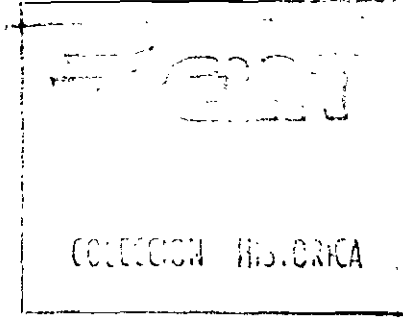


SB  
321  
.11'8

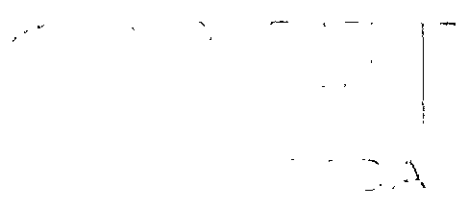


**ANNUAL MEETING**

held at

**Nairobi, Kenya**

**24-27 April 1993**



15169

28 ABR. 1994

7 211

# REGIONAL PROGRAMME ON BEANS IN EASTERN AFRICA

## MINUTES OF THE ANNUAL MEETING OF THE STEERING COMMITTEE

Nairobi, Kenya, 24-27 April 1993

### Present

- Ato Teshome Girma, Coordinator, Lowland Pulse Research Programme, Institute of Agricultural Research, Melkassa, P.O. Box 436, Nazreth, Ethiopia (Telex 21548 IAR ET; Fax 251-1-611222).
- Mr. S.T. Kanyagia, Coordinator, Grain Legume Programme, Kenya Agricultural Research Institute, National Horticultural Research Station, P.O. Box 220, Thika, Kenya.
- Mme Lea Rampanana, Chef, Departement Agronomie, Centre National de la Recherche Appliquee au Developpement Rural (FOFIFA), B.P. 1444 Ambatobe, 101 Antananarivo, Madagascar (Telex 22591 CIRAD MG; Fax 261-2-25926).
- Dr. Noel Govinden, Head, Food Crops Division, Mauritius Sugar Industry Research Institute, Reduit, Mauritius (Telex 4899 MSIRI IW; Fax 230-454-1971).
- Dr. Salih H. Salih, Coordinator, Grain Legume Programme, Agricultural Research Corporation, Hudeiba Research Station, P.O. Box 31, Ed-Damer, Sudan (Telex 40001 HADID SD, Attn Dr. Salih Salih).
- Dr. Clemence Mushi, Coordinator, Bean Programme, Lyamungu Research Institute, P.O.Box 3004, Moshi, Tanzania (Tlx 43088 COBO TZ).
- Mrs. Sophie Musaana, Coordinator, Bean Programme, Kawanda Research Station, P.O. Box 7065, Kampala (Telex 61406 RAYMA UG, Attn Hemu for CIAT; Fax 256-41-567635).
- Dr. Roger Kirkby, Regional Coordinator, Regional Programme on Beans in Eastern Africa, CIAT, P.O. Box 23294, Dar es Salaam, Tanzania (Telex 41529 SEC SER TZ; Fax 255-51-75600 or -30966).
- Dr. George Weber, Regional Programmes (Africa), CIDA, 200 Promenade du Portage, Hull, Quebec KIA OG4, Canada (Telex 053-4140 CIDA HULL; Fax 1-819-935-9454).

### Absent

- Mr. Hudson Masambu, Agriculture & National Resources Division, REDSO/ESA, USAID, P.O. Box 30261, Nairobi, Kenya (Telex 22964 AMEMB, Attn REDSO; Fax 254-2-330945).

## 1. Opening

The meeting was opened by the outgoing Chairman. The meeting was held at the Pan-Afric Hotel, Nairobi, immediately following the closure of the Regional Multidisciplinary Workshop in Thika. This arrangement enabled members to participate in the triennial review of sub-project research, and also economised on meeting costs.

Mauritius and Tanzania were welcomed as participants for the first time. The network mechanism should enable small bean-producing countries, such as Mauritius, to benefit. Tanzania had been keen to participate because its northern producing areas fall within the Eastern Africa ecological zone, and this country already participates in regional meetings of NARS directors.

## 2. Approval of Minutes of the Previous Annual Meeting

The Minutes of the annual meeting held in Nazreth and Addis Ababa from 20 to 14 June 1992 were signed by the outgoing Chairman as a true record.

## 3. Matters Arising from the Minutes

*P.2, last paragraph: Quarantine issues:* Now that Kenya's quarantine greenhouse finally is almost ready, the new constraint raised on greenhouse operating funds should be discussed by the national coordinator (NC) with Director, KARI.

In Madagascar, 150 materials from CIAT are still in quarantine pending resolution of the political situation; hopefully by June FO.FI.FA. would be able to contract the quarantine service.

*P.3, para 1: Annual reports:* Ethiopia's 1991/92 report is in preparation; subsequently, only station reports in highlight form will be produced; the annual trials directory would be of less interest to Network members.

In Kenya, KARI publishes station reports and a condensed national report - that for 1990/91 is now on sale. It was agreed that the Network should translate and disseminate Madagascar's 1992 annual report on grain legume research (which was brought to the Meeting).

Sudan's most recent station report is for 1989.

Tanzania's national coordinator compiles an annual report from the separate reports produced by the three institutions involved in bean research; that for 1990 had been sent to Uganda and was requested by all other members; 1991 is being bound.

In Uganda, coordinators of principal commodities (including beans) compile their own reports, which are more detailed than station reports and are published sooner. Copying of the bean

report for 1991 is delayed by local funding constraints, but is expected shortly.

A discussion on a Network dissemination strategy followed. The Madagascar/Tanzania/Uganda model of a commodity national report is the ideal, if the national importance of beans warrants it; distribution should be direct to regional and national coordinators. Wider access to station and other reports (including informal ones) should be provided, by means of a single copy (e.g. title page plus copy of bean section) sent to the regional coordinator (RC), who would distribute an annual list and respond to individual requests for photocopies.

*P.3, para 3:* Ethiopia is carrying out diagnostic surveys related to food and nutrition issues.

*P.3, para 7:* The lack of postgraduate training funds was noted as being the main area where network funding cuts have been made; the RC was asked to approach new donors with a request for two scholarships having the highest priority.

*P.4, para 6:* Ethiopia's voluntary freeze on germplasm imports from Africa could be resolved in about one year by the establishment of a virus indexing lab at Nazareth under the Horticulture Programme. However, no virologist has yet been appointed, and the NC would try to develop a temporary solution, such as use of the Plant Protection Research Center (located in a non-bean area).

*P.6, para 5:* The RC confirmed that the combined agricultural economics/social science position on CIAT's pan-African team would be located in Uganda under Eastern Africa project support. The pan-Africa pathology position is located in Rwanda.

