IBSRAM and its Network Approach

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Summary

In this workshop, organized to initiate an Acid Tropical Soil Management Network, three major aspects must be dealt with:

1. *Management of acid tropical soils must be clearly defined in a multidisciplinary way, with a view to integrating environmental, agricultural, and socioeconomic factors. A common research approach needs to be developed, keeping in mind the network objective of increasing agricultural production on farmed acid tropical soils. A realistic research agenda must be prepared, considering both experimental and time imperatives.*
2. *The form of the network must be designed to be sufficiently coherent to retain the advantages of a network and sufficiently flexible to take into account local priorities.*
3. *A possible sequence of events could be:*

   - *Identification of National Cooperators;*
   - *Preparation of preproposals by potential National Cooperators;*
   - *A first evaluation and development of a network proposal by a Network Coordinating Committee (NCC);*
   - *Development of a mechanism for coordinating the network;*
   - *Submission of specific proposals by National Cooperators and reevaluation by the NCC;*
   - *Solicitations for funding.*

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Thus this workshop may propose a Soil Management Network which will:

- *Be attractive to national governments;*
- *Have appeal to donors;*
- *Result in improved use, agricultural production, and profitability from farming acid tropical soils.*

Why a Network?

We have emphasized that the goal of this workshop is establishment of a network to assist countries with acid tropical soils in applying existing and emerging knowledge regarding use and management of such soils, which will enable more productive and profitable use of such lands when they are farmed. Please keep in mind that we do not intend to embark on basic research on acid tropical soils, although some basic research may be associated with IBSRAM programs. We want to establish a network, and we want the network to assist and speed the application of existing knowledge through testing, adaptation, and on-farm validation in participating countries and in other countries that can apply the network's results.

Most of us have worked on acid tropical soils and have seen the great difficulties in their agronomic use. An IBSRAM Soil Management Network (SMN) is a cooperative way of tackling these problems and seeking practical, on-farm solutions to them. An SMN can make the best use of the scarce resources available. Three main reasons justify a cooperative effort:

- There is an urgent need to improve the production of regions with acid tropical soil ecosystems. The figures given in the preproposal and your presence here confirm that need.
- Although much remains to be learned about acid tropical soils, a great deal has already been learned, and it is now time to apply that knowledge.
- Independent efforts are too expensive in today's world. Through cooperation, we can speed the development of practical technologies so that ordinary farmers can use them.

Three Workshop Tasks

To define the basis of the IBSRAM concept of a network for acid tropical soil management, we have to deal with three main questions:

- The research problems we have to work on;
- The possible form of the network;
- The possible sequence of events.

Identify and Limit the Problem

Plucknett and Smith (1984) pointed out that the first two conditions of success for a network are that:

- The problem should be clearly defined and a realistic agenda should be drawn up;
- The problem should be widely shared.

Your presence at this workshop indicates that the problem is widely shared; however, the task of "managing acid tropical soils" may not mean the same thing to soil scientists in different regions. For example, in South America there are large areas of very acid soils where aluminum toxicity adversely affects many crops. In Africa some weakly acid soils are rapidly acidified under cultivation, and, after a few years of cropping, there is a rapid decline in yields as a result of fertility depletion and sometimes manganese toxicity. Thus, there is no one simple solution to the traditional problem of low yields and productivity of acid tropical soils.

Developing effective technologies to maintain, and preferably to increase, yields of food crops on acid tropical soils will require pedologists, soil chemists, soil physicists, and agronomists working together in multidisciplinary teams. A network enables the various specialists mentioned, and others if needed, to tackle the many aspects of the acid tropical soil problem, and it facilitates the exchange of results obtained to benefit everyone working on the problem.

The network must be concerned with three interrelated but distinct types of applied research:

- *Identification and characterization of the soils.* Acid tropical soils are highly variable. To be able to apply results obtained at a given location elsewhere, the soils must be identified by competent pedologists. In addition, the edaphic characteristics must be determined so that appropriate crops can be used.
- *Determination of agronomic practices needed.* Cropping practices will be affected by soil physical properties (structure, porosity, erosivity); by chemical toxicities (due to aluminum or manganese); by nutrient deficiencies or fixation of nutrients (such as phosphorus); by degree of acidity and existence of acid-tolerant crop varieties; and by cultivation practices. The existing limitations and best means of overcoming them and the best available management practices must be identified from throughout the network.
- *Socioeconomic acceptability and practicality.* An excellent technology will be of no use if it requires unaffordable or unobtainable inputs. Similarly, the types of work and practices to be followed must be ones that the people involved are able to perform and accept.

