

HIGHLIGHTS OF THE CRSP MODE

UNDER THE

CRSP GUIDELINES

The Board for International Food and Agricultural Development

and the

U.S. Agency for International Development

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Collaborative Research Programs (CRSPs)

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1. The CRSP Concept

The Collaborative Research Support Program (CRSP) mode was conceived in 1975-76 by ad-hoc university - A.I.D. groups which were called together to interpret and commence planning for implementing the new Title XII Legislation (of Title XII Amendment to the Foreign Assistance Act of 1975). The idea for involvement of U.S. universities in long-term, collaborative research, was derived from the legislation. The ad hoc AID-university groups interpreted and gave substance to the idea. The Joint Agricultural Research Committee (JRC) of The

Board for International Food and Agricultural Development (BIFAD) developed a set of guidelines into an operational mode. What emerged was the CRSP concept as a basic mode for supporting international agricultural research in a collaborative partnership arrangements of AID, U.S. universities, International Agricultural Research Centers, (IARCS), and research institutions in developed countries. After the formation of BIFAD in September-October 1976, the CRSP concept was expanded and refined, and the work of JRC was published in the CRSP Guidelines in 1977. The JRC added revisions in 1979 from lessons learned. The concept was further defined in the CRSP Guidelines published in the latest revised edition of 1985, quoted here:

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\* ACRONYMS used in this text are explained in Appendix A.

## 2. The CRSP Guidelines

The Guidelines, first published October 11, 1977, guided the initiation of the first CRSP (The Small Ruminant CRSP), which came on stream in 1978. A revised version of the Guidelines was published October 10, 1979.

The experience of planning and initiating the first four CRSPs was reflected in the more comprehensive revision of the Guidelines, published June 21, 1985. Minor revisions of this set of Guidelines have been made and a new set of Guidelines will be published soon.

The Guidelines outline a process for planning the program and selecting the country sites and the participating U.S. and host country institutions. Criteria for country and institutional participation are developed in a process involving BIFAD, JCARD, and the CRSP universities with A.I.D. in the partnership.

## 3. Lessons Learned

Thirteen years of experience in planning, initiating, and implementing 8 CRSPs have taught us many lessons. Most of the principles of guidance, laid down in the CRSP Guidelines, evolved from imperical experiences which were captured in the CRSP Guidelines. However, there were many other lessons from this experience that have not been documented. While we cannot

recount all of them here, a few should be high lighted.

- One that stands out is the influence that this international experience has had on our U.S. scientists who have participated in the CRSPs. In speaking of dual research goals, the end products of research, such as an improved plant variety, for example, is the benefit to the United States that is thought of. However, we have also learned that the experience has made a lasting, and significant impact on the U.S. scientists participating in the programs. Those who had no previous such experience have been transformed. Their perspective has been extended, their horizons broadened, their scientific knowledge enriched , and their research interests and motivations stimulated. Many have joined the ranks of world class scientists. Almost all have brought back to the United States probably as much technology as they took out. In these 13 years, the world has shrunk and political as well as scientific boundaries erased. These facts could be equally classified as benefits, as they are, but they are often over-looked. We have learned a lesson that our scientists can benefit greatly from doing research outside the United States.

- In a more pragmatic sense, the manner of dealing with host countries has been a learning experience. We tend to set goals by our standards and time tables; invariably these standards and time tables are changed when in a partnership relation with host country governments. During the years of initiating CRSPs, it was discovered that a firm commitment from a host government in an agreement, or plan cannot be executed until funds are obligated on the U.S. side in a grant to the U.S. institution dealing with the host governments. This factor caused more delay in the development of agreements and plans than any other factors. We could quickly obtain commitments and plans for programs on our side with U.S. universities, but doing this in the host country side took time, patience, and "money on the barrel head."
  