*P.10, para 5:* The long delay in supplying last year's equipment purchases from CIAT Miami was noted. Also, while NARS acutely feel the absence of this item from Phase II budgets, the CIDA representative pointed out that donors will never meet all requirements, that this Network received good support in Phase I, and that it is especially necessary at a time of declining budgets to indicate evolution in priorities.

#### 4. Appointment of New Chairman

A vote of thanks was passed to the outgoing chairman from Ethiopia, Mr. Teshome Girma. It was agreed that it is still important for chairmanship to rotate among countries; however, it would be difficult to do this if the position were invariably tied to the hosting of the annual meeting. Accordingly, Dr. Salih Salih of Sudan was unanimously elected to chair the Committee for 1993-94.

## 5. National Coordinators' Progress Reports

Summary reports were presented by all countries. Discussion points follow.

*Ethiopia* : Each Advanced Yield Trial continues for three years, with a new series of entries starting annually. Varieties A 410 and A 262 are in on-farm tests and are likely to be recommended. Several advanced lines have been requested by other countries.

In a discussion of inconsistencies among countries in the names by which common market classes are known, the terms 'navy' and 'drybean' were encouraged as being better understood in the region. The RC agreed to obtain copies of a wall chart showing CIAT classification of seed types. NCs were asked in future reports to indicate which activities are supported as regional sub-projects.

*Kenya* : Breeders from all institutions and stations had met informally after the Multidisciplinary Workshop and decided to develop a proposal for a national variety trial.

*Madagascar* : Three small, black-seeded CIAT introductions (BAT 1324, G 0025, XAN 58), probably first identified for acid soils in the Great Lakes region, are doing well under similar conditions in Madagascar. It is important to find out soon whether or not their high yields will make this grain type acceptable.

*Mauritius* : Snap bean production for export has stopped due to cost of labour; complementarity of labour demands with sugar production must be a criterion in selecting crops for diversification. Diversification from sugar production remains important, but import substitution is no longer a primary concern [market price of drybeans is above USD 1.00 per kg].

F. Ismael is now fulltime on legumes, his time being divided equally between beans and groundnuts, with other disciplines providing part-time support. CBB and halo blight are main problems, responsible for increasing infection levels as varietal evaluation proceeds.

The questionnaire on interest in cane/bean intercropping, an area of expertise that could be useful elsewhere, had elicited positive responses from Kenya (Sugar Cane Research Station), Tanzania, Uganda and, to a lesser extent, Malawi.

*Sudan* : 27 WANABAN entries received from CIAT five years ago are still being evaluated. The *Macrophomina* nursery was received from the Kenya sub-project. Introductions of large white-seeded types e.g. from the Middle East region, are needed - and Ethiopia agreed to send some - but other grain types could be used in improvement of local materials; starting a crossing programme should still be the highest priority. The reported mean yields

of 1500 kg/ha refer to experimental yields. The sub-project agreement and RC's request for banking information were not received; consequently, no regional funds were disbursed this year.

*Tanzania* : The AFBYAN III and first East Africa trial (EABYT) were multiplied at Miwaleni and distributed to other countries. However, quarantine authorities have imposed a temporary ban on further seed imports of beans and other crops, as the facilities are not considered to provide adequate security.

*Uganda* : Beans ranked third in export earnings in 1992, after coffee and sesame. Three new varieties are to be recommended for pre-release. The new high yielding line MCM 5001, resistant to necrotic BCMV, is being adopted despite its small seed size, as a result of collaboration with NGOs in seed production and dissemination. Action research is in progress on sales of 0.5 kg seed packs from shops. It was felt that the breeding programme should take seed dissemination as an integral part of its responsibilities.

Introductions of bush types from Rwanda probably should be tested first in S.W. Uganda, rather than at Kawanda. Climbers introduced from Rwanda to S.W. Uganda are now with farmers also in other highland areas. The NP plans to give more attention to multiple disease resistances, and less to single resistances. No agricultural inputs are used in on-station bean trials.

National staff will have more time for programme research as their present postgraduate studies finish during the coming year. Loss of the NP agronomist to lead the on-farm testing programme of on NGO may have proven to be an overall benefit to the NP. Measuring the undoubted impact of bean research in Uganda should become a case study for the Network, and the NP economist will conduct adoption surveys; but changes in economic policies make impact assessment more difficult.

Uganda has been providing a regional crossing service to incorporate CBB resistance into materials sent by other countries; in return, Uganda would like to have more involvement with several sub-projects based in other countries.

## 6. Regional Coordinator's Annual Report

Main discussion points following presentation of this report are given below. Corrections to the database of regional activities are incorporated in the attachment to these Minutes.

The RC clarified that Dr. Gridley continues to be the regional breeder primarily responsible for support to Eastern Africa NARS. However, Dr. Youngquist at Arusha can provide assistance to the Ethiopia sub-project due to his pan-African responsibility for bean stem maggot resistance breeding, and also can provide specific support on request in the area of biometrics. It is

possible that these responsibilities will be reorganized.

The channeling of sub-project funds through national institutions had achieved greater awareness of the network on the part of NARS directors; no insurmountable problems had arisen.

It was suggested that a leaflet be prepared, summarizing pan-African bean germplasm activities and how each can be accessed. This should include African and regional nurseries, sub-project nurseries and crossing services. Information is also needed on timing/deadlines for contributing or requesting collaboration in each cycle, and whom to contact. National breeders should be encouraged to take on specific responsibilities.

A revised plan was agreed for assisting Sudan to start a breeding programme: several technicians are to be trained in an in-country course, by the Sudanese breeder with reference to the CIAT auditutorial unit on crossing in beans and, if desired, with assistance from a Uganda breeder. Sudan will confirm dates to the Uganda NC (last week November/first week December 1993 ?).

Members wished to determine the feasibility of transferring the present 2-months CIAT course for breeders and pathologists to an African location, as demand for the next two years seems to surpass available funds. Local costs and availability of suitable facilities, including laboratory, are to be investigated (see Workplan).

The CIDA representative expressed pleasure at the collegial nature of the Network. He emphasized that CIDA's interest is to see benefits for farmers.

## 7. Reports from Working Groups and Monitoring Tours

Reports were available from the Working Group on Soil Fertility Maintenance in Maize/Bean Systems of the Eastern African Bimodal Highlands (held jointly with CIMMYT and other groups), and three monitoring tours - on bean breeding, on-farm and participatory research techniques, and bean bruchids.

NCs reported that participants in the breeders' tour had been impressed by the large bean programme in Uganda, including the most advanced crossing programme in the region. The visit to Kenya had been less useful, and led to the conclusion that exposure to the strongest national programme or to new ideas is more important than trying necessarily to include visits to other countries. Next time, a larger number of young breeders should be included, possibly even as a pan-African trip.

On the other hand, the excellent report on the bruchid tour showed that the value of making cross-country comparisons during a monitoring tour could outweigh the additional expense and logistical difficulties. For this purpose, combining Uganda with Rwanda or Kagera (Tanzania), or Kenya with northern Tanzania,

generally would ensure good coordination of crop cycle.

