 of which listed course content, majors, minors, certificates, or some form of curriculum development as part of their international programs in agriculture.

Data Analysis

The content analysis results were reviewed and evaluated using qualitative methods. Some mean scores were recorded with regard to the number of schools having an international focus of some kind verses those that did not.

Survey

Population Selection

The population for the survey included all 57 of the 1862 land grant institutions identified in the content analysis portion of this study. Since each institution had its own system of organization and there was no unique way of locating each staff or faculty member who was responsible, interested, or otherwise involved in international

programs, the survey's respondents were chosen based on the expert advice from the National Association of State Universities and Land Grant Colleges (NASULGC). NASULGC provided the researcher with a list of the international program directors and committee members from each of the 1862 land grant institutions. A census was conducted through a survey that was distributed via email to all 57 of the 1862 land grant institutions. The researcher anticipated that some of the people on the list might think they were not the most appropriate person to respond to the survey. The letter of introduction attached to each survey reflected the expectation that if the respondent believed it necessary, the survey might be forwarded to an appropriate respondent within each college of agriculture at each institution. Participants of this study were all employees of the 1862 land grant institutions; they were employed in one or both of the fields of agriculture and international studies.

Instrument Design

The survey was designed using the results of the content analysis study to focus the survey and develop the questions. The topics for the questions were derived from the seven subjects identified in the pilot study: 1) study abroad; 2) faculty research and/or programs; 3) graduate research and or programs; 4) training and/or visitors; 5) international students on campus; 6) foreign agreements and/or contracts; and 7) majors, minors, certificates, curriculum, and course content. The survey asked the respondents to describe to his or her best abilities the nature of agricultural undergraduate focus in international studies in the areas defined by the content analysis. Some demographics

were collected but were not used to compare survey answers because the nature of the land grant system may have lead to the identity of respondents. Demographic information was collected to ensure that a wide variety of respondents and institutions were represented. There are no distinguishing features reported in this paper that could lead to identification of respondents.

Instrument Reliability and Validation

To ensure the reliability and validity of the research instrument, a pilot study of the survey was conducted. A small, select group of professionals and education specialists was surveyed to test the usefulness and validity of the questions. The respondents evaluated the survey and identified problems with the questions' content and the web-based method of delivery. Appropriate adjustments were made accordingly before the survey was emailed to all of the 57 institutions.

Data Collection

The data for the survey portion of this study was collected using Zoomerang, a web based survey instrument. Zoomerang is a subscription-based instrument that allows the researcher to design and distribute surveys via email. Twenty-three quantitative and qualitative questions were asked and an explanatory letter of introduction accompanied each survey (see Appendix D).

Data Analysis

The survey results were reviewed and evaluated using both qualitative and quantitative methods. Response rates were recorded for most questions and response ratios are recorded for appropriate questions. Some qualitative responses have been interpreted so that repetitive responses are excluded.

FINDINGS

Descriptions of the Samples

In the content analysis, the original sample population (n=57) was composed of the 57 original 1862 land grant institutions' websites. Eight of the 57 institutions did not have schools of agriculture or agricultural studies within other departments at the institution and therefore, could not be analyzed (see Appendices B and C, institutions 3, 4, 9, 25, 34, 45, and 52). Twenty of the 49 left did not have international programs in agriculture or an international link of any kind on their college of agriculture homepage (see Appendix C for a complete table illustrating findings). Of the remaining 29 institutions, 59 percent did have international programs in agriculture; 13 of which listed course content, majors, minors, certificates, or some form of curriculum development as part of their international programs in agriculture.

In the survey, the original sample population (n=57) was composed of the 57 institutions identified in the content analysis and as represented by one employee of the 1862 land grant institutions; they were employed in one or both of the fields of agriculture and international studies. A total of 31 responses were recorded for a response rate of 54 percent. Only completed and submitted surveys were used; incomplete surveys were omitted. Not all respondents who completed the survey answered every question; therefore, n-values and response rates are noted.

Content Analysis Results

Of the 57 institutions, only 29 institutions were used in the content analysis. Looking only at these 29 institutions (n=29), 59 percent did have international programs in agriculture listed on their websites. Only 13 institutions listed course content, majors, minors, certificates, or some form of curriculum development as part of their international programs in agriculture. Therefore, where n=57, only eight percent of the original 1862 land grant institutions report via their websites that they have incorporated internationalization of course content, majors, minors, certificates or some form of curriculum development as part of internationalizing agricultural studies for undergraduates. The table below illustrates the programs offered and the percentages of the 1862 land grant institutions that offer them.

Table 3. International Programs Offered at 1862 Land Grant Institutions (n=49)

Study Abroad (n%)	Faculty Research and/or Programs (n%)	Graduate Research and/or Programs (n%)	Training and/or Visitors (n%)	International Students on Campus (n%)	Foreign Agreements and/or Contracts (n%)	Major, Minor, Certificate, Curriculum, Course Content (n%)
47%	50%	20%	37%	33%	43%	27%

Participants' Responses to the Survey

Of the 57 institutions surveyed, a total of 31 surveys were submitted for a response rate of 54 percent. Only submitted surveys were used; partially completed surveys that were not submitted by the respondents were omitted. However, respondents who completed and submitted their surveys may not have chosen to answer all of the questions on the survey. In the responses to some of the questions, information that may have identified the respondent but did not affect the pertinence of the response was omitted in order to protect the anonymity of the respondent. Qualitative responses were interpreted so that repetitive responses were omitted.

