EXECUTIVE SUMMARY

Report to Government of Peru
Ministry of Agriculture
National Institute for Agrarian
Research and Promotion (INIPA)

INIPA'S RESPONSE TO PERU'S NEEDS FOR AGRICULTURAL RESEARCH AND EXTENSION

International Service for National Agricultural Research

The International Service for National Agricultural Research (ISNAR) began operating at its headquarters in The Hague, Netherlands on September 1, 1980. It was established by the Consultative Group on International Agricultural Research (CGIAR), on the basis of recommendations from an international task force, for the purpose of assisting governments of developing countries to strengthen their agricultural research. It is a non-profit autonomous agency, international in character, and non-political in management, staffing and operations.

Of the thirteen centers in the CGIAR network, ISNAR is the only one which focuses primarily on national agricultural research issues. It provides advice to governments, upon request, on organization, planning, manpower development, staff requirements, financial and infrastructure requirements, and related matters, thus complementing the activities of other assistance agencies. Additionally, ISNAR has an active training and communications program which cooperates with national agricultural research programs in developing countries.

ISNAR also plays an active role in assisting these national programs to establish links with both the international agricultural research centers and donors.

ISNAR is supported by a number of the members of CGIAR, an informal group of approximately 30 donors; it includes countries, development banks, international organizations, and foundations. In 1985, funding for ISNAR's core program was provided by:

Australia
Belgium
Canada
European Economic Community
Federal Republic of Germany
Ford Foundation
France
Ireland
Italy
Netherlands
Philippines
Spain
Sweden
Switzerland
United Kingdom
United States Agency for International Development
World Bank

Citation:

International Service for National Agricultural Research. Executive Summary of Report to Government of Peru, Ministry of Agriculture, National Institute for Agrarian Research and Promotion (INIPA): INIPA's Response to Peru's Needs for Agricultural Research and Extension. 1985. The Hague, Netherlands.

EXECUTIVE SUMMARY

Report to Government of Peru
Ministry of Agriculture
National Institute for Agrarian
Research and Promotion (INIPA)

INIPA'S RESPONSE TO PERU'S NEEDS FOR AGRICULTURAL RESEARCH AND EXTENSION

July 1985

isnar
International Service for National Agricultural Research

EXECUTIVE SUMMARY

Introduction

The National Institute for Agricultural Research and Extension (INIPA), Government of Peru, requested the International Service for National Agricultural Research (ISNAR) to assess the research, extension, and education model of INIPA in June/July 1985. This required ISNAR to examine not only INIPA and its functions, but the context within which INIPA functions. (See terms of reference in Annex 1.) The review method consisted of open-ended interviews with various persons in INIPA, the national university system, the Ministry of Agriculture, and many other agencies concerned with agricultural research, extension, and development; and review of many reports. (See Annexes 2 and 3 for members of the review team and their itinerary.) The team received full cooperation and generous support from all, and found widespread interest in and support for INIPA.

This report represents the views of ISNAR on the strengths and weaknesses of INIPA and how it might be strengthened to serve Peru even better in the future. The report is in two sections. The first contains this introduction, and an executive summary that includes the major recommendations. The second section contains a discussion of the country setting, the institutions involved in research and extension, the major research programs, the extension service, the human resources available, linkages with international organizations, a comparison of INIPA with similar organizations in other countries, and suggests how INIPA might more fully respond to the future demand for research and extension. Specific recommendations with a rationale are presented. The report assumes a comprehensive understanding of Peru and its agriculture. Readers who need more background information will find an abundance of reports on Peru's agricultural research (1).

