

Foreign Study Programs and International Research Internship – A Technique for Teaching Agriculture

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Abstract

Foreign study programs and international research internships require careful planning and are expensive in terms of faculty time and total cost. But both faculty and students involved in such programs in agriculture at The Ohio State University consider the programs unsurpassed as a teaching tool.

International internships and foreign study programs for agricultural students can produce major changes in students' outlook and alter the direction of their lives. More tangible objectives mentioned often by faculty members involved in such programs include:

1. Development of an appreciation of history, customs, and culture of people of other countries;
2. Understanding of foreign agricultural production methods, marketing techniques, processing procedures, and utilization trends;
3. Acquaintance with outstanding agricultural scientists and/or experience in internationally acclaimed laboratories which will make reading the scientific agricultural literature much more meaningful in the future; and,
4. Development of an international rather than a national frame of reference which will give new insights into world agricultural problems.

With these objectives in mind, The Ohio State University in 1969 initiated study of agriculture at foreign universities. About 30 students have used this opportunity, studying in India, Brazil, The Philippines, The Netherlands, France, and Australia. The college has also conducted agricultural study tours in Europe and Latin America (Ockerman, 1971 and 1974). In addition the Ohio State University cooperates with other CIC Colleges of Agriculture and currently has a study tour program available. The research internships program (Plimpton, 1977) began in 1974, and cooperative efforts have been established in France, Germany, The Netherlands, Poland, South Africa, and Sweden.

Types of International Experience

Several distinct types of international study programs have evolved in the Department of Animal Science at Ohio State, and a single student's experience may include more than one category. Briefly, the types are:

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1. Foreign University Enrollment

Initial programs of this type were located where the College of Agriculture and Home Economics had cooperative agreements with the host country and where Ohio State faculty members were present. As faculty gained expertise and cooperative understanding was achieved, student opportunities at other universities in other countries became available. Animal Science students obtained classroom experience in Brazil, Australia, and India. In all cases, the experiences lasted about three academic quarters. Students need at least one and one-half to two years preparation time to take adequate advantage of these opportunities. Courses taken at OSU which were helpful in preparation for classroom experiences include international studies, language of host country, agricultural courses, political science, geography of host country, and rural sociology. Visiting with faculty and students with international experience in the host country or in similar countries is an indispensable form of preparation. This must be followed by considerable study of the new environment. The OSU preparatory course programs were designed after a thorough examination of the courses that students planned to take at the foreign university. These later courses were scheduled, where possible, with the advice of the foreign university faculty. In all cases credits were transferred to OSU; but, as in many transfers situations, evaluation was difficult and total uniformity almost impossible. Under these conditions a full-time student received credit at approximately 2/3 that normally received at OSU. Pre-planning included development of a series of short trips within the country of the host university. These trips were limited to weekends or vacation and, due to limited time, restricted somewhat the opportunity to view the practical side of agricultural production and processing.

2. Group Study Tour Program - This program involves preparation at the home university and travel to a foreign agricultural location for observation and inspection.

Ockerman (1971 and 1974) has evaluated experiences of Departmental members with this type of program. Selection of students for this program was formal and included faculty recommendations, personal interviews, and evaluation of a student's background courses in Animal Science, and his maturity and ability to function in a group environment. The pre-tour preparation was both intensive and extensive, consisting of three hours of class discussion and a minimum of six hours of library work per day for a five-week period prior to the tour. The students wrote papers and listened to 275 topic papers (one per student per day) dealing with the areas to be visited. Twenty-five guest speakers discussed their

international agricultural experience with the class, and local tours were conducted for comparison purposes. Students read the history, latest annual reports, and research papers of places and people to be visited. The government, geography, history, livestock, food, and the agricultural and educational systems of the country to be visited were also studied. Each study tour student was required to be able to speak a few phrases and to read approximately 100 designated words in an assigned language. The quantity of pre-tour preparation is probably the largest and most important difference in college study tours that are currently being conducted. The tour was led by a professor in the Department of Animal Science who was active in teaching. Tour and tour stops were structured to give the students varied experiences in Animal Sciences. Included were research organizations, farms, universities, marketing and distribution centers, all related to the production and utilization of livestock and livestock products. The tour lasted five weeks and offered little flexibility during that period; however, a ten-day free period after the formal tour allowed students to view, in depth, areas of specific interest. Students were required to submit a technical paper on their experiences during the tour. Several meetings were held after returning to Columbus to crystallize what had been seen and to duplicate and share slides and films. Several seminars were also conducted with interested faculty members and students to share these educational experiences.