Undergraduate Students

Question 1: How many undergraduate students at your academic institution were agricultural studies majors in the 2003-2004 academic year? The response rate for this question was 90 percent (see Appendix E for specific responses). Enrollment of agricultural studies majors in the 2003-2004 academic year varied from zero to 4,500 students, with a mean value of 1,668 students.

Question 2: Please select all of the programs that are available for students of agriculture at your academic institution. The response rate for this question was 100 percent; each respondent chose all the responses that applied. The responses to these questions indicated that study abroad was the only program available at all 31 institutions. All of the other programs listed varied in availability from institution to

institution. In Table 4, the response ratio for each international program is indicated. The respondents listed other available programs indicated three unique international programs available to students of agriculture: international internships, self-designed majors, and an Associate Degree.

Table 4: Available International Programs for Agricultural Students

Programs	Frequency	Response Ratio (n%)
Study Abroad	31	100%
International Extension Programs	9	29%
Graduate Research	31	100%
Graduate Programs	28	90%
International Visitors	28	90%
International Visitor Training	21	68%
International Students on Campus	28	90%
Foreign Agreements/Contracts	26	84%
Major	22	71%
Minor	27	87%
Certificate	15	48%
Curriculum/Course Content	25	81%
Other, Please Specify	3	10%

Question 3: Which of the above programs are administered directly through your academic institution's college/department of agriculture? The response rate for this question was 100 percent; each respondent chose all the responses that applied. Table 5 illustrates that there was a wide range of structures and management types present in the institutions that participated in the survey. Some institutions administered a few of their

own international programs; others administered nearly all of them. For those respondents who listed other programs administered directly through their academic institution's college/department of agriculture to students of agriculture, two unique international programs were indicated: self-designed majors and an Associate Degree.

Table 5. Programs Administered Through Institution's College/Department of Agriculture

Programs	Frequency	Response Ratio (n%)
Study Abroad	20	65%
International Extension Programs	11	35%
Graduate Research, Graduate Programs	21	68%
International Visitors	27	87%
International Visitor Training	17	55%
International Students on Campus	13	42%
Foreign Agreements/Contracts	21	68%
Major	19	61%
Minor	23	74%
Certificate	11	35%
Curriculum/Course Content	18	58%
Other, Please Specify	3	10%

Question 4: How many undergraduate students enrolled in agricultural studies majors and/or minors programs at your academic institution studied abroad (i.e. any and all programs designed for and involving study outside the U.S. and its territories) in the 2003-2004 academic year? The response rate for this question was 97 percent. As seen

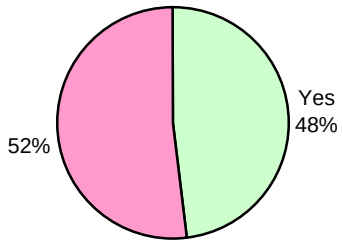
in Table 6, the greatest number of respondents indicated that between 3 and 10 percent of undergraduate students enrolled in agricultural studies majors and/or minors programs at their institutions studied abroad in the 2003-2004 academic year.

Table 6. Frequency of Undergraduate Agricultural Students Who Studied Abroad in the 2003-2004 Academic Year

Category	Frequency	Response Ratio (n%)
Less than 3%	10	33%
Between 3% and 10%	11	37%
Between 10% and 20%	7	23%
Between 20% and 30%	1	3%
Between 30% and 40%	1	3%
Between 40% and 50%	0	0
More than 50%	0	0

Question 5: Does your academic institution offer undergraduate majors with specific international agricultural content and focus? The response rate for this question was 100 percent. As illustrated in Figure 1, response ratios indicated that 48 percent of the respondent's institutions offered undergraduate majors with specific international agricultural content and focus and 52 percent did not.

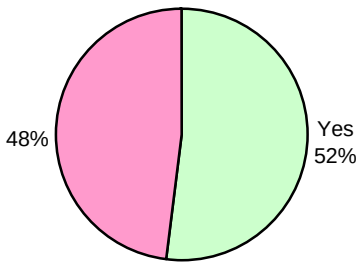
Figure 1: Frequency of Undergraduate Majors with Specific International Agricultural Content and Focus



Question 6: If yes, please list majors below. Fourteen of the 15 respondents that answered yes, their institutions do offer undergraduate majors with specific international agricultural content and focus, indicated what majors they offer. Respondents indicated that majors in international studies are available in a broad range of agricultural subjects and include the following: (1) Agricultural Economics with International Marketing or Trade emphasis, (2) Secondary Major in International Agriculture, (3) Crop and Soil Science, (4) Horticulture, (5) Animal Science, (6) Food Science/Food Industry Management, (7) Agribusiness Management, (8) Agriscience, (9) Agriculture and Natural Resource Communication, (10) Agriculture and Resource Economics, (11) Secondary Major in International Studies, (12) International Agriculture and Natural Resources, (13) International Agricultural Marketing, (14) International, Resource, and Consumer Economics, (15) Tropical Agriculture, and (16) Rangeland and Watershed Management.

Question 7: Does your academic institution offer undergraduate minors with specific international agricultural content and focus? The response rate for this question was 94 percent. As illustrated in Figure 2, response ratios indicated that 52 percent of the respondent's institutions offered undergraduate minors with specific international agricultural content and focus and 48 percent did not.

