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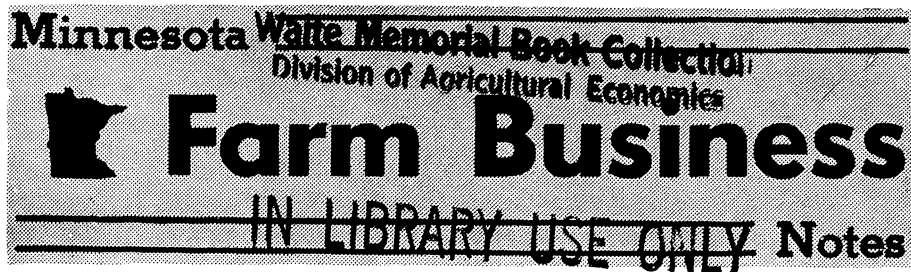
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## Development Programs in Agriculture

Billions of dollars have been spent to help less developed countries improve their standards of living and to promote their economic growth. Many agencies, including the U.S. government, international organizations, private foundations, private businesses, and U.S. universities, are becoming increasingly involved in the development business.

The economic development process is complex. There are few universal growth principles that can be applied uniformly to various countries in different stages of development and with differing social, political, and economic institutions and values. U.S. agencies must recognize that their policies and assistance programs must be geared to the conditions and needs of each country.

Development agencies also must establish priorities for investment decisions. Where can they obtain the biggest payoff in the shortest possible time? What area—agriculture, industry, transportation, education, population, communication—should they emphasize? Within a given area, which particulars should they emphasize?

Agricultural development is a prime concern in most less developed countries. Agricultural productivity generally is low, food supplies are short, and many people live on farms. The land-grant universities have a special role in providing technical assistance to increase farm production and in helping establish or improve local institutions that conduct agricultural research or teaching and extension activities. The following articles describe programs in three countries where the Institute of Agriculture is directly involved in technical assistance programs.

### Developing Agricultural Economics in Argentina

Darrell F. Fienup

Argentina is unique among the less developed countries in that it has no problem of exploding population, no food shortage, less than 15 percent of its people live on farms, and it has abundant land resources. Per capita income is high by Latin American standards, though it is only one-third of the U.S. level. The country's problems stem from very slow economic growth over the past 30 years and virtual stagnation in agricultural production.

The need to get agriculture moving is a critical problem. Over 90 percent of Argentina's foreign exchange earnings come from farm exports. The country faces serious inflation and balance of payments problems, which have been at least partly caused by declining agricultural exports. Also, in a world faced with food shortage, Argentina must realize her potential as a major food producer.

Political instability is a basic source of Argentina's agricultural stagnation. Frequent and unpredictable changes in governments and development philosophies have led to unfavorable and inconsistent agricultural policies. Initially, problems arose from the land allocation system and settlement patterns. They have been perpetuated by ineffective land taxes and worsened by unfavorable tenancy and labor policies, coupled with unpredictable and fluctuating pricing and marketing policies. Agricultural product prices have been depressed over the past 25 years. Farmers have had to pay high prices and have received little incentive for increasing land productivity.

Practically no research has been done on Argentine agriculture, so there are few firm guidelines on which to establish good agricultural policies. Actual costs and returns in agriculture and comprehensive studies of farmer response to policies are not available. Little is known about agricultural marketing, credit, and transportation. Currently, there are fewer than six trained

agricultural economists in the entire country. Argentine universities have no programs to train agricultural economists or production and marketing specialists. Economic research and analysis are badly needed by farmers, business, and government. On this basis, the decision was made to help create an agricultural economics profession in Argentina.

The objective of this program is to train a core of Argentine agricultural economists through a Ph.D. program. These men then will return to their sponsoring Argentine institutions and establish teaching, research, and extension programs in agricultural economics. Contracts have been developed between the Ford Foundation and Argentine institutions that want to add agricultural economics to their programs. Under these contracts, the Foundation underwrites the complete cost of the training program. After the candidate has completed his degree, the cooperating Argentine institution will hire him on a full-time basis for at least 5 years at a specific minimum salary. Each candidate has a corresponding responsibility to work for his sponsoring institution.

After completing his graduate course work, each candidate will return to Argentina to develop the research for his Ph.D. thesis on an important economic problem in Argentine agriculture. The Economic Research Center of the Di Tella Institute will provide library, statistical, and professional assistance during the thesis-writing stage.