The Committee agreed on the importance of monitoring tours when well focussed on clearly defined objectives. It wishes regularly to see reports produced by the participants themselves during a wrap-up session (as was done in the bruchid tour), including a brief summary of lessons learned, what was particularly liked, and any gaps or comments to improve organization. Some tours might also generate later a scientific report for a wider audience.

#### 8. Directors' Committee

The Steering Committee, noting that these Minutes are to be reviewed by the Directors Committee, wishes to draw their attention particularly to the following concerns (other points are raised elsewhere in these Minutes):

- a) National plant quarantine procedures comprise one of the strongest constraints to bean improvement in this region.
- b) Regional sub-project research is proving in general a highly cost-effective mechanism for the utilization of scarce manpower, financial and other research resources; practical achievements are used routinely in evaluating regional networks, and NARS might do more to apply this criterion in assessing the performance of national scientists.
- c) Reductions in level of financial support to the bean networks are serious, and it is earnestly hoped that the Directors will approach potential new donors; as a group, NARS directors may be able to tap new sources that are not available to individual NARS. Specifically, additional funds are warranted and urgently needed to restore the Network's activities in postgraduate training, for provision of essential equipment for national programmes, and to increase the level of activities in sub-project research and in short-term training.

#### 9. Regional Network Strategy

The strategy paper presented by the RC and last year's SC Chairman to the USAID Regional Networks Meeting in Nairobi in January was endorsed. It could be appropriate for the current Chairman to represent the network at other meetings in the future.

It was agreed that the Organizational Plan approved last year needs clear identification of farmer priorities as being the starting point for planning purposes. It also should be clarified that sub-projects are executed by NARS.

The SC would be prepared to consider proposals sent to it for endorsement and technical support, even though bilateral or other



non-network funds are to be used. In this manner the SC could facilitate wider efficiency and coordination in bean research.

The Network not only needs to achieve good performance, but also to develop its own capacity for monitoring this. Setting specific targets and indicators are responsibilities to be shared among Network members.

#### 10. Indicators of Network Performance

A planning framework for the Network was developed at the 1992 meeting of this Committee (see Minutes). This year, members are working on developing indicators by which performance can be assessed. Indicators to complete selected sections of the planning framework were developed together during this meeting; remaining sections were shared out among participants, who are to send in drafts by mid June. The drafts of all sections will be compiled by the RC, distributed to members for revision and return by mid August, and will be presented to the Directors' Committee for consideration or endorsement in late 1993.

The SC foresees the need for some funding from donors for monitoring and evaluation of network performance, e.g. for farmer surveys. Sub-project funds might be used for self-monitoring. The Directors Committee is requested to consider whether national resources for manpower and funds could be available for this purpose, particularly for network activities that take place primarily at the national level.

A promising indicator of the Network's sustainability might be the endurance of the SC members, who in two consecutive years have met throughout the weekend!

#### 11. Development of Annual Workplan and Budget

This year's Workplan and Budget (see Appendix) was developed collaboratively during the meeting, without the assistance of a first draft compiled by the RC. This change in procedure worked well, but took more time; consequently, planning of CIAT support activities was not completed, and this section is to be circulated first in draft form by the RC.

The principal area for discussion concerned the Network's future collaboration with the Crop Management Research Training at Egerton, Kenya. CMRT is designed for graduates, although there may be greater demand for diploma-level staff. Most SC members agreed with the CIDA representative that participants generally are doing well as a result of the course, particularly in on-farm research. However, Mauritius considered that its participant would have benefitted more if the general standard of participants were higher, allowing focus on new techniques such as farmer participatory research rather than on e.g. ANOVA calculations. All considered that there is still too much attention to maize.

The Committee felt that a shorter, four-month CMRT course would attract more applicants, as most countries do not recognize the CMRT diploma in professional advancement. The CIDA representative urged that quality of work and strengthening of institutional capacity be used as the primary criteria for evaluating sponsorship of the course. CMRT management's plan to shift focus to natural resources could be in line with the SC's concern that the course try to meet the needs of distinct groups (including diploma holders). Commitments to CMRT in the Workplan were made conditional upon changes in intake and/or length of course.

Productivity in network research is leading to a new constraint: meeting page charges for publication in international journals. The SC agreed to provide up to US\$ 1500, and decided to review next year whether or not this might be used also to contribute to production costs of the proposed African Crop Science Journal.

A regional network newsletter would be appreciated by member countries. The RC agreed to make a start by distributing publications received from members - regional newsletters are dependent on active participation by members. However, the cutbacks in coordination of the Africa networks leave little time at present for a new activity.

## 12. Regional Collaborative Sub-Projects

Progress reports were received from all 25 sub-projects that received funding in 1992-93, and 23 of these submitted new workplans and budgets. After considering also the technical progress reports at the Multidisciplinary Workshop, new budgets for a further year were approved in 20 cases, although three of these were made conditional upon presentation of revised workplans. Approved budgets for renewals averaged US\$ 2100 each.

A total of 11 new proposals were considered. Seven of these were approved, generally with modest initial budgets (average US\$ 1350). A revised list of sub-projects is shown at the end of this report.

The SC, considering proposals on their merits, was still not entirely satisfied with the balance among topics in the 1993/94 portfolio of sub-projects. Further proposals are to be sought in underrepresented fields (see Table 1).

The SC revised the guidelines on sub-projects, distributed to proposers and sub-project leaders, so as to require external review and an institutional commitment before a new proposal is brought to the SC (see attachment).

The attention of the Directors Committee was drawn to the matter of NARS contributions towards sub-project budgets. A more uniform approach to institutional financial commitments to research of regional importance would be useful.

### 13. Any Other Business

Some improvement in the standard of research presentations was noted by comparing the regional multidisciplinary workshops of 1990 and 1993. Sub-project leaders evidently now have more scientific data, and are making greater use of visual aids. However, more improvement is needed - overheads were often congested or faint, and many speakers were hard to hear. Practice presentations among colleagues are a must (CIAT staff regularly do this), and NCs accepted a responsibility to see that these happen. The RC was asked to obtain and distribute a manual on presentation techniques, and to include a speaker on this topic in a future workshop. The acoustics of the Blue Post Hotel are better suited to working groups than to large workshops.

The SC's concern over the need to improve presentation standards is also raised to the attention of the Directors Committee.

### 14. Next Annual Meeting

The next meeting is scheduled for early April 1994. Ideally, it will be hosted by Madagascar, whose SC member is to confirm acceptance, identify a hotel and meeting place, and advise costs to the RC.

While cost was agreed to be a factor in selecting meeting venues, the SC reaffirmed its belief that rotation among countries is also important in ensuring NARS recognition of the Network.