Figure 2: Frequency of Undergraduate Minors with Specific International Agricultural Content and Focus

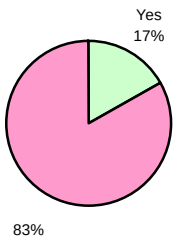


Question 8: If yes, please list minors below. The response rate for this question was 55 percent. Answers 14 and 16 indicated majors or that the institution offered no minors. Therefore, of the fifteen who answered yes to Question 7, their institutions do offer undergraduate minors with specific international agricultural content and focus, all of them indicated what minors they offered. The responses indicated the availability of international studies minors in a broad range of agricultural subject and included the

following responses: (1) International Agriculture, (2) Agricultural Development, (3) International Studies, (4) Agribusiness/Agricultural Business, (5) International Agricultural Marketing, (6) Global Agriculture, (7) Resource Economics, and (8) Environmental Science.

Question 9: Does your academic institution offer undergraduate certificates or specialty emphasis programs with specific international agricultural content and focus? The response rate for this question was 94 percent. As illustrated in Figure 3, response ratios indicated that 17 percent of the respondent's institutions offered undergraduate certificates with specific international agricultural content and focus and 83 percent did not.

Figure 3: Frequency of Undergraduate Certificates with Specific International Agricultural Content and Focus

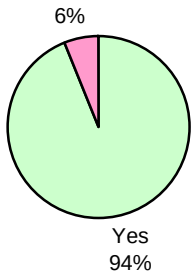


Question 10: If yes, please list certificates or specialty emphasis programs below. The response rate for this question was 16 percent. All of the respondents who answered Question 9, yes their institutions do offer undergraduate certificates with specific international agricultural content and focus, indicated what certificates they offered. The

responses indicated the availability of international studies certificates in several agricultural subjects and included the following: (1) International Studies (2) Environmental Geomatics, (3) Environmental Planning, (4) Fisheries Science, (5) Food Systems, (6) Education and Administration, (7) Horticultural Therapy, (8) International Agriculture/Environment, (9) Social Strategies for Environmental Protection, (10) Urban/Community Forestry, (11) Introduction to Agriculture, (12) Tropical Soils, (13) Animal Science, and an (15) International Option in Agricultural Economics.

Question 11: Does your academic institution offer undergraduate courses with specific international agricultural content and focus? The response rate for this question was 100 percent. As Figure 4 illustrates, response ratios indicated that 94 percent of the respondent's institutions offered undergraduate courses with specific international agricultural content and focus and 6 percent did not.

Figure 4: Frequency of Undergraduate Courses with Specific International Agricultural Content and Focus

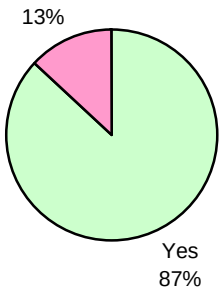


International Students and Visitors

Question 12: How many international students were enrolled in your college/department of agriculture as undergraduate agricultural studies majors in the 2003-2004 academic year? Enrollment of international undergraduate agricultural studies majors, which varied from zero to 374 students, with a mean value of 67 international students. The response rate for this question was 84 percent. However, three respondents reported answers that could not be used in determining the mean number of students; the mean value was calculated using the remaining 23 responses.

Question 13: Does your agricultural college/department provide and/or participate in training of international visitors? The response rate for this question was 100 percent. As Figure 5 illustrates, response ratios indicated that 87 percent of the respondent's agricultural college/department provided and/or participated in training of international visitors and 13 percent did not.

Figure 5: Frequency of Agricultural Colleges/Departments that Provideand/or Participate in Training of International Visitors



Question 14: Does your agricultural college/department participate in hosting international visitors? The response rate for this question was 100 percent. Response ratios indicated that 100 percent of the respondent's agricultural college/department provided and/or participated in hosting of international visitors.

Faculty and Funding

Question 15: What percentage of the agricultural studies faculty employed by your academic institution participated in research and/or programs that were international in nature in the 2003-2004 academic year? As illustrated in Table 7, the response rate was 97 percent and response ratios indicated a wide range of responses.

Table 7. Frequency of Agricultural Faculty Who Participated in Research and/or Programs that were International in Nature in the 2003-2004 Academic Year

Category	Frequency	Response Ratio (n%)
Less than 3%	2	7%
Between 3% and 10%	4	13%
Between 10% and 20%	8	27%
Between 20% and 30%	7	23%
Between 30% and 40%	3	10%
Between 40% and 50%	4	13%
More than 50%	2	7%

Question 16: How many current foreign agreements, grants, and/or contracts exist at your academic institution dealing directly with agricultural studies? The response

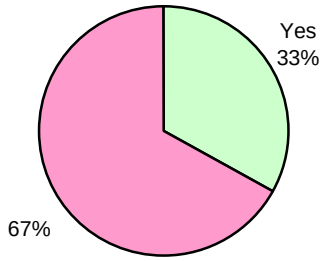
rate for this question was 81 percent. Current foreign agreements, grants, and/or contracts ranged in number from those with zero to institutions with 137 foreign agreements, grants, and/or contracts, with a mean value of 30 per institution. Answers from respondents 7, 16 and 20, and 23 did not indicate exact numbers and were not used in determining the mean. Table 8 illustrates the responses to survey question sixteen.

Table 8. Current Foreign Agreements, Grants, and/or Contracts Dealing Directly with Agricultural Studies

Respondent	Response
1	3
2	8
3	24
4	40
5	4
6	10
7	over 100
8	5
9	35
10	5
11	3
12	20
13	4
14	137
15	8
16	Dozens
17	100
18	15
19	2
20	over 25
21	50
22	137
23	Probably around 20
24	15
25	0

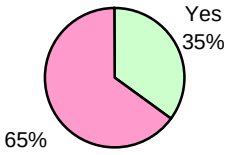
Question 17: Have professors at your academic institution received training on integration of international content into undergraduate curriculum? The response rate for this question was 97 percent. As Figure 6 illustrates, response ratios indicated that 33 percent of the professors at the respondent's institution have received training on integration of international content into undergraduate curricula and 67 percent have not.