The program also provides for supplementary salary and research support for candidates during their first 5 years of employment when sponsoring institutions are unable to provide it.

Since project initiation in September 1963, contracts have been developed with 16 key institutions. Commitments have been made to train 40 men. Thirty-seven have been selected, and most of them currently are studying at 10 U.S. universities (6 of the 37 are working for Ph.D. degrees at the University of Minnesota). Over 100 fellowship applications have been received; every effort has been made to select highly qualified and motivated men.

The University of Minnesota has provided the author's services to the Ford Foundation to direct and coordinate this program since October 1964. Activities have included development of contracts with sponsoring Argentine institutions, selection of program participants, aid with English training in Argentina and admission to U.S. universities, coordination of pretraining programs in the United States, planning of annual seminars, helping with thesis research selection, and main-

taining communication with students and their sponsoring institutions.

During the past 3 years, Professor S. A. Engene of the Department of Agricultural Economics has conducted a pretraining program for each new group of Argentine students and has made arrangements for annual seminars for the students and their major professors. He also has served as the students' U.S. contact during the academic year. Professor Engene currently is in Argentina working with the first two students to return for their thesis research.

Professor John Hunter of Michigan State University was actively involved in the initiation of this project and worked with Argentine students in the United States until January 1967.

Helping students develop theses on Argentina's agricultural problems presents a unique opportunity to contribute to the understanding and solution of many of the country's critical economic problems. This research should provide the base upon which future teaching and research programs can be established. Therefore, overall coordination has been given to insure coverage of the major economic problems, including marketing, prices and demand, public policy, farm management and production economics, and land economics.

Each U.S. department of agricultural economics maintains full responsibility for its students' theses; each student has an assigned major professor from the respective department. U.S.-trained Argentine economists will be available for student consultation at the Di Tella Center. And at least one full-time professional U.S. agricultural economist will be in continuous residence at the Center to assist in developing library, statistical, and data resources; help identify pertinent researchable problems; and work with returning students. Also, major professors will be brought to Argentina when needed.

The annual seminars have proved valuable in coordinating theses. At the two seminars held so far, students have presented thesis topics for discussion and evaluation by the other students and professors. These discussions have resulted in many ideas for actual thesis topics. The seminars have proved valuable in another respect. They bring all the Argentines together to compare their U.S. experiences and they foster friendship and understanding.

Argentine economists are brought here each year to present an up-to-date picture of developments in their country. Their ability to work together and exchange ideas with Argentine stu-

dents here will be important in determining the success of this project.

This project is the first known attempt to establish an important agricultural discipline on a country-wide basis through long-term commitments by both the Ford Foundation and co-operating local institutions. Funds and professional assistance commitments have been made for at least 10 years.

Some of the project's unique aspects include:

- It is a self-help program. Those trained through the project will in turn establish teaching, research, and extension programs.

- Enough men will be trained to provide a nucleus of professionals trained in agricultural economics at institutions throughout the country and not just in the capital city.

- Men in banks, government agencies, and private research organizations have been included in the project.

This project should have significance for development projects in other countries where lack of an important intellectual discipline is a limiting factor.

## **Agricultural Development Assistance Programs in Chile**

Milton E. Morris

Work in developing nations gives a university an opportunity to take direct action towards solving a food shortage problem. In 1963, the Ford Foundation invited a team of professors from the Institute of Agriculture to make a study of Chilean agricultural problems. This team recommended a program to train production education specialists.

The communication of research results was clearly a major roadblock in putting technology where it counts most—on the farm. For years, Chilean and U.S. scientists had worked to develop production technology, but there had been no notable production increases. Although several Chilean agencies had worked in agricultural extension, they had no direct official contact with the information source—the agricultural experiment stations. The problem of linking research more closely to extension seemed a logical place to apply Minnesota experience.

The program, which is under Ford Foundation sponsorship, has been in operation for 3 years. Five Institute of Agriculture professors are working with the Chilean Agricultural Research Institute (ARI) to:

- Establish production education sections within the ARI.

- Produce useful educational materials synthesizing Institute research results.

- Provide research-based technical training for the field staff of Chilean agricultural agencies.

- Do research on production education methods, development of effective extension methods, and techniques adapted to Chilean conditions.