*Table 1. Distribution of Sub-Projects Budget by Problem Area*

Problem Area	Budget as Percent of All Sub-Projects	
	SC target	1993/94 allocation
Variety Development and Resistance to Biotic Constraints	30	42
Integrated Pest Management	15	22
Tolerance to Soil Constraints	15	13
Integrated Crop and Soil Management	20	10
Socio-Economic Issues	20	13
Total	100	100

EABRN

Annual Workplan  
and Budget

April 1993 to March 1994

EASTERN AFRICA REGIONAL BEAN RESEARCH NETWORK

WORKPLAN AS APPROVED BY STEERING COMMITTEE

April 1993 to March 1994

(subject to approval of USAID supplement to second phase)

**Goal:** To strengthen the research capacity and regional cooperation to improve the productivity of common beans in Eastern Africa.

**Strategy 1:** To strengthen the research capacity of national programs.

a. Training at CIAT

i. Two subproject leaders - IPM Snapbeans (Kenya) and Anthracnose (Ethiopia) - as senior visiting scientists, April-May 1993. Training = US\$8,000

ii. Preference to attempt development of a regional course to enable more graduates to participate than would be possible at planned 1994 CIAT multidisciplinary course (see: 1.c-i).

b. Other training outside region

Share 50% support for Farm Management training (Ethiopia-1) at ICRISAT, India.

Training = US\$2,500

c. Regional and in-country courses

i. Regional multidisciplinary course: CIAT to investigate feasibility and cost. Current candidates for biennial 2-month course: Ethiopia (3), Kenya (2), Madagascar (1), Tanzania (1), Uganda (2).

Training = US\$40,000

Publications = 4,000

Staff Travel = 12,000

ii. Crop Management Research Training (CMRT), collaboration with CIMMYT/Egerton/KARI at Egerton, Mar-Aug 1993. Ethiopia (1), Kenya (1), Uganda (1). CIAT resource persons: C. Wortmann, L. Sperling.

(1992/93 Training = US\$25,000)

Staff Travel = 2,500

iii. CMRT 1994: Conditional upon course changed to 4 months. either (a) 3 graduates - Ethiopia (1), Kenya (2). or (b) 7 diploma-level - Ethiopia (2), Kenya (2), Mauritius (1), Uganda (2).

Training = either (a) US\$17,000

or (b) 23,000

Staff Travel = 2,500

iv. Training in soil fertility research, to support ANSES work. Tanzania and Uganda (3 people) - if funds permit.

Training = US\$4,000\*

- v. In-the-field training on farmer-participatory methods for soil fertility research, Uganda/Tanzania (Kagera), May 1993. Participants: Madagascar (1), Tanzania (2), Uganda (2). Resource person: C. Wortmann.  
Training = US\$3,000
- vi. Informal training in bean stem maggot research methods, at Arusha: Kenya (1), Uganda (1). Resource person: K. Ampofo.  
Training = US\$1,000
- vii. Kenya course on statistics and computer application:  
5 participants provided a cost-effective arrangement is possible (e.g. collaboration with CIP/CIMMYT at Egerton).  
- if funds permit. Training = US\$3,000\*  
Staff Travel = US\$1,000
- viii. Uganda course in farmer-participatory research methods:  
10 staff, possibly with other commodities.  
Resource person: regional socio-economist;  
- postpone to mid-1994 if funds inadequate.  
Training = US\$7,000\*
- d. Inter-country training
- In-country training to acquire and practice crossing skills for 5 technicians in Sudan, Nov 1993.  
Resource persons: Sudan staff and one Ugandan breeder.  
Training = US\$3,000
- e. Postgraduate scholarships
- Coordinator to assist NARS in approaching donors for two high-priority scholarships.
- f. Develop and distribute training materials
- i. Publish and distribute to all countries the training manual on bean research methods for technicians.  
Publications = US\$6,000
- ii. Distribute new audiotutorial units prepared by CIAT regional scientists.  
Publications = US\$2,000
- iii. Despatch back set of materials for Mauritius.  
Publications = US\$1,000
- g. Assist development of national planning skills
- Financial assistance and regional staff technical support for national planning workshops: Ethiopia and Uganda.  
Regional Workshops = US\$6,000  
Staff Travel = 2,000

**Strategy 2: To reinforce the Eastern Africa Bean Network**

**a. Development of network strategy and sustainability**

- i. Coordinator to work with SC members during the year to complete the Planning Framework indicators.
- ii. Coordinator to develop an interactive database on which national coordinators can record and update activities.
- iii. Coordinator and financial/administrative officer to make visits as necessary to collaborating institutions and research sites.

Staff Travel = US\$4,000

**b. Promote participatory management of the Network**

- i. Support annual planning meeting of the Steering Committee, scheduled for early April 1993 in Madagascar.

Steering Committee = US\$6,000

- ii. Support annual meeting of Directors Committee, tentatively scheduled for October and to be organized collaboratively with other networks.

Steering Committee = US\$2,000

**c. Pan-African coordination**

- i. The (pan-African) coordinator will continue coordinating SADC network activities and its search for funding, and will assist the transition of coordination responsibilities in the Great Lakes network.

- ii. The coordinator will participate in the annual workshop for the Great Lakes network, the SADC network steering committee, the SADC networks team leaders meeting and the annual bean coordination meeting for Tanzania.

Staff Travel = US\$3,000

- iii. The coordinator will continue liaising with other regional commodity networks and will work for a close collaborative arrangement between those on beans and the emerging network on natural resources management.

Staff Travel = US\$2,000

**d. Pan-African research workshops**

- i. Working group on bean entomology. Second meeting to be held in Harare, 20-22 Sept 1993. Seven participants from E. Africa. Resource person: K. Ampofo.

Workshops = US\$8,400

Staff Travel = US\$1,500

- ii. Plan for workshops in mid-late 1994 on seed dissemination approaches; working group on bacterial and viral diseases (proposed for 23-26 May 1994); and for collaborators in the ANSES (screening for tolerance to soil constraints). Resource persons: H. Gridley, R. Buruchara, C. Wortmann.

e. Eastern African regional workshops

- i. Eastern Africa multidisciplinary workshop, Thika, Kenya, 19-23 Apr 1993. 45 participants, primarily to report on sub-projects research since 1990.

Workshops = US\$20,000  
Staff Travel = 1,000

- ii. Eastern Africa breeders working group, Uganda. To review regional trials, methods and farmer feedback. Participants: Ethiopia (2), Kenya (3), Madagascar (1), Sudan (1), Tanzania (1), Uganda(2). H. Gridley.

Workshops = US\$7,000

f. Regional research sub-projects

Technical and financial support for sub-projects approved by Steering Committee will be provided. NARS will be encouraged to submit new proposals in the areas of agronomy and socio-economics.

Regional Subprojects = US\$54,000

g. Monitoring tours/field workshops

- i. Travelling workshop on climbing bean research and development in Rwanda, 14-17 June 1993. Participants: Ethiopia (1); Kenya (2), Madagascar (1), Tanzania (2), Uganda (2). Resource persons: Rwanda national program, R.Buruchara, L. Sperling.