Figure 6: Frequency of Agricultural Colleges/Departments that Provide and/or Participate in Hosting of International Visitors



Question 18: Does your academic institution provide incentives to faculty for developing international undergraduate curriculum? The response rate for this question was 100 percent. As Figure 7 illustrates, response ratios indicated that 35 percent of the respondent's institutions provided incentives to faculty for developing international undergraduate curricula and 65 percent did not.

Graph 7: Frequency of Institutions that Offer Training on Integration of International Content into Undergraduate Curriculum



Question 19: Does your academic institution encourage faculty to incorporate international themes into undergraduate curriculum? The response rate for this question was 100 percent. As Figure 8 illustrates, response ratios indicated that 35 percent of the respondent's institutions provided incentives to faculty for developing international undergraduate curricula and 65 percent did not.

Figure 8: Frequency of Academic Institutions that Provide Incentives to Faculty for Developing International Undergraduate Curriculum

Question 20: Please select the top three items, which you believe are the most effective methods of teaching undergraduate students about international agriculture. The response rate for this question was 100 percent. As illustrated in Table 9, respondents indicated that they believe study abroad experiences are the most effective way to teach undergraduate students about international agriculture. When respondents indicated methods other than those listed, two unique methods of teaching undergraduate students about international agriculture: (1) international internships and (2) undergraduate research on agriculture and biology topics.

Table 9. Respondent's Selection of the Most Effective Methods of Teaching Undergraduate Students About International Agriculture

Most Effective Method	Frequency	Response Ratios (n%)
Study Abroad	31	100%
Curriculum/Course Content	21	68%
International Students on Campus	15	48%
Foreign Agreements/Contracts	8	26%
International Visitors	5	16%
Major	4	13%
Minor	4	13%
International Extension Programs	3	10%
Other, Please Specify	2	6%
Certificate	1	3%
International Visitor Training	0	0%

Question 21: Please provide any comments and ideas you may have about the integration of international studies into undergraduate agricultural curriculum. The response rate for this question was 35 percent. The following comments were submitted:

(1) We need to show direct benefit to students, such as placement rate upon graduation or quotes from agricultural firms about international importance

(2) It is very important for their global understanding.

(3) We have asked and encouraged our faculty to incorporate an international dimension in all courses taught to undergraduates. Some courses have more emphasis than others depending on the course subject matter.

(4) The problem is the perception that it is not an important topic and that there would not be much student interest.

(5) It seems to work best at upper division/graduate level.

(6) We have formed a Global Agriculture Student Organization to promote interaction between domestic and international majors in agriculture.

(7) Budget cuts have adversely affected our international programs.

(8) The only effective means to integrate international studies into the undergraduate curriculum is to travel abroad.

(9) It is important to get the students physically out of the country; they need to travel to get the experience they need.

(10) It is essential, but given only token support at our institution.

(12) Recruitment.

Question 22: What problems or setbacks have you faced in the integration of international studies into undergraduate agricultural curriculum at your institution? The response rate for this question was 55 percent. The following comments were submitted:

(1) The September 11 terrorist attacks have caused many to be uneasy about international programs. We must discuss the international impact of global practices on our home (environmental impact, quality of life, economic impact). Students need to be shown and provided with the tools to apply their experience. How do they communicate their experiences to others? How do they apply it to their personal and professional lives? These questions need to be discussed in any undergraduate international program.

(2) Some setbacks are language, scarce scholarships, desire to travel overseas, and understanding value of international experience in career development

(3) Professors need to be enthused about the value of international involvement.

(4) There are no serious problems. Some faculty are reluctant to change their course syllabus to incorporate the international dimension; they may feel it is a time issue to do so and still teach what needs to be done.

(5) It is difficult to expand curriculum scope without additional resources.

(6) Funding is a setback. Our entire University is low on resources and international programs are particularly low.

(7) Currently there are no problems. Until the past couple of years, there was minimal administrative support at the highest levels of the university.

(8) Our biggest problem is our structure. Academic programs are largely issues for departments and our academic programs office. Our international programs office is separate, and we have to work to help our colleagues understand that we can help them out in the international arena.

(9) Our programs were merged, resulting in a lack of perceived support and encouragement for students and faculty with international interests.

(10) There is not a reward structure for faculty.

(11) Our faculty numbers are low, and faculty is focusing on core material. We need more faculty.

(12) We face an unfavorable response from the agricultural industry stakeholders and a lack of support from the Dean.

(13) We need more funding for faculty and students.

(14) Students have difficulty fitting study abroad into their programs.

(15) We have no advisement.

(16) We face a lack of faculty and student interest.

(17) We have no problems.

Question 23: Please provide any comments and ideas you may have about this survey instrument. The response rate for this question was 26 percent. The following comments were submitted:

(1) I am unable to provide the exact numbers needed.

(2) Internationalizing the undergraduate curriculum and giving all students an international perspective are critical. Your survey should provide some information on what our institutions and colleges are doing.

(3) Some questions are vague; in questions two and three, for instance, are you referring to international graduate research programs?

(4) It was well done and easy to use.

(5) I found many questions poorly defined. I made a best guess at your intention and hope I was correct.

(6) I would like to see the final results.

(7) Best Wishes.