- This taught us that any "memorandum of understanding" developed in the planning phase (if developed) had to be broad expressions of intent, and no firm commitment of host country governments could be made in the planning phase. We had to wait until the Management Entity (M.E.) of the CRSP was in place with an obligated federal grant.

- In contrast, the faith of the universities in the Federal Government and Congress is such that they often have committed their resources before federal funds are appropriated and authorized by Congress. This faith in our Government saved the CRSPs many times when CRSPs were operating solely on university funds.
  
- The corollary to this is that we have learned that every federal dollar budgeted into a CRSP, matching resources from university have far exceeded the 25 percent specified in grant agreements. Much of the contributions by universities was never claimed on their account ledgers (e.g., input time of U.S. scientists, unaccounted backstopping, and involvement of board and committee members at no salary costs to the CRSPs.)
  
- Another lesson learned has been the difficulty of instilling and adhering to the concept of a global plan by researchers. Tendency still exists for scientists to sometimes become side-tracked from the global concept to focus on site-specific constraints.

This is understandable; U.S. scientists are under local pressure to deal with a country's paramount problem, irrespective of the applicability of the solution to the global goal.

- Fortunately, CRSPs have found ways of dealing with these issues through management and organization of overseas research, and identified and altered in reviews and evaluations

3. Principal Factors in the CRSP Experience That Have Contributed to Success

A number of factors in CRSPs are contributing to their success. A few of the more important ones are cited here:

- An outstanding one is the quality, interest, and dedication of the U.S. research scientists participating in the program. The process used in selection assured that the best scientists and research institutions in the United States in the specific discipline and scientific subject were identified and brought into the CRSP. They are now achieving major research results that are aiding developing countries and benefitting U.S. agriculture.

- The dual goal in CRSPs (Less Developed Countries, or LDCs and the United States benefit) has provided the incentive for U.S. universities to participate and contribute the required non-federal resources (25 percent for CRSPs). Title XII legislation legalized the co-mingling of Federal with State funds. This has stimulated universities to engage in overseas development work, overcoming objections often heard previously in boards of regents and State legislatures.
  
- The use of the grant mode of procuring the services of state universities has permitted a degree of autonomy in planning and implementing CRSP that has been beneficial. Under a grant, the Federal Government oversees the program, but does not interfere with decision-making, management and operations. A.I.D. does not have the number of qualified scientists necessary to micro-manage an international collaborative research program. The universities are specialized in research and science. Furthermore, the university community is accustomed to collaboration. The CRSP system has benefitted greatly by the peer process of selection, planning, and implementing the research, something

that was beyond A.I.D.'s expertise and experience.

- Furthermore, there has been political merit in the autonomy and self-governing by universities under a CRSP. Some decisions that are found acceptable by peer scientists in sister institutional relationships would have caused political repercussions if the Federal Government (A.I.D.) had made the decisions, (e.g. dropping an institution from a CRSP because of poor performance). In addition, the universities know each other, their strength and weaknesses of each, much better than A.I.D. could possibly know.
  
- The grant mode and the CRSP concept provide a mechanism for tapping and utilizing large numbers of scientists and their universities in a very efficient and economical way. This permits A.I.D. to extend its utilization of scientists with the minimum of A.I.D. staff for oversight. One A.I.D. staffer can oversee one or more CRSPs, involving as many as 10 U.S. universities with participation of as many as 100 U.S. scientists working with an equal or greater number of LDC scientists in few to several host countries. This is made possible by the use of the

Management Entity which receives the grant from A.I.D. and allocates it by agreements to participating universities. A.I.D. holds the M.E. responsible for the program and accountable for the use of funds. Thus, A.I.D. backstop officer deals with the M.E. and through it influences, but does not manage, the participating universities. This cannot be done in a contract mode where A.I.D. makes the decisions, sets the goals, and micro-manages operations, usually a project covering a specific goal, utilizing a team, or as few as expect.