Development of agriculture

It appears that Peru has not done well in its agricultural sector. Per capita agricultural production has fallen steadily since 1974, decreasing by 20%. Per capita food availability declined even more, with crop production leading the decline. Agricultural development, in terms of

(1) Detailed information on each national research program and on other INIPA units is published by INIPA. The report entitled "Mid-term evaluation of the USAID research, extension and education project in Peru" (M.D. Whitaker et al, 1984) includes a concise review of the major factors affecting INIPA from 1979 to 1984. The "Background paper on the national agricultural research, extension and educational system of Peru" (A.J. Coutu and K. Raven, 1985) presents a wealth of historical and current information, as does "Study on the collaboration between international agricultural research and Peru" (English translation) (Luis J. Paz, 1985).

improved quality of life for Peru's poorer farmers and herders; in terms of greater productivity by the majority of producers, traders, and processors; and in terms of improved food availability for the majority of Peru's poor, will therefore be a major measure of the success of Peru's public and private sector institutions over the next several years. That development will depend on several factors; an important one will be continued and even greater support for technology generation.

Peru has had difficulty starting and maintaining the flow of improved technology essential for a science-based agriculture. Frequent reorganization of the research and extension system (8 or more times in 30 years), inadequate integration of the two major resources - funds from the Ministry of Agriculture and skilled researchers from the university system - and lack of sustained monetary support for public research have been, and remain, major sources of these difficulties.

Increased agricultural production will occur only when producers are motivated to increase production, and when there are efficient markets to supply essential inputs and receive increased outputs. Peru's farmers will increase production when they foresee a stable market environment where essential inputs will be available when needed, and where prices received will provide a reasonable profit margin, including consideration of the degree of risk, which varies among areas and products. These conditions require a coherent set of agricultural policies that seek to replace imports of major food commodities with internal production; make food available to all at an acceptable price (which may require a two-tier market); increase agricultural exports in accord with Peru's comparative advantages; and make available essential production-increasing inputs at fair prices, even if they must be imported.

Most of the needed increase in agricultural production (especially the much-needed increases by smallholders in the Sierra and the Coast), cannot come from increasing the cultivated area, but will have to come from increased productivity. That requires an additional element - improved technology (1). The research and extension system exists to develop and diffuse a flow of improved technology to producers, traders, processors, consumers, and policy makers. It does this by identifying and solving problems and taking advantage of opportunities to increase productivity. The flow of improved technology is one of three essential elements for improved agricultural productivity, the others being motivation to produce more or more efficiently, and stable and effective markets. Development and diffusion of the essential flow of improved technology is the responsibility of the national agricultural research system, of which INIPA is an important part.

(1) The flow of improved technology to increase productivity is not an option. The production system is dynamic, not static, and if technology is held constant, the productivity of the system tends to decrease, not hold constant. This results from changes in the system, especially increases in negative influences from diseases, insects, and sometimes soil conditions.

INIPA

INIPA seeks to combine research, extension, and education to serve its clients. In this, it compares favorably with similar institutions in other Latin American nations, and around the world. In Latin America, Argentina and Colombia are the other nations that have merged research and extension, which must be done at the producer level for both to be fully successful.

Combining research and extension at the producer level in a decentralized institution has produced substantial success, and promises more benefits in the near term. For example, the area sown with modern varieties of rice has increased continuously in recent years, with a progressive decline of traditional varieties. Semi-dwarf varieties account for 58% of cultivated area and 71% of production, while traditional varieties account for 41% of the area and only 28% of output. Rice production in the Selva increased sharply from 1980 to 1984, from 96,000 tons to 156,000 tons. As a second example, the substantial improvement in maize production in the Selva represents a success for technology. In 1964, the Selva accounted for 17% of production and 24% of area, whereas in 1983 the Selva's share had increased to 46% of production and 60% of area. Substantial yield increases of 2.2% per year have been obtained in the Selva. Valuable as these increases have been to Peru, they have not been enough to increase agricultural productivity.

INIPA's formation of its research programs on the basis of five major commodities, agroeconomics, and two geographic areas, brings a highly commendable concentration of resources to a few research efforts which are undoubtedly Peru's first-order priorities. INIPA's successes in developing and extending improved technology that has already led to increased production and yields, its demonstrated ability to concentrate its resources on Peru's priority problems and opportunities, and its response to many implementation problems, are sufficient evidence that INIPA is conceptually sound as an organization and should continue to serve as the national focal point for agricultural research in Peru.