(8) For questions 15 and 16, I have no idea; no central records are kept. For question 17, not since I came here. Records indicate a workshop was offered before that time. For question 19, the encouragement has no organization and no tangible rewards. Committees tend to discourage international work.

SUMMARY, CONCLUSINOS, IMPLICAITONS, AND RECOMMENDATIONS

Summary

The objectives of this study were (1) to determine what the 1862 land grant institution's colleges of agriculture are incorporating international content and perspective into undergraduate agricultural studies; and (2) to examine the nature of these programs. The findings presented provide the evidence needed to satisfy the objectives.

Content Analysis

The qualitative content analysis revealed that in the 13 schools that have a specific international focus of some kind, that focus is not tied any specific agricultural discipline. A study completed in 1994 at Iowa State University reported similar findings were reported. Comparisons among majors within the college of agriculture did not indicate any substantial differences across majors in student interest and knowledge of international agriculture (Mason, et al. 1994). International programs in agriculture were extant in all agricultural disciplines from agricultural economics to animal and crop sciences.

Further, among the 13 institutions offering international curriculum, course development, majors, minors, and/or certificates varied greatly with respect to their methods. Although global studies minors, specializations, and certificates were available at some institutions, only one elective course was offered at some other institutions.

Among the minors, specializations, and certificates available, most requirements were satisfied by courses taken outside the college of agriculture and did not involve international agriculture curricula. The web page based content analysis also revealed that gaps exist with respect to information on international program development in colleges of agriculture. Thus, further confirmation of the structure of international programs may be warranted that uses additional information collection procedures such as analysis of course catalogs and face-to-face interviews with administrators and faculty.

The content analysis portion of this study provided evidence about trends within 1862 land grant universities with respect to the internationalization of agricultural studies. Colleges of agriculture currently utilize study abroad programs; faculty-based programs; hosting international training programs and visitors; increasing enrollment and awareness of international students on campus; and encouraging agreements and contracts with foreign institutions. All of these programs impact undergraduate curricula. However, many of these programs have been in place for a long time and have always had some effects on undergraduate curricula (National Research Council, 1992). While the content analysis mapped the current state of curriculum internationalization within colleges of agriculture overall, it could not provide insights about how undergraduate agricultural curricula have changed over the past fifteen years. Both graduate studies and curricula represented the lowest proportion of the current initiatives to internationalize agricultural studies at land grant institutions.

Survey

The survey component of this study provided additional evidence about the current extent of internationalization of agricultural studies. The institutions that participated in this study varied demographically and structurally. The numbers of enrolled agricultural studies majors ranged from zero to 4,000 students. As in the content analysis, the available international programs for undergraduate students of agriculture ranked similarly, with study abroad and international visitors/students on campus ranked as the most widely existing programs. However, the survey data also indicated that many of the other programs with international foci are widely available at the institutions that participated in the survey.

In addition, survey respondents indicated undergraduate majors and minors with specific international agricultural content and focus were available in many land grant institutions; such majors were available at 48 percent of responding institutions and minors with an international focus were available at 52 percent of those institutions. Also, 94 percent of respondents reported that their institutions offer undergraduate courses with specific international agricultural content and focus.

Training for, and visits by international participants appear to be a prevalent techniques for internationalizing agricultural programs, as well as increasing enrollment and awareness of international students on campus. All respondents reported that their colleges of agriculture host international visitors and 87 percent reported that their colleges participate in training international visitors. This is almost certainly an effective internationalization technique for campuses across the nation and the American Council

of Education has reported an increase of international scholars on campuses (Hayward, 2000). However, while many administrators and faculty believed that study abroad programs are the most effective way of internationalizing undergraduate curricula, agriculture students who studied abroad in the 2002-2003 academic year made up only 1.5 percent of all U.S. students who studied abroad, by far the lowest percentage of all fields of study for that academic year (Institute of International Education, 2004).

When respondents were asked to comment on problems or setbacks they have faced with regard to these developments, respondents most frequently cited the following issues (in descending order of frequency): lack of support, lack of funding or resources, and lack of enthusiasm from both professors and students. Ninety percent of the respondents reported that their academic institution encouraged international themes in their undergraduate curricula. Yet, 67 percent reported that they had not received training in order to integrate international themes and 65 percent report that there was no incentive for faculty to develop international undergraduate curricula.

Conclusions

The results of the content analysis and the survey provided new evidence about the current state of internationalization in the colleges of agriculture in the 1862 land grant institutions. The nature of these programs is predictable, yet approaches, support and implementation vary widely between institutions. Furthermore, faculty and administrators all appeared to recognize many of the same programs as important to

teaching students and developing a global perspective in undergraduate studies. The respondents also identified limitations to these developments. For example, all the respondents reported that they thought study abroad to be the most effective method of teaching undergraduate students about international agriculture. Nevertheless, even though study abroad ranked as the most commonly available undergraduate international program, 33 percent of the respondents reported that less than 3 percent of their agricultural students enrolled as majors and /or minors in agricultural studies actually studied abroad in the 2003-2004 academic year. Thirty-seven percent reported that between 3 percent and 10 percent of their students study abroad and 23 percent reported that between 10 percent and 20 percent of their agricultural students studied abroad in the 2003-2004 academic year. Still, as noted above, in the 2002-2003 academic year, agriculture students made up only 1.5 percent of all U.S. students who studied abroad, by far the lowest percentage of all fields of study for that academic year (Institute of International Education, 2004).

The results of this study cannot be compared statistically with the national averages recorded in 2002-2003, but it appears as though faculty and staff perceived an increase in the number of agricultural students who have studied abroad. Yet, the national average shows a much lower number of agriculture students who traveled abroad than students in any other field of study. This indicates that the responses given on the survey with regard to study abroad averages may not be reliable.