The network must take all these aspects into consideration as it develops a common research approach. A common approach does not mean that all the procedures will be identical. It means that we will agree on the concepts of the experiments and on the type of analyses and measurements to be conducted. In each country, the experiments will be linked to local socioeconomic constraints or priorities; that means periodic reevaluation and revision of the network program.

This common research approach must have an applied practical agricultural aim: the improvement of continuous cropping systems on acid tropical soils. IBSRAM does not intend to plan or support basic research at this time. If basic research is needed to solve a crucial problem, we will seek external cooperation to perform it.

After the problem has been clearly defined, we must prepare a realistic research agenda. Realistic means we have to consider both experimental and time imperatives. Experimental imperatives will be determined by the type of research approach employed. Time imperatives, as you know, are the most important for donors and national administrations, so we must try to get the quickest results possible. However, we must be on guard not to make shortcuts, which could later adversely affect the possibilities of interpretation of the results and transfer of the technology. A good network research program must ensure that results obtained in the individual countries of the network can be reliably compared on a scientific basis. We cannot endanger the projects to save time; we must adhere to the experimental imperatives.

Establish Structure of the Network

It is also necessary to decide on the form and *modus operandi* of the proposed Soil Management Network for acid tropical soils.

An IBSRAM network is an association with three kinds of participants:

- *National Cooperators*, which are the agencies in individual countries that will conduct the applied research in phase with the agreed-upon plans of the network working group. To do this, they may work with various cooperators, including national and international centers.
- *Donors*, who will fund part of the network costs and who will fund or otherwise assist the activities of individual National Cooperators.
- *IBSRAM*, which, through a coordinator and other IBSRAM staff, will help National Cooperators develop and execute the research program. Where necessary, IBSRAM will also act as a link between the National Cooperators and the donors.

Thus, a network entails three bodies cooperating to their mutual benefit. The contributions by each of these bodies will determine the success of the network and the benefits to each cooperator.

Many types of networks have served or are functioning in the agricultural field. Some give more strength to the international agency, others to the participants. IBSRAM is prepared to be very flexible and realistic and will avoid "trying to run the show." The National Cooperators must determine what they want to do, but they may need IBSRAM's help in achieving their goals.

On the other hand, a too-loose link between IBSRAM, the network, and the National Cooperators will prevent attaining the benefits of the network. If each National Cooperator is concerned with only its own local priorities, it may not benefit from or contribute to the network. So we must try to find sufficient coherence to keep the advantages of the network and sufficient flexibility to allow for local priorities and conditions.

Decide Sequence of Events

If an Acid Tropical Soils Management Network is formed, it will start with a limited number of participants, preferably representing a range in agroecological and socioeconomic conditions. The sequence of events and requirements may be somewhat as follows.

1. Each country in the network will need to have a national research agency that is already involved in some way in applied research on the use of acid tropical soils. The research agency selected to represent a country, therefore, will have some facilities and staff already engaged in acid tropical soil management and will therefore be called the "National Cooperator" of the country. All such countries will be welcome in the network, but the level of involvement and support from IBSRAM will vary from country to country.
2. Each potential participant will be asked to prepare a preproposal for activities of the National Cooperator. The preproposal of 3 to 5 pages should include:
   - Agroecological description of the region proposed for the experiment;
   - Socioeconomic background of the area concerned;
   - Description of the experiment(s) envisaged;
   - Identification of the national agency and scientists responsible for the project;
   - **Locally available facilities, in terms of experimental fields** and equipment, vehicles, laboratories, office space, and personnel;
   - **Approximate needs from external sources for equipment** and instruments, expertise, training, etc.;
   - Additional information helpful to the evaluation of the preproposal.
3. An interim Network Coordinating Committee (NCC) will be formed, consisting of 6 to 8 persons as follows:
   - 2 to 4 representing prospective National Cooperators;
   - 1 to 3 international specialist(s);
   - 1 to 3 donor representative(s);
   - 1 (the IBSRAM Interim Director);
   - 1 or 2 IBSRAM members of the Board (if practical).