- The program concept in a CRSP permits the use of multi- or inter- scientific disciplines in one comprehensive, integrated program covering several constraints. Principal constraints in a global - or multi-regional area can be addressed simultaneously in an integrated plan. A program may be composed of a series of coordinated, complementary projects.
  
- The CRSP generates the intended collaborative partnership arrangement with A.I.D. and U.S. universities. The partnership extends to host country institutions and their scientists to become a three-way, or tripartite, partnership.

#### 4. Selection Criteria

In the initial stages of development of a CRSP, determination of selection criteria received priority attention. This relates to the selection of: the M.E.; the Technical Committee (T.C.) institutions that are to participate in the CRSP; the country sites for research, and the External Evaluation Panel (EEP).

A.I.D. and BIFAD's Joint Committee on Agricultural Research and Development (JCARD) make the initial input in developing the selection criteria, starting with the Planning Entity (P.E.). After the P.E. is selected, that body makes inputs. However, criteria may be, and often are changed after the M.E. and U.S. institutions are brought aboard.

Some of the criteria may be general for all CRSPs. Country site selection is one such criterion.

- For example, in order to be eligible to participate in a CRSP, a country must be eligible to receive aid. This is a political criterion. Secondly, the country must have the minimum basic scientific capability to participate in the research collaboratively with U.S. universities and the

IARCs. Beyond these factors, the country must have the interest to participate, the availability of and willingness to commit resources in research on the given constraints. Solution of such constraints must be of economic importance to the country and to the ecological region in which the country is located. Also, such research must offer potential benefit to the global goals and to United States Agriculture. Furthermore, the government's research organization must already support a research program related to the goal of the CRSP.

- Criteria for selection of U.S. universities to participate include the degree of interest in and commitment to international research, its relative research capability, the available resources and willingness of the institution to meet the 25 percent matching requirement against federal funds (in kind or in funds). The U.S. institutions also will be judged on the type of research that it supports, and the relationship of the research to the CRSP. While private organizations may participate in a CRSP, their participation is limited to areas where universities lack the expertise. Since private

firms are not eligible to receive a federal grant, their services must be procured by contract by the CRSP institution.

5. Unique Characteristics of CRSP Goals

Due to the nature of A.I.D. funding for CRSPs which is centrally allocated rather than regionally, or by USAID Mission, the CRSP concept is utilized in research programs whose results can be applied globally, or at least multi-regionally.

Regional and country-specific research are funded by A.I.D.'s geographical bureaus and A.I.D. missions, respectively, whereas centrally funded programs must relate to the entire globe. In a CRSP, resources also come from participating host country governments. This is usually in allocation of space in buildings, use of research facilities, and the assignment of counterparts. In some instance host governments allocate funds in their budgets to help support CRSP activities in their countries.

A very important characteristic of CRSPs that distinguishes them from other A.I.D. supported research is their dual goal in the research program which was cited earlier. That is, the research must contribute to the needs of developing countries and benefit U.S. agriculture. This requirement is derived from Title XII Legislation of the Foreign Assistance Act of 1975 (Title XII Amendment). In this respect, universities share in the cost by matching Federal funds with their non-Federal resources, CRSPs are unique in U.S. foreign assistance and are achieving the dual goal described in the BIFAD CRSP Guidelines.

#### 6. Planning a CRSP

The planning process is explained in greater detail in a separate document. The process is summarized herein.

Initial planning of a CRSP is done by an entity selected for that purpose (a university, a firm, or other private organization). The initial planning must be broad in scope and should include: identification and prioritization of researchable constraints; the identification of the scientific expertise and potential U.S. institutions interested and

capable of participating in global research, and the identification of eligible countries with suitable ecology, have interest, commitment, and capability to participate in research and are able to support relevant research programs. A planning entity may be selected in a variety of ways: a contract, a cooperative agreement, a Participating Agency Support Agreement (PASA), or a Research Support Services Agreement (RUSSA), in case of a government agency.