The use of the term study abroad may be defined in different ways to include all overseas programs (including, for example, short term summer programs) or perhaps

only semester-long or annual programs of study abroad. This may account for the higher estimates the respondents gave, since the national average only included semester-long programs. It may also be that the respondents were simply overly generous with their estimates.

It should be noted that these findings raise an important issue. Study abroad programs were widely recognized by survey respondents as the most valuable internationalization technique, yet the evidence shows that it is not widely utilized. Unless study abroad programs are required, most students are unlikely to choose to benefit from this type of experience. Study abroad is not required and it is not an experience of which every student will be able to take advantage. In King and Martin's study on infusing global perspectives into the undergraduate classroom, faculty and student's own international experiences were ranked the lowest by respondents among methods utilized to add a global perspective to curricula, below classroom debates and films, slides, videos and guest speakers (1994). King and Martin's (1994) results, therefore also provide further support for the hypothesis that while study abroad programs might be perceived as the best approach to internationalizing agricultural studies, they are among the least utilized.

When respondents in this study were asked to comment on problems or setbacks they have faced with regard to these developments, the most popular responses cited (in descending order) were: lack of support, lack of funding or resources, lack of enthusiasm from both professors and students. Ninety percent of the respondents reported that their academic institution encouraged international themes in their undergraduate curriculum.

Yet, 67 percent reported that they had not received training in order to integrate international themes and 65 percent report that there is no incentive for faculty to develop international undergraduate curricula.

Responses to the questions that relate directly to the respondent's experiences may have provided the most reliable data compiled in this study. Beliefs about setbacks they have faced and their perceptions about the best programs for teaching international studies are opinion-based questions. Also, the level of involvement the respondent had in the question's subject may have increased the reliability of the answer. For example, Figure 5 shows that 87 percent of respondent institutions participated in foreign student programs. Table 5 shows that only 42 percent of international student programs were administered through the responding institution's college/department of agriculture. Therefore, faculty may not have been as aware of the true numbers of foreign agricultural students. However, Table 5 also shows that 87 percent of the institution's college/department of agriculture hosted international visitors and Figure 6 shows that 67 percent of the respondent's institutions did not host international visitors. Because of each respondent's direct contact with international visitors, responses may have been more accurate than those involving international visitors. The respondents were undoubtedly able to answer more accurately questions about their own beliefs, training and experiences, lending credibility to this data.

Implications

The data in this study indicated that the scope and relative importance of international studies at the 1862 land grant institutions is often driven by financial considerations. Faculty research and faculty based programs are primarily funded by external grants, which bring money to the universities. With few exceptions, students fund study abroad programs. Foreign visitors, training, and international students all bring money to universities. In each case, the source of the funding does not originate with the university, but from an outside source giving money to the university. Additionally, in most cases such programs have been in place at the universities for some time. The content analysis revealed that college of agriculture websites target agriculture students for study abroad, highlight international students and visitors, and heavily feature faculty research projects, agreements and contracts that involve foreign countries. These programs undoubtedly have value and enhance the overall international image in schools of agriculture without expense to the university.

In the survey, respondents reported that 94 percent of their institutions offer undergraduate courses with specific international agricultural content and focus. In a National Research Council study reporting university upper administration officials' priorities for international activities, only four out of the entire 13 reported priorities were related to undergraduate curricula: (1) encourage foreign language study, (2) inclusion of international content in curriculum, (3) study and internships abroad, and (4) area studies

programs (1992). Thus, there appears to be no lack of understanding of the importance of the internationalization of education.

The overall results of this study indicated that international content appears to be incorporated within undergraduate curricula many 1862 land grant institutions. The presence of these programs was largely unobservable in the content analysis of college of agriculture websites, but is more clearly articulated in the survey results reported in this study. This discrepancy may be because there are no clear definitions or standards for adequate internationalization, international literacy, or evaluation of competence (National Research Council, 1992). Also, respondents reported in questions 21 and 22 that faculty and students are unenthusiastic about the need for international studies. Thus, given that websites are largely designed by faculty and staff to appeal to students, it may not be necessary for those websites to provide information on global aspects of curricula in order to attract students.

Recommendations

This study may provide administrators and educators of land grant institutions with new insights into the complex issues involving the internationalization of curricula and the current state of international literacy in academic agricultural programs. The data of this study suggest that administrators and educators should consider the following recommendations:

(1) If undergraduate students wish to obtain international perspectives in their agricultural studies programs, then study abroad, although it may be costly and require planning, is likely to be the most effective option.

(2) If administrators of colleges of agriculture wish to make positive, lasting initiatives that infuse international perspectives into undergraduate studies, then they may need to provide training and support for faculty and staff that fosters enthusiasm for those programs.

(3) If international programs and coordinators of international agriculture programs wish to internationalize agricultural studies, they should consider employing several programs among the wide range of programs currently in use at the 1862 land grant institutions that are identified in this study.

(4) Further research is possible using data collected in this study. For example, examining the size and location of the schools with regard to the types of programs they offer, the extent of foreign agreements and contracts, and the number of foreign agricultural students enrolled at the institution may lead to further insights into the current trends of international education at 1862 land grant institutions.