3. Work and Study Experiences

- A. Individual travel study** - This involves in-depth observation of the agricultural industry in the host country. A program of this type is difficult to arrange, and the experiences gained require extensive student initiative. A "home base" is needed and a cooperative host is also extremely helpful. This program, the least formally organized, is therefore the weakest of the types described; however, if adequately planned, it can be very useful.
- B. Internships in a foreign agricultural industry** - These experiences are extremely variable. In most cases, after selection of the host, the program requires little supervision from the home university. Agricultural jobs held by students in host countries vary from farm labor to work in an agricultural product processing plant. These experiences are generally similar to a job in the host country in which work experiences are obtained and the student is earning money. Wise selection of the host is essential and often an intelligent decision cannot be made until the first student has been involved in the work environment. Currently a number of two-way international exchanges are being formalized within individual countries. This approach promises a desirable arrangement. The Animal Science Department has had students working and observing in the agricultural and

food industry in several host countries, the most experience being in Brazil, Germany, France, South Africa, Poland, and the U.S.S.R. Lead time depends on the difficulty of the language of the host country, and the experience of the OSU Animal Science Department has been primarily with internships that require a language proficiency. Helpful courses taken at OSU include foreign language, agricultural and food courses, biochemistry, biology, geography and political science. Such an experience requires self-study and motivation.

4. Agricultural Research Internships

This approach is similar to 3B above except that a research organization or a large company involved in research is utilized. Foreign research persons involved with such an operation are accustomed to supervising personnel seeking academic information. In most cases, projects should be pre-planned and coordinated by the U.S. university advisor after adequate consultation with the host researcher. This permits the student to prepare by searching the literature, planning the project objectives, and designing the experiment. This takes time because of the distance involved, but it is time well spent once the student arrives in the host country. Usually the host researcher suggests two or three project areas, the student gains adequate background information through the literature, and then the student selects the project to be researched.

Once a student arrives at the research organization in the host country, 90 per cent of the time is spent working on the special project. Plimpton (1978) outlined the advantages of a food research internship as follows:

- (a) Exposure to industry-oriented research;
- (b) Exposure to research as a single activity;
- (c) Exposure to new people in an international setting;
- (d) Exposure to new laboratories and procedures;
- (e) Exposure to different equipment;
- (f) Exposure to product development emphasis; and,
- (g) The intangible benefits of working with people in another cultural setting.

Some OSU foreign research interns have received salaries large enough to cover living expenses, but not transportation. Others have a salary comparable with the workers of the foreign institution. Living quarters were usually provided at a modest cost. This resulted in exposure to visiting researchers and other international students. Animal Science students have had research experience in Brazil, France, Sweden, and The Netherlands. The research has lasted from three months to one year. Other students have had research internships at the same location in succeeding years. Preparation time required for these research programs is determined by the language requirement and the student proficiency in his or her selected discipline. Courses taken at OSU that students found most helpful include agricultural and food

courses, statistics, chemistry, biochemistry, biology, and host country literature and language. OSU credit was given after successful completion of the research internship and subsequent data analysis and report.

Results

As Viewed by Faculty

Faculty believe the international programs accomplish the proposed objectives, increasing students' appreciation for history, customs, and culture; acquainting them with outstanding agricultural scientists and laboratories; and providing an international frame of reference. Faculty noted other benefits. The students' maturity increased at the rate of 2-5 times the equivalent of spending time at the University. The importance of their study or research and proficiency in a foreign language became more meaningful. Students also developed a greater appreciation for the humanities and an increased appreciation for our country and our democratic society. Students experienced a change in attitude toward those viewpoints held by people who have experienced a crisis (such as The Depression or WWII). The increased maturity and strengthening of attitude were probably fostered by the students' recognition that this was his first opportunity to represent his country and his university in a foreign environment. Participants were very interested in creating a favorable impression.

Foreign university enrollment allowed the student to look critically at a different type of education and to review his whole concept of education. It also provided him insight into education as viewed by the society. In the "foreign university" environment, a one-to-one relationship with international faculty was often established and a more in-depth understanding of the agriculture of the host country was obtained.

In the "group study tour" environment, all four previously mentioned objectives were accomplished. The major strength of this program was appreciation for history, customs and culture, and development of an international viewpoint. With this program more countries may be visited and viewed from a cross-cultural standpoint. The weaknesses of the "study tour" program were that a less in-depth view of agriculture in a specific area was obtained and less time was spent with any one outstanding agricultural scientist. As a result, less insight into his philosophies was gained.

In the "individual travel" approach the development of appreciation for history, customs, and culture was strengthened and an international frame of mind was also fortified. The weakness of this program was lack of indepth work in, and understanding of, foreign agricultural production methods, techniques, and processing procedures. Generally this problem resulted from inadequate preparation prior to initiation of the program. Also lacking was an adequate interpretation of experiences since generally only one student was involved at one time and opportunity for evaluation and discussion of experiences was lacking. This was probably the weakest of the programs and depended almost entirely on the student's

initiative and creativity to develop an outstanding experience.