Workshops = US\$7,000

- ii. Study tour on sugarcane/bean intercropping - farmers' practices, research and development potential. Western Kenya/Uganda, Oct 1993? Kenya program to organize.

Workshops = US\$5,000\*

- iii. The Steering Committee encourages subproject leaders to organize these events with their regional collaborators.

Workshops = US\$3,000

h. Germplasm exchange among national programs

- i. Eastern African Zonal Bean Evaluation Nursery (EAZBEN) and Yield Trial (EAZBYT), and third round of African Bean Yield and Adaptation Nursery (AFBYAN-3): to be continued, extended to Ethiopia & Kenya, and analyzed collaboratively.

Field Operations = US\$2,000

- ii. Regional breeder to collate and distribute a leaflet on availability and participation in nurseries in Africa.

- iii. Assist Ethiopia to index seed for viruses when importing regional nurseries. Requirements to be identified by national coordinator.



j. Distribute information on bean research

- i. Continue publishing, in collaboration with other regional bean networks, three Pan-African series (Workshop Proceedings, Occasional Papers and Reprints).  
Publications = US\$15,000
- ii. Assist NARS researchers to publish internationally, by meeting page charges levied in foreign currency.  
Publications = US\$1,500
- iii. Meet Ugandan bean team's registration fees for Crop Science Conference, June 1993.  
Publications = US\$ 450

k. Economic analysis of research impact and constraints

Regional socioeconomist, in collaboration with NARS and local economists wherever possible, to assess and document benefits from regional research. Emphasis on variety releases and seed dissemination within countries, with field work in Uganda and Tanzania.

Field Operations = US\$10,000  
Staff Travel = 4,000

**Strategy 3: To improve the yields and yield stability of bean varieties to be released by national programs**

a. Germplasm introductions

Monitor and facilitate introductions of the first large sets of new germplasm from Latin America into newly expanded quarantine facilities in Kenya and Madagascar. Regional staff will monitor this phase. Elsewhere, facilitate continued introductions as requested by national breeders.

Staff Travel = US\$3,000

b. Improvement of national variety development systems

- i. Further encouragement and technical support to national breeders in making greater use of segregating populations. Include as topic in breeders meeting (see 2.e-ii).  
Staff Travel = US\$2,000
- ii. Catalyze expanded, inter-institutional systems for national multilocation yield trials: Kenya (KARI stations plus University); Madagascar; Uganda into northern areas.  
Field Operations = US\$4,000
- iii. Encourage national breeders to take certain responsibilities for on-farm testing and for initial seed production and dissemination of new varieties (see 2.e-ii).
- iv. Regional and national breeders to collaboratively analyze/interpret data across sites, so as to economize in varietal selection within more decentralized bean breeding systems.  
Staff Travel = US\$3,000

- v. Assist Sudan to develop a crossing program to improve locally adapted varieties for specific traits. (See 1.d above for training). CIAT to send parental sources for *Macrophomina*, etc.

c. Identify sources of resistance

- i. Regional breeder to carry out in Uganda initial largescale screening, selection and multilocation yield testing of lines for resistance to blackroot strains of virus (BCMV). Form resistance nursery and distribute to all NARS.

Field Operations = US\$7,000

- ii. New, non I-gene Pan-African Disease Nursery (Non-I PADN) to be distributed from Colombia and monitored collaboratively; Rwanda-based regional pathologist to support evaluation and coordinate data analysis. Also to continue support to NARS and sub-projects in identification of resistance to priority diseases. Staff travel funded from GLR.

- iii. Regional entomologist to carry out at Arusha initial screenhouse evaluations for bean stem maggot resistance, collaborate in evaluations (Ethiopia and Tanzania are principal hotspots for screening) and provide access by NARS to segregating materials from crosses.

Field Operations = US\$6,000

Staff Travel = 2,000

- iv. Bean genotypes under the new African Network for Screening for Edaphic Stresses (ANSES) being evaluated in specific environments for tolerance to low N, P and K, and high Mn. Support from regional agronomist in across-sites interpretation and to start 2nd cycle.

Field Operations = US\$2,000

Staff Travel = 2,000

d. Regional crossing

- i. The regional breeder will make crosses in Uganda on request from NPs, to incorporate resistance to blackroot strains of BCMV into released or elite varieties.

Field Operations = US\$2,000

- ii. Regional sub-project leaders will be encouraged, where appropriate, to provide a similar service to improve specific resistances of released varieties, by crossing with sources of resistance identified by sub-projects. New sub-projects in bruchid and CBB resistance services.

e. Strategies for enhancing bean genetic diversity on farms

- i. Encourage NARS to allow farmers improved access to genetic diversity - in on-farm evaluations and by making multiple releases of new varieties.

- ii. Complete study of multi-line variety concept, in Uganda case study.

Field Operations = US\$2,000

**Strategy 4: To improve the productivity of cropping systems within which beans are produced.**

a. Diagnostic research

- i. Exploratory research with Kenya to understand causal relationships underlying recent upsurge in root rots. (Staff travel costs from GL network).
- ii. Repeat and complete test of BEANGRO model for crop management responses, using existing trial data from Kenya.
- iii. Commence study of root growth barriers: collaborative research on sub-soiling with Ugandan scientist.  
Field Operations = US\$1,500

b. Soil fertility research for bean production

- i. Complete research on technical aspects of green manuring with *Crotalaria* in Uganda - assess nutrient release.  
Field Operations = US\$2,000
- ii. Complete development of predictive method for maize-bean fertilizer needs from sole-crop needs, in collaboration with Kenya's Fertilizer Use Research Project (FURP).
- iii. Test means of extrapolating soil management results: continue collaboration with Uganda NP scientist and FURP.  
Field Operations = US\$2,500  
Staff Travel = 1,000
- iv. Provide technical and methodological support to farmer-participatory research on soil management systems in Kabale and Mbale (Uganda), Embu (Kenya), the Madagascar highlands and Kagera (Tanzania). (Mostly under sub-projects funding)  
Field Operations = US\$2,000  
Staff Travel = 2,500

c. Intensification of crop production

- i. Follow up planned travelling workshop (see 2.g-i) with technical support to NPs attempting to transfer climbing bean success from Rwanda - priorities expected to be western Kenya, Kabale/Mbale (Uganda), Madagascar highlands, Meru/Kilimanjaro/Lushoto (Tanzania).  
Field Operations = US\$3,000  
Staff Travel = 2,000
- ii. Test on-farm IITA rolling jab planter in maize-bean system of Kisii, Kenya to improve timing of bean sowing.

d. Integrated pest management

- i. Regional entomologist to focus on complementing partial varietal tolerance to bean stem maggot with management practices, especially soil fertility improvement and control of root rots.  
Field Operations = US\$5,000

- ii. Provide technical support to sub-projects, and NARS generally, in IPM approaches to reducing losses to diseases (especially root rots in Kenya), insects (BSM in Ethiopia and Tanzania, Bruchids in Uganda) and use of pesticides on snap beans in Kenya.