As might be expected in a young organization emerged from a series of organizations having responsibility for components of research, extension, and related topics over the last 30 years; and having to build a staff capable of performing the functions expected of it; there are opportunities to strengthen INIPA so it can be even more effective and efficient in the years ahead.

INIPA's mandate

While INIPA's mandate has not been described uniformly in all publications and is not uniformly perceived, INIPA has generally perceived itself as having responsibility for research and extension on food crops to serve small and medium landholders.

> The ISNAR review team (hereafter referred to as "the team") recommends that INIPA's program and activities reflect the role of the leading national institution for all agricultural research and extension and that INIPA accept as its mandate a responsibility to assure that the agricultural research to meet Peru's needs is well identified, planned and executed, the results demonstrated, published, and the technology made available to its clients.

With this perception of its national role, INIPA should then look outside itself for both the problems and opportunities that require research and extension, and for the resources available to do the needed work. Many research programs could then be planned and implemented by scientists from a number of institutions, in cooperation with INIPA, and the results diffused through available public and private agencies including, but not limited to, INIPA's extension service. INIPA would then lead the processes of research planning and technology diffusion, and support cooperative research efforts with various institutions whose scientists have agreed in the planning process to do certain work. In some cases, such as sugarcane, cotton, and grapes, INIPA's role could be to help growers and processors organize research and extension, with a small cess on production for funding.

National commodity programs

National commodity research programs are often the most efficient way of organizing adaptive and strategic research on major commodities that are widely distributed. Peru's programs are well linked into the international scientific community and regularly access available technological components. Each of these programs has produced improved technologies that either are already being adopted by producers or are at the intensive on-farm testing stage and can reasonably be expected to be adopted. The commodities addressed by the five current programs have been repeatedly identified as the more important ones for Peru.

> The team recommends that support for these national commodity programs be sustained and that they be expected to supply the essential flow of improved technology for these commodities over the years ahead.

Participation in planning and implementing each of these programs needs to be broadened to include all the required scientific talent, including scientists in universities and other public and private institutions. Funds to do the agreed research need to flow from INIPA to the institution accepting responsibility to do the work. The annual research

plan needs to be based on the problems and opportunities of the clients and to take advantage of research that has already been done, in Peru and elsewhere. Full credit must be given to the scientists who do the research, whether they are in INIPA or in cooperating institutions.

Additional national commodity programs can be added over time, as the need for each is identified, and resources, especially trained personnel and operating funds, become available. Animal science is the obvious next priority for a national program. However, most of the trained scientists and physical facilities needed to do this research are in other institutions, not in INIPA.

> **In keeping with INIPA's suggested perception of its role, the team recommends that the animal science research program be developed and implemented by a lead institution (an institute or a university), using all available public and private resources.**

The program would be provided guidance by a small steering group that would be chaired by a senior professional within INIPA. Key senior scientists from the three or four major institutions, and some representation of the producers, would form the small steering group. The steering group would determine the relative priority among research efforts, challenge the continuation of programs, and suggest new problems and opportunities. INIPA would provide funds for the research to the lead institution, which would sub-contract for specific components with other institutions. INIPA staff would do research in a few topics and geographic areas that are essential and would not otherwise be covered. INIPA would also supply much of the agroeconomics component, and incorporate livestock management into the extension program.

Agroeconomics

The agroeconomic research program in INIPA is quite exceptional, in that few countries have so well recognized the need to include social and economic research in the research and extension program. At the farm and community level this work needs to be sustained and expanded so farmers are routinely supplied information on the costs and benefits of each technological component as part of every commodity research program. The same information needs to be collected, summarized, analyzed, and presented to the various policy-forming entities in forms that will be used to formulate policies affecting agricultural production and development. INIPA is to be highly commended for the development of its agroeconomics research program. It needs to be sustained and support increased, especially in terms of training for present personnel. As with other research programs, linkage of this research program with the appropriate universities and other public and private sector institutions will bring more talent into the research program and enhance both the quality of the research and the current awareness of the professors and students.