A grant is issued when A.I.D. has funding to obligate, based on an estimated budget. Once a grant is issued to the M.E. with funds authorized, finalizing of planning becomes the responsibility of that M.E. and the participating universities. Concrete agreements with host country governments and with U.S. institutions can be made on the basis of funding authorized in the grant document. The extent of funding influences decisions on the number of U.S. institutions and host countries that can effectively participate in the program. While host countries and U.S. institutions can be identified in the preliminary planning process by the Planning Entity, finalization of plans depend on formal agreements which lay out the financial and other contributions of all parties to the program.

7. The Selection and Implementation Process

Capable and interested institutions are identified in the planning process. Based on expressions of interest and other information, universities are selected in the process detailed in Appendix B. This usually is done at a meeting at which a peer group is selected by the universities to represent them in the selection process. The participating U.S. universities recommend one or more of the candidate institutions to BIFAD/JCARD to serve as the Management Entity (M.E.) from a list of recommendations on institutions made with their expressions of interest that are reviewed by BIFAD/JCARD. The planning Entity and BIFAD/JCARD make recommendations on the candidate institutions for participating in the CRSP with 2 or 3 recommended as preferred candidates for serving as the M.E. A.I.D. makes the decision on which institution will serve as the M.E. and selects the institutions to participate in the CRSP.

After the M.E. is formally selected, A.I.D. awards the grant, and the M.E. makes sub-grants by agreements with participating institutions and through them to host governments. A.I.D. holds the M.E. responsible for the program and accountable for

the finances. The M.E. in turn holds each university responsible for its part of the program and accountable for its share of the grant.

After the selection process, a program can be developed. The M.E. and representatives of the universities work with BIFAD/JCARD and A.I.D. in developing and finalizing the program. This requires finalizing of agreement between U.S. institutions and host country governments.

#### 8. Developing Agreements with Host Governments

The M.E. is responsible for confirming country sites that have been tentatively identified in the planning process. The M.E. then is responsible for developing memoranda of understanding, and, eventually, making the actual final agreements, with the host governments. This agreement spells out the work to be done and the contribution each party is to make in a work plan, which is revised annually. The M.E. may call upon a participating U.S. university to develop the agreement on its program with the host government. However, if there are several participating universities in the same country, the M.E. should develop the agreement jointly with the participating institutions.

9. Collaboration with IARC's Developed Country Institutions, and other Organizations

The M.E. establishes working relations with international centers (the IARCs), other international organizations, U.S. commercial organizations, such as commodity groups, and with research institutions in developed countries. Also a role of the M.E. is to seek support for funding from such organizations, as appropriate.

10. Organizational Structure of a CRSP

The Guidelines provide for an organizational structure that advises on the management of the program, on budgets, on the operations of research and on reviews and evaluations of the research programs. The structure consists of the M.E., a board of directors from members of participating universities (not necessarily each one), a Technical Committee (T.C.), the participating institutions represented by their Principal Investigators (PIs) and an External Evaluation Panel (EEP). The T.C. develops an annual work plan and budget, and advises on the scientific aspects of the CRSP and on priorities among the disciplines for funding. The EEP evaluates research for relevance and progress.

The T.C. makes its recommendations to the Board of Directors on the program and on the annual budget allocations. The Board submits the final recommendation to the M.E. which submits them to A.I.D. and BIFAD/JCARD.

The EEPs is composed of world class scientists having international experience who are not involved in the CRSP and who do not belong to an institution participating in the CRSP. Objectivity is sought in this manner. Candidates for the EEP are nominated by the M.E. and BIFAD/JCARD review the list of candidates and make recommendations to A.I.D. for final decision.

#### 11. Evaluations and Administrative Management Reviews

A.I.D. is responsible for periodic administrative/management review of each CRSP, using a team composed of representatives from A.I.D., BIFAD Staff, and one or more external scientist in a selected discipline or disciplines. During the first 10 to 12 years, EEP evaluations were done annually, and administrative/management reviews were done every third year. The Guidelines are being amended to extend A.I.D.'s administrative/management review process from 3 to 5 years.