Staff Travel = US\$3,000

e. On-farm research techniques

All regional staff to stimulate and advise on use of appropriate techniques and institutionalization of on-farm research. This year, IPM research will be added to present on-farm activities in soil fertility management and new varieties.

Staff Travel = US\$2,000

**Strategy 5: To assist the transfer of new technology to bean producers.**

a. Assist countries to disseminate new varieties quickly.

- i. Encourage and assist national breeders in strategies for initial production, awareness and dissemination of new varieties.

- ii. Regional socio-economist, coordinator and agronomist to take more proactive role in encouraging NARS (focus: Uganda, Tanzania [also Malawi]) to work through NGOs and development agencies in dissemination of seed to farmers.

Field Operations = US\$5,000

Staff Travel = 2,500

- iii. Publish strategy paper and case study from Rwanda on non-formal seed systems (see 2.j-i).

b. Assist countries to disseminate new crop management methods

Initiate case study by regional agronomist and Uganda NP on promotion of *Crotalaria* green manuring. Multiply seed.

Field Operations = US\$ 500

c. Encourage better articulation of research and extension.

- i. Document network results by means of reports, workshop papers, training, and formal publications.

- ii. Assist NARS to utilize on-farm trials in a manner that promotes both collaboration among institutions and early adoption of technology that is liked by collaborating farmers. Disseminate new CIAT publication on on-farm trials methods (see 2.j-i). Training in farmer-participatory techniques (see 1.c-viii).

- iii. Continue development of simple and inexpensive on-farm testing techniques which are possible with severely constrained national resources: focus in Tanzania.

Field Operations = US\$2,000

Regional Coordinator's

Annual Report

1992/93

# EASTERN AFRICA REGIONAL BEAN RESEARCH NETWORK

## REGIONAL COORDINATOR'S ANNUAL REPORT TO THE STEERING COMMITTEE April 1992 to March 1993

### Organization and Funding

During the year both donors to the Network, CIDA and USAID, approved new phases of support. These extend until September 1993 and end 1995 respectively. A networks planning workshop, organized by USAID in January 1993 and attended by the regional coordinator (RC), Steering Committee (SC) chairman and NARS directors, led to submission of a proposal to USAID covering a further two-year period.

However, the need to conserve diminishing funds and minimise network administrative costs led to several changes in the past 12 months, and followed elimination of the training officer position in March 1992:

- assumption by the RC (as pan-Africa coordinator) of the additional coordination responsibility for the SADC/CIAT network;
- merger of the pan-African positions in economics and in social sciences (the Uganda-based economist departed in late 1992, the merged position is currently located in the Great Lakes, and is to move to Eastern Africa in 1993);
- assumption of pan-African responsibilities in soil-fertility management by the Uganda-based agronomist, following elimination of the SADC/CIAT agronomy position;
- elimination of one regional position in the GLR, leading to wider regional responsibility by the Uganda-based breeder;
- completion of the transfer of the RC's office from Ethiopia to Tanzania, with considerable cost savings.

This report follows the format of the regional workplan developed at the Committee's 1992 annual meeting.

**Goal:** To strengthen research capacity and regional cooperation to improve the productivity of common beans in eastern Africa.

**Strategy 1:** To strengthen the research capacity of national programs.

#### a. *Training at CIAT*

Two participants from Ethiopia and Madagascar completed the multi-disciplinary course, February-May 1992.

Two subproject leaders (IPM Snapbeans, Kenya and Anthracnose, Ethiopia) accepted as senior visiting scientists, April 1993.

*b. Regional and in-country courses*

- i. Crop Management Research Training in collaboration with CIMMYT/Egerton/KARI, at Egerton University, March-August 1992. One participant from Mauritius. CIAT resources persons: C. Wortmann, L. Sperling, O.T. Edje.

Some course, Mar-Aug 1993: Ethiopia (1), Kenya (1) Uganda (1).

- ii. Kenya course on statistics and computer application, in collaboration with CIP/CIMMYT, at Egerton. 8-18 Sept 1992. CIAT supported 7 out of 15 participants: Kenya (6), Uganda (1). No nominee from Sudan. Resource person: C. Wortmann.
- iii. Regional course on consumer acceptability testing, organized by ICRISAT, Bulawayo, Zimbabwe, 7-18 September 1992. Two food scientists from Ethiopia sponsored.
- iv. Support for Farm Management training for one from Ethiopia arranged with ICRISAT India on a shared-cost basis, for May-Jul 1993.

*c. Development of training capabilities within NARS*

- i. Pan-African course for senior scientists as trainers. CIAT in collaboration with ICRISAT and ICRAF, University of Zimbabwe, 7-18 Sep 1992. Three participants from Uganda. CIAT resource person and course organiser: J. Mutimba.

*d. Individual attachment/training by NARS of another country*

- i. Plans for a technician from Sudan to acquire crossing skills in Uganda were not fulfilled, apparently due to communication difficulties.

*e. Postgraduate training*

USAID confirmed that no scholarships can be expected under Phase II projects. NARS directors should approach local offices of donor organizations. Several KARI bean scientists started bilaterally-funded training this year.

*f. Develop and distribute training materials*

- i. The training manual on bean research methods for technicians was completed. Its reproduction and distribution to NARS is expected in April-May 1993.
- ii. Two new audiotutorial units were completed by CIAT regional staff and produced at CIAT: Bean insect pests in Africa and Diagnosis of soil fertility constraints in bean production.

iii. Demand for scientific literature from regional offices has increased this year. The mailing list was computerised to facilitate sorting by area of interest, country and type of institution.

*g. Assist development of national planning skills*

Financial assistance and regional staff technical support provided for a national planning workshop in Kenya (May 92).

**Strategy 2: To reinforce the Eastern Africa Bean Network**

*a. Strategy for network sustainability*

The coordinator and SC developed a strategy paper on roles, responsibilities and resources necessary to accomplish network sustainability. The Directors' Committee confirmed (see Minutes) that research activities/proposals of this network are driven by needs of NARS and end users. Further evidence is provided by diagnostic surveys and national/regional bean planning workshops.

*b. Continue supporting the Steering Committee*

- i. The annual meeting was held 20-24 June 1992 in Nazareth, Ethiopia.
- ii. The regional coordinator and financial/administrative officer visited collaborating institutions and research sites. With the closure of the Ethiopia regional office, a new financial officer was appointed, in Kawanda, Uganda.

*c. Convene a meeting of Eastern African NARS directors*

A first meeting was held on 18 June in Nairobi, with attendance by Ethiopia, Kenya, Madagascar, Tanzania and Uganda. Minutes were copied to SC members. This Committee will meet annually to consider SC minutes and reach policy decisions.