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APPENDICES

APPENDIX A

1862 LAND GRANT UNIVERSITY WEBSITES

USED IN RANDOM SAMPLE CONTENT ANAYLSIS

1) University of Maryland, College of Agriculture and Natural Resources (2003). Retrieved December 7, 2003 from http://www.agnr.umd.edu/

2) Louisiana State University, College of Agriculture (2003). Retrieved December 7, 2002 from http://www.coa.lsu.edu/index1024.html

3) University of New Hampshire, College of Life Sciences and Agriculture (2003). Retrieved December 7, 2003 from http://www.colsa.unh.edu/

4) College Micronesia – FSM (2003). Retrieved December 7, 2003 from http://www.comfsm/programs.html

5) University of Nevada, College of Agriculture, Biotechnology and Natural Resources (2003). Retrieved December 7, 2003 from http://ag.unr.edu/cabnr/

6) University of Missouri, College of Agriculture, Food and Natural Resources (2003). Retrieved December 7, 2003 from http://cafnr.missouri.edu/

7) Oklahoma State University, Agriculture Communications Services (2003). http://agcomm.okstate.edu/

8) North Dakota State University, College of Agriculture, Food Systems, and Natural Resources (2003). Retrieved December 7, 2003 from http://www.ag.ndsu.nodak.edu/colag/teaching.htm

9) University of Rhode Island, College of Arts and Sciences (2003). Retrieved December 7, 2003 from http://www.uri.edu/artsci/bio/

10) Washington State University, College of Agriculture and Home Economics (2003). Retrieved December 7, 2003 from http://www.cahe.wsu.edu/

11) Virginia Tech., College of Agriculture and Life Sciences (2003). Retrieved December 7, 2003 from http://www.cals.vt.edu/

12) North Carolina State University, College of Agriculture and Life Sciences (2003). Retrieved December 7, 2003 from http://www.cals.nscu.edu/

13) Rutgers University, Life and Environmental Sciences (2003). Retrieved December 7, 2003 from http://admisions.rutgers.edu/html/020106_1.asp

14) Texas A&M University, College of Agriculture and Life Sciences (2003). Retrieved December 7, 2003 from http://coals.tamu.edu/

15) University of Tennessee, College of Agricultural Sciences & Natural Resources (2003). Retrieved December 7, 2003 from http://www.casnr.utk.edu/

APPENDIX B

CONTENT ANALYSIS

Institution	International Programs in Agriculture	Study Abroad	Faculty Research and/or Programs	Graduate Research and/or Programs	Training and/or Visitors	International. Students on Campus	Foreign Agreements. and/or Contracts	Major, Minor, Certificate, Curriculum, Course Content
1	Yes	√	√		√	√	√	
2	Yes		√		√	√	√	
3	No							
4	No							
5	Yes	√	√	√	√	√	√	
6	Yes	√	√	√	√	√	√	√
7	Yes	√	√		√	√	√	
8	No							
9	No							
10	No							
11	No							
12	Yes	√	√	√	√	√	√	√
13	No							
14	No							
15	No							
16	No							
17	Yes	√				√		
18	Yes	√	√	√	√	√	√	√
19	Yes	√	√		√	√	√	
20	Yes	√	√		√		√	
21	No							
22	Yes	√	√		√	√	√	
23	Yes					√		√
24	Yes	√	√	√	√		√	√
25	No							
26	Yes	√	√		√	√	√	
27	Yes					√		√
28	No							
29	No							
30	Yes	√						
31	No							
32	No							
33	No							
34	No							
35	No							
36	No							

Institution	International Programs in Agriculture	Study Abroad	Faculty Research and/or Programs	Graduate Research and/or Programs	Training and/or Visitors	International. Students on Campus	Foreign Agreements. and/or Contracts	Major, Minor, Certificate, Curriculum, Course Content
37	No							
38	Yes	√	√	√			√	√
39	Yes	√	√		√	√	√	
40	Yes	√	√					√
41	Yes	√	√				√	√
42	Yes							√
43	Yes	√	√	√	√		√	√
44	Yes		√		√	√	√	
45	No							
46	No							
47	No							
48	Yes	√	√				√	√
49	Yes	√	√		√			
50	Yes		√	√			√	
51	No							
52	No							
53	Yes	√	√	√		√		
54	Yes	√	√		√		√	
55	Yes	√	√	√	√		√	√
56	No							
57	No							

APPENDIX C

CONTENT ANALYSIS WEB RETREIVAL INDEX

1) Auburn State University, Office of International Agriculture (2004). Retrieved April 16, 2004 from http://www.ag.auburn.edu/international/index.htm

2) University of Arizona, College of Agriculture and Life Sciences, Office of International Programs (2004). Retrieved March 29, 2004 from http://cals.arizona.edu/oiap/

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4) American Samoa Community College, Government Listings (2004). Retrieved March 29, 2004 from http://samoanet.com/asg/asgascc97.html

5) University of Arkansas, Dale Bumpers College of Agricultural, Food and Live Sciences, International Agricultural Programs (2004). Retrieved March 29, 2004 from http://www.uark.edu/depts/intagpro/index.htm

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7) University of California at Davis, College of Agricultural and Environmental Sciences (2004). Retrieved March 29, 2004 from http://caes.ucdavis.edu/IntProg/Default.htm

8) University of Connecticut, College of Agriculture and Natural Resources (2004). Retrieved March 29, 2004 from http://www.canr.uconn.edu/

9) University of the District of Columbia (2004). Retrieved March 29, 2004 from http://www.univeristyofdc.org/detail.php?sid+1&aid+283

10) University of Delaware, College of Agriculture and Natural Resources (2004). Retrieved March 29, 2004 from http://ag.udel.edu

11) University of Florida, College of Agriculture and Life Sciences (2004). Retrieved March 29, 2004 from http://cals.ufl.edu/index_hi.htm