"Individual internships" in a foreign country gave the student a deep but narrow glimpse of the host country's agricultural industry. It had the decided advantage of giving the student insight into the average agricultural worker's thoughts in relation to the total agricultural picture.

Plimpton (1978) outlined some advantages of the "research internship." Internship also exposed students to industry-oriented research rather than to the academic research of U.S. universities. It allowed students to interact with research workers trained in an educational system that fosters an approach to agricultural experimental design and project development different from that of U.S. universities. The student was also exposed to industries and laboratory equipment not usually encountered in the United States. In addition the student was involved in the exchange of research ideas and methodology. Selection of the advisor and agricultural host was critical to the success of this program. The program is probably not appropriate for all U.S. students. To succeed, students must be research-oriented, self-motivated, not time-conscious, extremely mature, and have the appropriate attitude for cross-cultural experiences. Because the program is expensive to the host country a two-way exchange allowing expenses to be shared is advisable. Pre-planning is essential, as it was with the group study program.

As Viewed by Students

Two surveys measured student reaction to these international experiences. Table 1 summarizes evaluations by eleven students participating in a study tour program. Table 2 summarizes reactions of all Animal Science students who have participated in foreign agricultural study programs or international research internships other than those students represented in Table 1. All students were sent questionnaires related to their experiences. Length of time since the representatives had been involved in these programs ranged from six months to eight years, and a 100 percent response from the questionnaires was received.

Table 1 shows that respondents valued the tour extremely highly even after four years.

Table 1. Survey of Group Study Tour Student Participants 4 Years After Tour

Question	Hedonic scale used			Mean Value	Standard deviation
	1	5	10		
Would you recommend tour	No	Unsure	Yes	9.4	0.9
Importance of experience	Least	Average	Most	9.0	0.7
Has tour value changed	Decreased	Unchanged	Increased	8.3	1.4
Was knowledge received worth expenditure	Less than expended	Equal to expended	Greater than expended	9.3	0.7
Pre-tour preparation	Unimportant	Average importance	Very important	9.2	1.0
Pre-tour time	Two short	Just right	Too long	4.4	1.1
Tour time	Too short	Just right	Too long	3.6	1.3

Table 2. Survey of Student Participants 6 Months to 8 Years After Internship or Study-Abroad Program.

Question	Hedonic Scale used for scoring			Mean Value	Standard deviation
	1	5	10		
Would you recommend this experience	No	Unsure	Yes	10	0.0
Importance of experience	Least	Average	Most	9.7	0.02
Has experience value changed	Decreased	Unchanged	Increased	9.3	0.75
Was knowledge received worth expenditure	Less than time & money expended	Equal to time & money expended	Greater than time & money expended	9.4	0.75
Pre-experience Preparation	Unimportant	Average importance	Very important	8.4	1.75
Pre-experience time	Too short	Just right	Too long	3.1	1.60
Experience time	Too short	Just right	Too long	4.5	1.60

According to the surveys, all students would recommend these international experiences; they considered them of great importance; the value of these experiences increased after participants returned; the knowledge was worth the time and money spent; the pre-tour preparation was very important, the pre-experience time was "too short" to "just right" and the international experience time was "too short" to "just right." The most difference (non-significant at $P < .05$) in scores noted for the two types of experiences was for pre-tour time: students felt this was "too short" for the "internship" and "study abroad programs." This probably results from the fact that pre-preparation in these cases is an individual undertaking and the student cannot benefit from other students' preparation as easily as in a group situation.

A few comments selected from the surveys show that students rated these experiences quite high on their list of educational accomplishments:

"Ability to communicate in another tongue was facilitated as well as catalyzing one's educational process."

"I learned much more from this experience than I would from a university laboratory or from a textbook."

"Preparation for an internship can give a student added interest in a sometimes bland set of courses."

"Helped me increase my self-confidence."

"Returned home with an everlasting love for my country, grateful for the many opportunities available to me here and appreciate the American style and quality of life."

Recommendations

College and Departmental Support

A program of this magnitude must have administrative encouragement, interest, and wholehearted support. It must be conducted where other international agricultural programs and contacts are flourishing. Former students suggested that a formalized, organized structure at the college level would be helpful for conducting such a complex, personalized program. Interested faculty members with international reputations must be identified and encouraged as advisors.

Financing

A fair division of financial responsibility might be as follows:

1. Student responsibilities - transportation, tuition, and living expenses in a classroom or non-working type of experience.

2. Host responsibilities - local living expenses if the student is working.

3. University responsibilities - administrative, organization, faculty time, material, and expenses. Also, an emergency loan fund for students and, in some cases, scholarships for financially - deprived students.