*d. Pan-African Coordination*

- i. Coordination among networks was discussed at a meeting of CGIAR Center directors-general and NARS directors in Nairobi in June. Subsequently, directors from GL and EA regions agreed to gradually assume responsibility for all agricultural research networks, although mechanisms are still to be determined.
- ii. The regional coordinator participated in planning workshops for the Great Lakes regional bean network in April 1992, for Tanzania bean research in May, and in the SADC/CIAT Steering Committee meeting in October.



e. *Pan-African research workshops*

- i. Working group on drought in beans. Second meeting was held in Addis Ababa, 27-30 April 1992. Four participants from E. Africa. CIAT resource persons: R. Kirkby, O.T. Edje, W. Youngquist and J. White (Colombia).
- ii. Working group on bean pathology (fungal diseases). Second meeting held in Nairobi, 30 May-2 June 1992. Eight participants from E. Africa. CIAT resource persons: R. Buruchara, H. Gridley, D. Allen.
- iii. Working group on soil fertility in maize/bean bimodal highlands system. CIAT/CIMMYT meeting was held in Thika, 1-4 September, 1992. E. Africa sponsored 10 participants. CIAT resource persons: C. Wortmann, O.T. Edje. Staff of ICRAF and TSBF also contributed technically.

f. *Eastern Africa multidisciplinary workshop*

Arrangements completed (for subprojects and other selected research since 1990) for Kenya, 19-23 Apr 1993.

g. *Regional research subprojects*

Technical and financial support for subprojects approved by the SC was provided. As agreed, almost all grants are now being administered entirely by NARS. Communication difficulties with Sudan prevented payment (\$1000) for the subproject on tolerance to saline soils.

h. *Monitoring tours/field workshops*

- i. Eastern Africa breeders' travelling workshop to Uganda and Kenya, 2-7 Nov. 1992. Participants: Ethiopia (2), Kenya (2), Uganda (2); also Tanzania. No nominations were received from Madagascar and Sudan. CIAT resource person: H. Gridley.
- ii. Eastern Africa on-farm researchers' travelling workshop to Uganda, 27 Oct-8 Nov 1992. Participants: Ethiopia (3), Kenya (5), Uganda (3). CIAT resource person: C. Wortmann.
- iii. The SC encourages subproject leaders to organize these events with their regional collaborators. The bean rust leader (Ethiopia) visited and assisted a new rust subproject in Madagascar.
- iv. Bacterial blight co-researchers (Uganda) joined a Great Lakes monitoring tour in May 1992 and subsequently visited collaborators in Kenya.
- v. Bruchid traveling research workshop, 16 Sep-3 Oct 1992. Researchers from Uganda, Ethiopia and Tanzania visited Uganda, Tanzania and Zimbabwe (accompanied by K. Ampofo). The group

simultaneously assessed infestation levels and species distribution patterns, and standardized methods. Subproject leaders provided much of the in-country organization.

*j. Germplasm exchange among national programs*

- i. Third round of African Bean Yield and Adaptation Nursery (AFBYAN-3) was distributed to Sudan and Uganda from Tanzania in April, 1992. Quarantine restrictions have delayed introduction to Ethiopia and Kenya.
- ii. Eastern African Zonal Bean Yield Trial (EAZBYT) was distributed similarly, also in April 1992.
- iii. No progress in assisting Ethiopia to index seed for viruses when importing regional nurseries. Requirements need to be identified by national coordinator.

*k. Distribute information on bean research*

Publishing continued, in collaboration with other regional bean networks, of three Pan-African series (Workshop Proceedings, Occasional Papers and Reprints). Several new titles in the first two series were published.

*i. Economic analysis of research impact and constraints*

Regional economist and/or coordinator have participated in several studies to assess and document benefits from regional research and from variety releases and seed dissemination within countries.

The principal policy problems that inhibit the flow of bean production technologies are the unnecessarily restrictive conditions for plant quarantine that exist between some countries of the region. NARS directors asked CIAT to assist in developing up-to-date national checklists of bean pathogenic organisms, which they could use in pressing for rational decisions on specific introductions. This is well advanced.

National scientists in Kenya and Tanzania were encouraged to undertake market studies, and those in Uganda & Ethiopia to assess variety adoption. This work should be reported at the regional multidisciplinary workshop.

**Strategy 3: To improve the yields and yield stability of bean varieties to be released by national programs**

*a. Germplasm introductions*

The first large sets of new germplasm from Latin America were assembled for introduction into newly expanded quarantine

facilities in Kenya and Madagascar. Regional staff made several visits to supervise completion of the screenhouse at Muguga, Kenya, which should enter service in May 1993 provided operating funds are available.

*b. Improvement of national variety development systems*

- i. Distribution of national, multilocation yield trials is advocated in Kenya. This opportunity for greater efficiency is still apparently constrained chiefly by lack of national funds.
- ii. Excellent results from three materials in two seasons of national advanced variety yield trials in Uganda seem to indicate that CIAT-bred introductions have further potential for the region, alongside locally generated crosses and introduced segregating populations. The 1989 restructuring of the Uganda national system for identifying heavier yielding bean varieties also appears to be proving its value.
- iii. National breeders in all countries were encouraged to take certain responsibilities for on-farm testing and/or initial seed production and dissemination of new varieties. This is still not the norm; agronomists are often expected to do this, to the detriment of research on sustainable production systems.
- iv. Strategic decisions on decentralized organization of bean breeding, including selection of cost-effective sites, depend upon understanding genotype x environment interactions. Recent analyses of Ugandan data suggest that greater dispersion of well-selected sites for preliminary yield trials is important, and can be accompanied by economies in the number of replications at each site.
- v. No progress made in assisting Sudan to develop a crossing program to improve locally adapted varieties for specific traits (see 1.d.i.). CIAT was to send parental sources for *Macrophomina*, etc.

*c. Identify sources of resistance*

- i. Regional screening and selection for resistance to blackroot strains of virus (BCMV) are based in Uganda. This severe constraint to production, found mostly in Africa, is an important field research responsibility of the regional breeder. Large-seeded selections are yielding up to 40% above K20 and 11% above the new Uganda variety, CAL 96. 109 lines from this work were sent from Uganda to GL and SADC regional breeders for wider evaluation and distribution to NARS.
- ii. Pan-African Disease Nursery (PADN) was distributed from Colombia; also regional disease nurseries from subprojects in rust and CBB.

iii. Arusha-based entomologist provided Ethiopia and Kenya with segregating materials from crosses for bean stem maggot resistance, and assisted in evaluation.

d. *Regional crossing*

i. Under the regional programme to incorporate resistance to blackroot strains to BCMV into varieties useful to national programs, the regional breeder has evaluated 769 selected progenies in multisite yield trials since 1990. Last season in Uganda, the 10 best small-seeded lines outyielded MCM 5001, the first variety released to farmers as a result of this effort, in the range of one to 31%.

ii. Further opportunities exist for regional subprojects to provide a similar service to improve specific resistances of released varieties, by crossing with sources of resistance (e.g. to bruchids).