Local bases for research and extension

Using the "departamento", an administrative subdivision, as a basis for organizing research and extension is considerably less efficient than using agroecological zones. Agricultural research is efficiently organized on the basis of major agroecological zones having relatively uniform soils, climate and agricultural enterprises. To the extent cultural factors are also uniform, and they often are, extension is also most efficiently organized on the same agroecological zones. An agricultural experiment station, with resources and programs that fit the zone to be served, then becomes the center for research and extension work for the zone. Much of the research, and most of the extension, is done off-station, but the experiment station is the focal point.

The major agroecological zones in Peru are well known to Peruvian soil scientists. The team was informed that about 14 major experiment stations would be needed if their locations were to be based primarily on agroclimatic zones. Many of the present stations and substations could then be used for basic seed production and similar services. Research and extension personnel would be attached to the major experiment stations, under a single director of research and extension, with an associate director. (No further subdivision of the research staff should be necessary for some time, since the national commodity and agroeconomic programs will focus much of the research planning.) The needed network of major experiment stations would be developed in response to need and availability of trained personnel and adequate operating funds. Each station would be developed and staffed according to the research needed for the specific agroclimatic zone. The term "CIPA" could be applied to the experiment station headquarters to retain identification of function with clients.

> The team recommends that Peru concentrate on the development of a minimum essential network of experiment stations to serve major agroecological zones as resources become available, and that these stations be used as the focal point for research and extension at the local level.

Career status of station directors

An adequate research and extension system continuously senses and responds to the needs and opportunities of its clients - the people of the region it serves. It seeks to understand the people, their problems and opportunities, as they relate to agricultural production and development. Research programs then respond to those problems and opportunities and produce technology, and the extension system diffuses the new technology to the clients. While the research and extension system is alert to national priorities, if it is doing its job well there should be only minor changes in emphasis in response to changes in the political party in control of government. The processes of technology development and diffusion are driven primarily by the problems and opportunities of the clients. These processes should be carried out in response to the needs of the people, regardless of what political party is in control of the government. The person in charge of research and extension in a region, or nation, needs to be a competent scientist or

extensionist and administrator. (In most countries, none of the persons directly in charge of research and extension are subject to political appointment - these tasks being recognized as technical, not political, in nature).

The team recommends that the directors of the experiment stations, which need to be the directors of research and extension at the local level, be selected on the basis of technical and administrative capabilities, and be appointed as career agricultural research civil servants; not subject to political appointment.

INIPA's organization

At the national level, INIPA's present direction under a three-person "jefatura" brings the counsel of the executive directors of research and extension to the chief of INIPA, but leaves authority for all decisions with the chief. Further, all three positions are subject to political appointment. Given the technical nature of research and extension, the national director of research and extension should be a senior civil servant. Considering the need for INIPA to cooperate with a number of external organizations and integrate activities, and the need to unify research and extension, INIPA should restructure its directorship. The chief of INIPA should look to the world outside INIPA and bring awareness of that world to a single technical director. The latter would be responsible for the internal working of INIPA. All experiment station directors would report to the technical director, who would have a minimum administrative staff unit and an assistant director for contract research and liaison with research organizations outside INIPA (see Figure 1).

The team recommends that the leadership of INIPA at the national level be vested in a chief and a single technical director.

INIPA's personnel

INIPA inherited staff from a number of organizations when it was formed and part of that staff does not have appropriate training and experience for the program of INIPA. While it appears that INIPA has more personnel than are required for its program in certain areas, in other areas INIPA needs more highly trained and qualified personnel. It appears that the current circumstances are a result of staff being transferred from previous organizations, bureaucratic procedures, and layering of organizational units. After a decision has been made to organize research and extension on the basis of a limited number of experiment stations designed to serve major agroecological zones, INIPA needs detailed analyses of the supply and demand for personnel. A survey is needed of all personnel available to do research and extension. This has started in INIPA but needs to be extended to include personnel in other public sector institutions, especially the universities. The result will be a comprehensive listing of personnel, their training, experience and research interests.