- Link the Institute research staff with agencies in need of technical information and provide feedback to research personnel concerning problems that merit study.

- Collaborate in university training of agricultural workers at the professional level.

From the beginning, Minnesota program members felt that the goal should be to train people to work in their own country, solving their own problems. Training for young Chileans was to be accomplished through demonstrating how an extension specialist operates in the field.

Of course, increased food production also was a program goal. Corn and wheat offered the best possibilities for production improvements. New wheat varieties had been developed by the Rockefeller Foundation and Chilean scientists, and new corn hybrids were available from commercial companies and from the ARI. Since Chile was importing large quantities of both crops, the government was interested in stimulating domestic production.

Corn was singled out as the demonstration crop after the ARI, the Agricultural Extension Service, and government credit agencies agreed to provide support. The goal was twofold. First, the Minnesota team would try to increase Chile's corn production. Second, the corn increase campaign would be used as a training program for Chilean agricultural specialists.

The Minnesota team suggested a national corn production contest as a way to stimulate interest in the crop. The Agricultural Extension Service and the government bank agreed to pay contest costs, while the Minnesota team was to provide guidance and training. The contest area included 10 states in central Chile. Prizes were established for state and national winners.

Two hundred and forty farmers enrolled in the contest and received specific technical information about modern corn production practices. Over 40 Chilean agronomists (college graduates in agriculture) from various govern-



The Minnesota team applied known techniques to increase Chilean corn production. Young Chileans in the training program will take over leadership as their skills are developed.

mental agencies worked in campaign promotion and teaching. More than 80 percent of the farmers completed the necessary contest requirements.

During the growing season, farmers were contacted by agricultural extension specialists or other trainees from the ARI. The Minnesota specialists went into the field and met with farmers to discuss corn production problems. Farmers learned that something could be improved in almost every corn field, and they received suggestions for making improvements.

Meeting emphasis was upon the critical need for adequate fertilizer, sufficient plant population, and proper control of weeds and water usage. Farmers were taught to recognize limiting factors in each corn field. Radio stations, newspapers, and magazines publicized both the contest and the technical recommendations for corn growers.

At harvesttime, Minnesota staff members again went into the field with Chilean trainees to measure contestants' corn yields. National and area winners were recognized at a widely publicized ceremony.

Estimating conservatively, corn production in Chile during the 1966-67 crop year was 20 percent higher than in the previous year. Favorable crop conditions, a good corn price, and government help in publicizing the contest all contributed to the increase.

But the most important outcome of the contest was not just the increased

corn yield. It was the training of young men who can now accelerate the transmission of research to the farmer.

Recently, all the Chileans trained by the Minnesota team were incorporated into a newly reorganized Agricultural Extension Service. They will train other extension workers while continuing to work closely with the Minnesota professors.

The Ford Foundation has provided scholarship funds for several Chileans to do graduate studies at Minnesota and other universities. When they return to Chile, their training should strengthen the production education program.

Agricultural development assistance comes in many forms. Those involved in the Minnesota-Ford Foundation project in Chile trained production education specialists by demonstrating how a specialist works in the field. And they showed ARI researchers which research problems involve important limitations and helped them orient their work along these lines. To accomplish these ends, Minnesota staff members had to have a good knowledge of Chilean production problems and possibilities. And they had to learn to communicate their knowledge in another language.

Progress in agricultural development assistance always is difficult to measure, but the Institute's program in Chile has been successful in demonstrating how a job can be done. And in the process, the staff has trained young leaders capable of helping to solve their own nation's problems.

## Tunisian Agricultural Development Project

John Blackmore

Recently, the University of Minnesota signed a contract with the Agency for International Development (AID) under which the Institute of Agriculture will send a team to Tunisia, North Africa. The central objective of the project is to develop a Bureau of Economic Studies in the Tunisian Ministry of Agriculture. This Bureau will conduct economic research relating primarily to Tunisian food production and food marketing, both domestic and foreign.

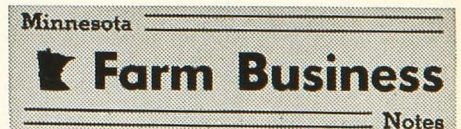
Three University staff members currently are working in Tunisia. Two agricultural economists are involved in production and marketing policies and planning, and a production research specialist is analyzing production problems.