Invitations

International invitations flow through many channels, but in almost all cases they are initiated by personal contacts and a real interest on the part of the American university official (or industry) and the foreign organization. Such contacts are developed by faculty and administrators who attend international meetings, visit foreign facilities, and host international guests. Other contacts are developed through university agreements with foreign universities. Invitations seem to increase once information is available on how the program works; however, they may be difficult to maintain if a position is not filled. Quality of student participation in this program determines whether or not renewed invitations are forthcoming.

Student Selection

For a successful and continuing program, selection of quality students is vital. New participants will be welcomed to follow in previous students' assignments until an unsuccessful student has left an unfavorable impression. Then previous "good students" may be forgotten and an invitation no longer extended.

Characteristics for student participants are quite different from, and in addition to, characteristics necessary for success in an American university. Personality and patience are probably the two most important characteristics. Students must have the ability and eagerness to get along in a new environment, blend with the new culture, and not be overly-impressed with their own abilities. Mental and mechanical skills in the student's profession, a dedication to hard work, and a willingness to perform the less pleasant tasks are also very desirable attitudes. Native intelligence, family encouragement, and financial stability should also be considered.

Student selection should be through a multi-faculty approach, and the selection committee should be generally interested in the success of the program and have good insight as to what is needed to be successful under a given set of circumstances.

In the case of internships, the student's academic and practical skills are in a showcase and, therefore, careful student selection becomes paramount.

Student Preparation

The benefit a student receives from an internship or a study abroad program relates closely to the intensity of the prior preparation. Preparation should include:

1. Mental attitude - developing the proper mental attitude is probably the most important preliminary preparation by the student, but it is most difficult to program and insure success. This process takes considerable faculty time and effort and the key seems to be faculty enthusiasm, student confidence in his or her ability to succeed and adequate information on the new work or study environment.

2. Expertise in chosen discipline - assisting with the instruction of a basic course in the discipline seems to be an excellent review technique and will help to instill student confidence.

3. Knowledge of the new environment - library work is the key to this information. Also, visiting with recent travellers can be helpful if their information is evaluated against the time they spent in the country involved and their expertise in the discipline discussed.

Summary

If the college and department are willing to engage in this type of program, it will return benefits many times greater than we have been able to achieve by other teaching techniques. However, in terms of faculty time and total cost this is an expensive program. All returning students have been extremely enthusiastic about the benefits of their educational experience.

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What Student in Farm Management Classes Think About Farming As A Career

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Abstract

Surveys of students in farm management classes at the University of Georgia from 1974 to 1977 showed that a high percentage of the students planned to farm after graduation. If these students are typical of students graduating from other U.S. agricultural colleges, there will be adequate numbers of qualified farm operators and managers available for U.S. agriculture in years to come.

A great deal of concern has been expressed about the future supply of farm operators or managers for U.S. agriculture, and in particular the quality of these persons (1, 2, 3, and 4). This concern arises because of the ever-increasing need for technical and managerial skills, the fact that farm operators are getting older, and that most graduates of colleges of agriculture do not return to the farm.

To assess the quantity of young college graduates who plan to return to the farm and to assess how strong their desire was to return to the farm, we have since 1974 surveyed the students in farm management classes at the University of Georgia. This paper reports the results of the surveys for 1974-1977. Students in these classes were primarily junior and seniors and a few graduate students. Most of them were majoring in Agricultural Economics, but a number were majoring in Animal Science, Agronomy, Agricultural Education, and a few in Horticulture. A small number were females. Most were in their early twenties. Over the 4-year period there was a total of 66 respondents.

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Results

A majority of the students responding indicated that they planned to go back to the farm (Table 1). The results show that on the average only about one-fourth of the students planned to depend on farming as their only source of income. These results parallel, of course, the increase in part-time farming in general. The largest group of respondents indicated that they planned to work in a farm related business as a source of income other than the farm. Examples cited included farm supply stores, farm equipment dealers, and poultry processors. The next largest group indicated that they wanted to combine farming and teaching agriculture in high school. A few in this category were interested in agricultural extension work. A number of the respondents indicated that they were interested in working at a non-farm job so that they could accumulate the capital necessary for a farm.

Farm operators on the average earn less than persons employed in non-farm jobs, consequently persons choosing to farm usually give up some income. The questions reported in Table 2 show how much income the respondents were willing to give up and still farm. Overall results show that 92.5 percent of the students indicated they would go back to the farm even though they could make more money at a non-farm job. The amount of income the students were willing to give up demonstrated their strong desire to farm for a living. Only one person indicated he would be attracted to non-farm work by an income of \$2,000 above the farm. All others indicated it would take at least \$3,000 more income than the farm to attract them out of farming. The majority of the respondents indicated it would take more than \$5,000, over what they could make farming, to attract them away. Five respondents (12.5 percent) indicated that they would remain on the farm even though they could earn \$20,000 more from a non-farm job.