12) University of Georgia, College of Agriculture and Environmental Sciences, Office of International Agriculture (2004). Retrieved March 29, 2004 from http://www.uga.edu/int-ag/

13) University of Guam (2004). Retrieved March 29, 2004 from http://www.uog.edu/colleges/index.htm

14) University of Hawaii, College of Agriculture, Forestry and Natural Resource Management (2004). Retrieved March 29, 2004 from http://www.uhh.hawaii.edu/~cafnrm/

15) University of Illinois, College of Agricultural, Consumer and Environmental Sciences (2004). Retrieved March 29, 2004 from http://www.aces.uiuc.edu

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27) Mississippi State University, College of Agriculture and Life Sciences, Agricultural Information and Science Education (2004). Retrieved March 29, 2004 from http://www.ais.msstate.edu/

28) Montana State University, College of Agriculture (2004). Retrieved March 29, 2004 from http://ag.montana.edu/

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41) Ohio State University, College of Food, Agriculture, and Environmental Sciences (2004). Retrieved March 29, 2004 from http://cfaes.osu.edu/

42) Oregon State University, College of Agricultural Sciences (2004). Retrieved March 29, 2004 from http://agsci.oregonstate.edu/

43) Pennsylvania State University, College of Agricultural Sciences (2004). Retrieved March 29, 2004 from http://www.cas.psu.edu/

44) University of Puerto Rico, College of Agricultural Sciences (2004). Retrieved March 30, 2004 from http://www.uprm.edu/agricultura/

45) University of Rhode Island, College of Arts and Sciences, Department of Biological Sciences (2003). Retrieved December 7, 2003 from http://www.uri.edu/artsci/bio/

46) Clemson University, College of Agriculture, Forestry and Life Sciences (2004). Retrieved March 29, 2004 from http://virtual.clemson.edu/groups/CAFLS//

47) South Dakota State University, College of Agriculture and Biological Sciences (2004). Retrieved March 29, 2004 from http://www3.sdstate.edu/Academics/CollegeOfAgricultureAndBiologicalSciences/Index.cfm

48) University of Tennessee, Institute of Agriculture, College of Agricultural Sciences and Natural Resources (2003). Retrieved December 8, 2003 from http://www.casnr.utk.edu/

49) Texas A&M University, College of Agriculture and Life Sciences (2003). Retrieved December 8, 2003 from http://coals.tamu.edu/

50) Utah State University, College of Agriculture (2004). Retrieved March 29, 2004 from http://www.ag.usu.edu/

51) University of Vermont, College of Agriculture and Life Sciences (2004). Retrieved March 29, 2004 from http://www.uvm.edu/cals/

52) University of the Virgin Islands (2004). Retrieved March 29, 2004 from http://www.uvi.edu/pub0relations/uvi/top.html

53) Virginia Polytechnic Institute and State University, College of Agriculture and Life Sciences (2003). Retrieved December 7, 2003 from http://www.cals.vt.edu

54) Washington State University, College of Agriculture and Home Economics (2003). Retrieved December 7, 2003 from http://www.cahe.wsu.edu

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56) West Virginia University, Davis College of Agriculture, Forestry, and Consumer Sciences (2004). Retrieved March 29, 2004 from http://www.caf.wvu.edu/

57) University of Wyoming, College of Agriculture (2004). Retrieved March 29, 2004 from http://www.uwyo.edu/agcollege/

APPENDIX D

SURVEY INSTRUMENT LETTER

October 12, 2004

Dear Agricultural Educator,

You have been selected to participate in a study regarding international agricultural education efforts within your academic institution. Following is a questionnaire regarding issues pertaining to international agricultural education. The purpose of this questionnaire is to solicit input from professionals and assemble information on the content and nature of current international undergraduate studies programs at land grant institutions across the country.

It is my hope that a study such as this will be useful to all of us by increasing our understanding of developments in the internationalization of undergraduate agricultural curriculum and to help guide future changes. Based on your input and on the input of other professionals like you, the results from this questionnaire will be analyzed and made public through a Masters Thesis publication at Montana State University. A general list of all of the institutions asked to respond to this survey will be noted. However, the survey responders and their respective institutions will not be identified in the final publication of the study.

Listed below are questions that we have identified as primary areas of interest in international agricultural education. We ask that you provide your best response to each question. You may provide your comments and concerns in the general response section at the end of the questionnaire.

Thank you, in advance, for your time and help in completing this important questionnaire! Please respond electronically to these questions by October 31, 2004. If you have any questions or concerns please use the following contact information to reach Dr. Frick or me.

Martin J. Frick, Ph.D.
Shannon E. Brooks
Agricultural Education
116 Cheever Hall
Montana State University
Bozeman, MT 59717 – 3740

email: sebrooks@montana.edu
phone: 406-579-2965

Sincerely,
Shannon E. Brooks

APPENDIX E

RESPONSES TO SURVEY QUESTION 1

Respondent	Agricultural Studies Majors in the 2003-2004 Academic Year
1	0
2	1913
3	2000
4	1121
5	2,400
6	400
7	2,500
8	993
9	1562
10	3,579
11	875
12	800
13	2,169
14	819
15	2400
16	1200
17	2,000 in our college
18	3000 in ag and biological sciences
19	1632 students
20	12
21	2000
22	College of Ag and Environmental Sciences has 4500 enrolled, how do you define Ag Studies majors?
23	2400
24	246
25	630
26	4000 in agriculture, forestry, and life sciences
27	Approximately 1300
28	250-in a variety of agriculturally-related majors