The revised Guidelines provide for scheduling of External Evaluations over a five-year period with evaluations at varying depths on alternate years. An in-depth evaluation should be made every third year with visits to overseas sites by two people. Evaluations during other years of the five would be of less depth and intensity and would normally not require overseas site visits. Visits to U.S. domestic sites can be rotated during the five years. The EEP makes reports on all of its evaluations. EEP reports are submitted to the M.E., and the T.C., the Board, JCARD/BIFAD, and A.I.D.

If the M.E. disagrees with any of the recommendations of the EEP evaluation and does not want to act on a recommendation, it must report to A.I.D. and BIFAD on the disagreement giving reasons for not carrying out the recommendation.

A.I.D. can call for an evaluation, or a review at any time that the Agency feels that the need warrants the expense.

The CRSP's review and evaluation system is unique for A.I.D. and has worked extremely well. It has provided objectivity, and afforded shifts in country sites, and changes in participating universities with a minimum of difficulty. It

has helped improve the quality of research and maintain a global perspective.

12. The On-Going CRSPs

At present, there are 8 CRSPs: Small Ruminants; Sorghum and Millet; Beans and Cowpeas; Management of Tropical Soils; Peanuts; Aquaculture (Pond Dynamics); Assessment of Fisheries Stocks; and Implications of Marginal Human Diet Deficiencies (on cognitive development, morbidity, and work performance in the Nutrition CRSP).

The 8 CRSPs comprise 35 U.S. institutions working with some 63 host country institutions in 32 countries, and collaborating with 7 of the international agricultural research centers (IARCs). Two additional CRSPs are under consideration: one for sustainable agriculture and one for high value horticultural crops.

13. Buy-Ins

The Guidelines have been amended to provide authority for buy-ins from missions. Both technical assistance and research buy-ins are permitted as long as their goals relate to the

research goal of the CRSP. This is done through a "Basic Ordering Agreement", financed by task orders from individual missions. As the CRSPs' reputation spreads, buy-ins increase. To date, annual buy-ins amount to between 9 and 10 million dollars.

#### 14. The Training Component

Training and institutional development are important secondary objectives of CRSPs resulting from participation in CRSP research.

Some 800 host country, third country and U.S. nationals have received degree training under CRSPs, many in the capacity of research assistants, at one-half the cost of normal degree training financed by A.I.D. A much greater number of participants has received short-term training. Capability and capacity have been strengthened in host country research institutions where CRSPs are working. U.S. students receive training in a working capacity as research assistants.

15. Some Conclusions on the CRSP Mode

The CRSP mode has proven to be the most effective and economical means developed within A.I.D. for long-term collaborative involvement of U.S. and host-country institutions in international research. CRSP research is resulting in benefits to collaborating countries, their institutions, to U.S. agriculture, and to U.S. universities participating in CRSPs.

One great advantage of the CRSP mode of research (as compared to the contract mode) is in the economy of personnel required for the management/oversight responsibility. The CRSP mode permits a significant savings to A.I.D. in personnel. A.I.D.'s responsibilities can be achieved by one A.I.D. person for one to two CRSPs, each comprising up to 10 or more U.S. universities, and as many as 100 U.S. scientists working with an equal or greater number of host country scientists in 3 to 6, or more countries. Whereas, in the contract mode, A.I.D. management requirements are so detailed that one A.I.D. person deals with only one or two principal contractors which use a few personnel on each project, usually working with a single institution in one country. While one A.I.D. person might manage two or three

projects and contractors, such a method can tap only a limited number of universities and scientists per contract.