During the coming year, several qualified Tunisians will come to Minnesota for graduate study in agricultural economics. When they have completed master's degree programs, they will return to assume leadership positions in the Bureau of Economic Studies.

Tunisia is one of eight or nine countries that have been designated for special intensive AID assistance. A small country, it is situated on the north coast of Africa between Libya and Algeria. Though it is an Arab country, Tunisia has a strong western orientation. About half of the country is desert that is used only for nomadic sheep and camel grazing.

Tunisia's northern zone has sufficient rainfall to support the production of wheat and other cereals. With irrigation, intensive agriculture, including the production of forage crops and horticultural products, is possible throughout the country. Recent discoveries of substantial ground water resources have expanded the country's irrigation potential considerably. At the same time, the development of a European market

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# In Perspective

## International Activities in the Future

John Blackmore

Increasingly, U.S. colleges of agriculture are being brought into the struggle to find solutions to the world's food problems. What for many colleges began as "temporary" assistance abroad has evolved into a whole new dimension of service. The University of Minnesota's Institute of Agriculture, like its sister institutions in many other states, is at a crossroads. Its members are being compelled to increase their concern with world food problems, but they lack the support essential to fulfilling basic needs in this area—improved instruction and research programs.

If it is to be an outstanding center for professional study and research, the Institute must embark on a development program. The first elements of such a program should be to improve the international dimensions of undergraduate and graduate training and to start planning for research expansion along strategic lines.

A special enrichment program in international affairs has been developed for undergraduates in agriculture and home economics. Program participants complete a set of courses totaling 18 credit hours and including a special seminar. Those who complete the requirements obtain a special certificate.

With some assistance from the Ford Foundation, three new "international" professorships have been established—one in rural sociology, another in agricultural economics, and a third in veterinary medicine. In the last 2-3 years, a few courses with international subject matter have been developed and a number of other undergraduate courses have been expanded to include international aspects.

For many years, Minnesota has been a favorite training center for foreign graduate students in agriculture. Last year, about 120 studied at the Institute. A new master's degree program has been developed by the Institute and the University's Center for Public Administration. It is designed primarily to meet the needs of the professional person who has had some experience and who is heading towards an administrative post. The program is attracting the

attention of both foreigners and Americans working abroad.

Development of research related to the world's food supply problems will require congressional action and funding. The common theme of a number of proposals is that selected U.S. universities be developed as specialized centers for research and graduate training.

Establishment of the University's new Economic Development Center has provided a vehicle through which Minnesota can expand its concern with agricultural policy problems. Other areas being considered for study include forest inventory techniques based on modern statistics and photogrammetry, selected plant protection problems, and problems that constitute barriers to increasing the productivity of animal agriculture.

Minnesota's international agriculture program is being built carefully to make sure that new developments do not jeopardize—but rather complement—the research, instruction, and service activities carried on in the interests of the state. Like other land-grant colleges, Minnesota began its work in agriculture with an undergraduate program. Then research and extension were added. Now a beginning has been made on a new dimension—the international aspects of instruction, research, and service. ■

Tunisian Project . . .

(Continued from page 3)

for fruits and winter vegetables has encouraged the development of intensive agriculture. Wine and table grapes and olives are traditional crops.

Tunisia has now lost its French market for wine and grain and must compete with other Mediterranean countries for the European market. At the same time, the country must substantially increase food production for its growing population. The government expects that the new Bureau will do research that will assist the country in solving the problems surrounding its changing domestic and export market situation.

With the emigration of former French farm operators, Tunisia was left with few competent farm managers. They have tried to make efficient use of available managerial talent and to give Tunisian farmers production opportunities by instituting various management schemes. In fact, state farms, cooperative farms, and farms operated by private entrepreneurs all exist in Tunisia today. Substantial efforts have been made to use cooperatives for supplying essential farm inputs and for marketing farm products. The economic aspects of these organization schemes and of the farm supply and marketing facilities all need to be explored.

Other problems that require attention are the economic considerations of water development, especially developments made possible by the recent ground water discoveries. One of the more interesting studies needed is an investigation of the economics of Tunisia's international camel trade. However, first priorities probably will be given to the economic problems surrounding the domestic bread grain supply and the market possibilities for winter-grown fruits and vegetables. ■

Agricultural Extension Service  
Institute of Agriculture  
University of Minnesota  
St. Paul, Minnesota 55101

Roland H. Abraham, Acting Director  
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