This NCC will draft an overall network proposal from the preposals of the potential National Cooperators.

4. The proposal developed by the NCC will be taken to the respective countries by the representatives of the National Cooperators. In each country where there is to be a National Cooperator, the specific plan and proposal of that country will be revised and developed in detail. An important part of that activity will be to prepare detailed cost estimates of the requests being made for assistance to execute the proposal. The following actions will then occur:
   - When the proposal of each National Cooperator has been approved by the government concerned, it will be forwarded to IBSRAM.
   - IBSRAM will review the proposals received from the National Cooperators in the network. If necessary, some changes or some integration of requests may be made. For example, there might be three separate requests of a generally similar nature for training; these requests might be combined into a single request to serve the three countries.
   - After IBSRAM has approved the proposals and requests described, funding will be sought, perhaps by both IBSRAM and some of the individual National Cooperators. Some donors may prefer to provide funds to IBSRAM but may specify the activities to be supported in a particular country or countries. Other donors may want to provide support to selected National Cooperators on a bilateral basis; sometimes donors may choose to support only specific projects by a particular National Cooperator and on a bilateral basis.
   - If, after several months of seeking donor support, there are shortfalls in funding for the requests made, the NCC may have to meet and work out some adjustments. If the requests made are realistic, prospects for adequate funding are considered good.
5. Once the network is established and funded:
   - **IBSRAM will provide a coordinator to assist the individual National Cooperators during the initial 1 to 3 years.**
   - **Provided the necessary funding is available, arrangements will be** worked out for the NCC to make field visits to one National Cooperator per year on a rotational basis to view work in progress and to review and evaluate the results. Such reviews and field visits may lead to adjustments in plans for the work to be done during the next year or two.
6. When the Network has been established and is successfully operational, additional countries wishing to join as active National Cooperators will have the opportunity to do so. In addition, network newsletters and other IBSRAM publications will be available to interested countries even if they are not able to join the research activities of the network.

Network Participation

There are several advantages for developing countries accepting the invitation to participate in the IBSRAM Acid Tropical Soils Management Network. The advantages include:

- The opportunity to send participants to network workshops.
- Receipt of information about acid tropical soils, their extent and variability, as well as hearing and seeing how improved management of them may increase their productivity under certain conditions.
- **A chance to seek membership in the network likely to be formed and** thereby to be included in:
  - IBSRAM requests to donors for funds to support applied research and **on-farm investigations by National Cooperators.**
  - **IBSRAM information services providing the newest technical information** about ways, means, costs and results of various methods (including new techniques) of acid tropical soil use and management.
  - **The annual review and evaluation of results from the various** National **Cooperators in the network.**
  - **Regular visits to each National Cooperator by IBSRAM officers who will provide information, advice, and encouragement.**
  - **Training courses or visits by specialists, etc., which IBSRAM** may be able to organize.

In conclusion, may I say that I am very confident of the prospects for establishing a network on management of acid tropical soils. It meets an urgent need, and some donors are already willing to finance the type of applied research intended. But I must emphasize that this inaugural workshop occurs at a crucial moment; the possibility of establishing the network depends upon its success or its failure. Because the Acid Tropical Soils Management Network is essential for IBSRAM, IBSRAM, the Organizing Committee, and I myself will put our best efforts forward in an endeavor to ensure the success of this meeting and to succeed in the establishment of the network. Upon that success depends the credibility of IBSRAM.

But we cannot create the network without your interest and input. I hope that those who have participated in the field trips in Peru and Brazil have found them relevant for their own interests. This week we discussed in detail the scientific approaches to be employed in seeking solutions to the problems we plan to work on. We must also decide the form of the network and try to agree on the first steps of this enterprise.

I solicit your best efforts to focus your interest on these problems and your help in developing a proposal for an Acid Tropical Soils Management Network which will:

- Be very attractive to your governments, thereby winning approval and financial support.
- Appeal to donors who as a result will support your proposals.
- Result in improved use, agricultural production, and profitability from the use of acid tropical soils management in developing countries.

My best wishes for success!

REFERENCES

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