CRSP scientists are gaining important overseas experience which enhances their research work and their status as an international scientist. Furthermore, their interest is stimulated, their scientific knowledge expanded, and their perspective and horizon broadened. Scientists who rarely had the opportunity to travel outside travel to many countries and are involved in international research with several non-U.S. organizations. This contact has increased their knowledge and stimulated their creativity.

The training of students and the international experience of our research scientists have made and are making a visible impact on our universities. This is more often revealed in changes in curricula of universities.

The three-way partnership of A.I.D., U.S. universities and host country institutions has shown us a more effective way of working with host countries for utilizing the science and technology available in our university system, while working for our mutual benefits. Host country scientists working with the CRSP have matured, new scientists trained, and research

institutions developed, some to a degree of sophistication not envisioned.

CRSP have generated a spectacular amount of new technology. At this point new challenges are facing the CRSPs. Getting the research results widely used outside the participating CRSP's is one of the challenges. The Buy-In system offers some help in this respect. The other important challenges are sustainability; this applies to institutional sustainability, both in the United States and in developing countries, as well as to sustainability of agricultural production and the natural resource base that supports it.

Footnote:

Prepared for the Meetings of JCARD Special Committee on Sustainable Agriculture, July 18, 1990 and November 15, 1990.

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1. Guidelines for the conduct of collaborative research support activity under Title XII of the International Development and Food Assistance Act of 1975.

A report of the Joint Research Committee of the Board for International Food and Agricultural Development, October 11, 1977, published by the Agency for International Development, Washington, D.C. 20523.

2. Guidelines for the Collaborative Research Support Program under Title XII.\*

\*Guidelines developed by the Joint Research Committee, recommended by the BIFAD and approved by A.I.D. This is an Amendment of Guidelines dated October 11, 1977.

3. Guidelines for the Collaborative Research support programs under Title XII of the International Development and Food Assistance Act of 1975, June 21, 1985.

Board for International Food and Agricultural Development

Agency for International Development, Washington, D.C. 20523

4. Consultative Group on International Agricultural Research, Secretariat, (A Brochure), Secretariat, 1818 H Street, N.W., Washington, D.C. 20433, U.S.A., The World Bank.

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Appendix A to Paper, "Highlights of the CRSP Mode"

Acronyms

A.I.D. - Agency for International Development

BIFAD - Board for International Food and Agricultural Development - authorized in the Title XII Amendment of the International Development and Food Assistance Act 1975.

CGIAR Consultative Group on International Agricultural Research composed of Representatives of Donors which support The International Agricultural Research Centers (see Appendix B). It works with the Secretariat for the Center in The World Bank and The Technical Assistance Committee (TAC), a group of experts under the aegis of FAO in Rome. The United States is a member of CGIAR.

CRSP - Collaborative Research Support Program.

E.E.P. - External Evaluation Panel for each CRSP - composed of World-clan scientists, selected for their expertise relevant to the CRSP topic being reviewed, but having no involvement in the CRSP review (for objectivity).

Host Country - A country where A.I.D. is working, specifically, and here, where CRSP are or could be working. Developing country, or less developed country is not appropriate in some instances where CRSP's are working, e.g., Brazil.

IARCS - International Agricultural Research Centers.

I.P.A. - Inter-Personnel Agreement - An agreement between an agency of the Federal or State Government with a state university for contracting services of an employee of the University, with the government agency for a fixed period (or Reverse IPA is where the government Agency agrees for an employee to work for the University for a fixed period).

JCARD - Joint Committee on Agricultural Research and Development, a subordinate body of BIFAD as authorized in Title XII Legislation.

LDC - Less developed country.

M.E. - Management Entity, a university or other juridical body which is selected to receive grants for the CRSP and to manage the research program. It is held responsible to A.I.D. for the success of the program and accountable for the federal funds allocated in grants by A.I.D. The M.E. manages the participation of other U.S. universities through sub-grant agreements with these universities and their participation with host country institutions through memorandums of understanding or agreement.

M.O.U. - Memorandum of Understanding.