Each research program's objectives need to be used as the basis for estimating the minimum numbers of research personnel and their qualifications needed to do the work, with a projection for the next 5-10 years. The projection should be made with special concern for the present and near-term future availability of trained staff. (While INIPA has many effective researchers, most of the available qualified researchers may be in other institutions, not in INIPA.) A similar approach should be used to identify the needed extension personnel and their qualifications. If these analyses of personnel needs are done, the team expects that many fewer, but better qualified, people will be needed for both research and extension. INIPA may not be able to do the second analysis objectively.

> **The team recommends that INIPA complete the survey of its personnel and extend that survey to research personnel in other Peruvian institutions. It further recommends that INIPA use an external entity to develop estimates of the minimum numbers of essential research and extension personnel (and their qualifications) needed over the next 5-10 years, using the specific research programs and objectives and the extension functions in each area as a departure point.**

The next steps are obvious. Match the personnel needed with those available; adjust the immediate programs to available qualified personnel resources; train personnel as needed and possible; and shed personnel who are not needed or not productive. As INIPA concentrates on the cutting edge of its functions, many well-qualified people who are now in administrative positions will be freed to actually do research and extension, thus sharply enhancing the quality of INIPA's output.

Moving operating funds

The team was informed that in a number of cases operating funds have not been provided to local units on schedule. INIPA needs to develop its budget earlier in the fiscal year than at present and request the Ministry of Finance (MF) to approve it well before the beginning of the fiscal year, and to provide an advance of funds for 60 to 90 days.

> **If MF does not agree or is unable to implement this procedure, the team recommends that INIPA be authorized to contract with a bank with national coverage to receive, disburse and account for INIPA operational funds with an MF-approved budget.**

If the bank option were used, the bank could receive funds from and report expenditures to MF. Funds would be advanced by the bank on schedule according to the approved budget and recovered from MF, with interest if appropriate. INIPA will need to maintain high credibility with the MF through efficient operation and demonstration of its ability to develop and diffuse technologies that increase productivity.

Facilitating essential changes

It is the team's understanding that under the labor stability law INIPA is not now able to select out those who are unproductive or do not have the appropriate training for the posts they hold. It is also understood that they cannot transfer personnel as needed or pay wages and promote personnel on the basis of performance. The reduced number of INIPA staff (expected to follow from the analyses of personnel needs and availabilities) will require adequate facilities and incentives, accurate job descriptions, regular evaluation, opportunity for promotion, and appropriate salary scales.

INIPA has an opportunity to improve the definition of its research and extension personnel needs; to ascertain available research and extension personnel both within INIPA and in other relevant institutions; to adjust its work force to the minimum numbers of personnel required; and to adjust its administrative lines of authority and procedures to accord with the several above recommendations.

The team recommends that INIPA be given the necessary legal facility to make the proposed adjustments during a 3-4 month, period in 1985.

During that period, the adjustments recommended in this report could be implemented by the INIPA directors, assisted by an external high level management team to guide the personnel inventory, the definition of the minimum personnel needs, and essential administrative adjustments.

When the above has been accomplished, the team recommends that INIPA be granted the legal status (regimen laboral de empresa publica) under which the required personnel management, administrative procedures, pay scales, and operating methods are possible.

In the longer-term, Peru must replace donor funding of INIPA with internal financing. In the near-term, INIPA needs to be concerned about the complexity in its day-to-day operations and its priorities in relation to the four major donor projects. Each project brings an approach to development, a specific set of objectives and approaches to achieve them, a set of monetary and management procedures, and a view of what constitutes success.

The projects have affected the form and function of INIPA in both desirable and undesirable ways. Each tends to pull INIPA's programs in particular directions. INIPA has done well in getting the projects to be mutually supportive, but as these projects are extended and renegotiated, INIPA has an opportunity to bring about a new level of integration of effort. The team suggests that INIPA make a renewed effort to restate the technology development and diffusion system it intends to develop, and form the essential assistance projects so they support that concept. The work plan should be more INIPA's, and less an amalgamation of the four projects.

Figura 1 PROPUESTA DE LA ORGANIZACION DE INIPA