PASA - Participating Agency Support Agreement - made if agreement between government agencies for contractual purposes.

P.I.'s - Principal Investigations (scientists from U.S. Universities doing research in the CRSP.

RSSA - Research Support Services Agreement - similar to a PASA, but a contract for research.

T.C. - Technical Committee.

T.A.C. - A committee of research experts with international experience, formed by CGIAR to provide technical and scientific advice to CGIAR. It is attached to F.A.O. for administrative support.

INTERNATIONAL AGRICULTURAL RESEARCH CENTERS

**CIAT-Centro Internacional de Agricultura Tropical**  
Apartado Aereo 6713, Cali, Colombia. Founded 1976.  
Focus on crop improvement; and improving agriculture  
in the lowland tropics of Latin America. Research  
covers rice, beans, cassava, forages, and pasture.

**CIMMYT- Centro Internacional de Mejoramiento de Maiz  
y Trigo** P.O. Box 6641, Mexico 06600, D.F. Mexico,  
Founded 1964. Focus on crop improvement. Research  
covers maize, wheat, barley, and triticale.

**CIP - Centro Internacional de la Papa** Apartado  
5969, Lima, Peru. Founded 1971. Focus on potato and  
sweet potato improvement. Research covers potato,  
sweet potato.

**IBPGR-International Board for Plant Genetic  
Resources** Food and Agriculture Organization of the  
United Nations, Via delle Terme di Caracalla, Rome,  
00100 Italy. Founded 1974. Focus on conserving gene  
pools of current and potential crops and forages.  
Research covers plant genetic resources.

**ICARDA-International Center for Agricultural Research  
in the Dry Areas** P.O. Box 5466 Aleppo, Syria.  
Founded 1976. Focus on improving farming systems for  
North Africa and West Asia. Research covers wheat,  
barley, chickpea, lentils, pasture legumes, and small  
ruminants.

**ICRISAT-International Crops Research Institute for  
the Semi-Arid Tropics** ICRISAT Patancheru P.O.,  
Andhra Pradesh 502 324, India. Founded 1972. Focus  
on crop improvement; cropping systems. Research  
covers sorghum, millet, chickpea, pigeon-pea, and  
groundnut.

**IFPRI-International Food Policy Research Institute**  
1776 Massachusetts Avenue, N.W., Washington DC  
20036-1998, USA. Founded 1975. Focus on strategies  
and plans to meet world food needs. Research covers  
all aspects of policy analysis.

**IITA-International Institute of Tropical  
Agriculture** PMB 5320, Ibadan, Nigeria. Founded  
1967. Focus on crop improvement and land management  
in humid and sub-humid tropics; farming systems.  
Research covers maize, cassava, cowpea, plantain,  
soybean, rice, and yam.

**ILCA-International Livestock Center for Africa** P.O. Box 5689, Addis Ababa, Ethiopia. Founded 1974. Focus on farming systems to identify livestock production and marketing constraints in Sub-Saharan Africa. Research covers ruminants, livestock, and forages.

**ILRAD-International Laboratory for Research on Animal Diseases** P.O. Box 30709, Nairobi, Kenya. Founded 1974. Focus on control of major livestock diseases in Sub-Saharan Africa. Research cover theileriosis (East Coast fever) and trypanosomiasis (sleeping sickness).

**IRRI-International Rice Research Institute** P.O. Box 933, Manila, the Philippines. Founded 1960. Focus on global rice improvement.

**ISNAR-International Service for National Agricultural Research** P.O. Box 93375, 2509 AJ, The Hague, Netherlands. Founded 1979. Focus on strengthening and developing national agricultural research systems.

**WARDA-West Africa Rice Development Association** 01 B.P. 2551, Bouake 01 Cote d'Ivoire. Founded 1971. Focus on rice improvement in West Africa. Research covers rice in mangrove swamps, inland swamps, upland conditions, irrigated conditions.

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