**Strategy 4: To improve the productivity of cropping systems within which beans are produced.**

a. *Diagnostic research*

i. The last several years' diagnostic studies on bean production in the principal producing zones is being assembled in a synoptic regional report.

ii. The regional agronomist provided some technical support to local studies of soil management systems in Kabale and Mbale (Uganda) and Embu (Kenya), mostly under subproject funding. A planned visit to Madagascar was not made as communication could not be established.

b. *Soil fertility research for bean production*

i. He continued on-station strategic research on technical aspects of green manuring with *Crotalaria*, and on-farm evaluation commenced in Uganda. Studies on decomposition of organic matter started. More time was spent this year in consulting with individual scientists on their research proposals. A Ugandan agronomist was assisted to develop a crop management residue study, and another encouraged to develop a trial on sub-soiling in cases of hard argillic layers. A farmyard manure study was started as a contribution to the CMRT course.

ii. Development of fertility capability classification (FCC) continued, for extrapolation of soil management results. Kenya's Fertilizer Use Research Project was encouraged to test FCC. Three Kenyan and two Ugandan varieties were characterised for the BEANGRO model; analysis of Kenyan trials gave inconclusive results on the value of this model. A

promotional publication was completed on results from use of the Diagnostic Recommendation Integrated System (DRIS) aimed at encouraging more efficient use of fertilizers.

- iii. Confirmatory trials (ANSES) on screening for tolerances to soil constraints were distributed to: Malawi, Rwanda and Uganda (for low N); Kenya, Rwanda, Uganda, Zaire and Zambia (for low P); and Tanzania and Uganda (for high manganese). Multiplication started for Cycle 2.

c. *On-farm research techniques*

More NARS scientists are practicing farmer-participatory research, particularly in Uganda. On-farm network research principally focusses on soil fertility management and new varieties; more IPM work needs to be on farms - the bruchid sub-project started on-farm testing of a sieving technique.

**Strategy 5: To assist the transfer of new technology to bean producers.**

a. *Assist countries to disseminate new varieties quickly*

- i. Regional staff have encouraged national breeders in strategies for initial production and dissemination of new varieties. In Uganda, regional staff took a more active role: 200kg of three new releases were planted for seed multiplication in 1992b, and larger amounts in 1993a; selections were made in breeder seed plots for uniformity. Several NGOs are following on. However, this area still requires much more attention by NARS.
- ii. Development of working groups of farmers to address specific problems is being fostered, principally with scientists and NGOs in Tanzania and Uganda.

b. *Encourage better articulation of research and extension*

- i. Network results increasingly are being documented by means of formal publications, reports, workshop papers and training.
- ii. Examples where NARS now utilize on-farm trials in a manner that promotes collaboration among institutions and early adoption of technology are: Crotalaria testing in Uganda; variety testing in Walita, Ethiopia and Uganda.
- iii. Collaborated with FARM-Africa in an OFR course for NGO extension staff in Ethiopia, 11-17 Oct 1992 (resource person: C. Wortmann). The on-farm monitoring tour (2.h.ii above) also aimed to expose staff to alternative approaches to on-farm research, by comparing OFR approaches at several projects.
- iv. Bean environmental classification in Africa was advanced further, as a means to improve extrapolation of results.

## 1992/93 Publications of the Network on Bean Research in Africa

### *Workshop Series*

- No. 16. Cinquieme Seminaire Regional sur l'Amelioration du Haricot dans la Region des Grands Lacs, Bujumbura, Burundi, 13-18 Novembre, 1989.
- No. 17. Sixieme Seminaire Regional sur l'Amelioration du Haricot dans la Region des Grands lacs, 21-25 Janvier 1991.
- No. 18. Conference sur Lancement des Varietes, la Production et la Distribution de Semaines de Haricot dans la Region des Grands Lacs, Goma, Zaire, 2-4 Novembre 1989.
- No. 19. Recommendations of Working Groups on Cropping Systems and Soil Fertility Research for Bean Production Systems, Nairobi, Kenya, 12-14 February 1990.
- No. 20. First African Bean Pathology Workshop, Kigali, Rwanda, 14-16 November, 1987.
- No. 21. Soil Fertility Research for Maize and Bean Production Systems of the Eastern Africa Highlands - Proceedings of a Working Group Meeting, Thika, Kenya, 1-4 September 1992.
- No. 22. Actes de l'Atelier sur les Strategies de Selection Varietale dans la Region des Grands Lacs, Kigali, Rwanda, 17-20 Janvier 1991.
- No. 23. Proceedings of the Pan-African Pathology Working Group Meeting, Thika, Kenya, 26-30 May 1992.

### *Occasional Publications Series*

- No. 4. Assessment of Yield Loss caused by Biotic Stress on Beans in Africa.
- No. 5. Interpretation of Foliar Nutrient Analysis in Bean - the Diagnosis and Recommendation Integrated System.
- No. 6. The Banana-Bean Intercropping System in Kagera Region of Tanzania - Results of a Diagnostic Survey.

Table 1. Network Expenditures against Approved Budget, FY92-93  
(USD)

ITEM	BUDGET (S/C MINUTES)	EXPENDITURES <sup>1</sup>			BALANCE	AVAILABLE <sup>2</sup> FOR YEAR 93-94
		EXPENDED	COMMITTED	TOTAL		
<u>Training</u>						
Training at CIAT	17,500	11,683	-	11,683	5,817	21,000
In Region	49,500	25,425	22,500	47,925	1,575	50,000
Degree Training <sup>3</sup>	0	6,605	-	6,605	(6,605)	0
<u>Information Exchange</u>						
Workshops & Visits	49,000	47,895	-	47,895	1,105	60,000
Publications, etc	22,000	3,459	9,000	12,459	9,541	28,500
<u>Research</u>						
Regional Subprojects	66,380	64,380	1,000 <sup>4</sup>	65,380	1,000	60,000
<u>Network Management</u>						
Steering Committee	7,400	8,117	-	8,117	(717)	8,000
<b>TOTAL</b>	<b>211,780</b>	<b>167,564</b>	<b>32,500</b>	<b>200,064</b>	<b>11,716</b>	<b>227,500</b>

<sup>1</sup> March 1993 expenses not included

<sup>2</sup> Budget available for FY 93-94 is that shown in donor projects and assumes USAID approval for new project from Oct. 93

<sup>3</sup> Degree training carryover from CIDA Phase I.

<sup>4</sup> Sudan equipment allocation not yet expended.

National Coordinators' Annual Reports

Ethiopia

Kenya

Madagascar

Mauritius

Sudan

Uganda



## ETHIOPIAN SUMMARY REPORT ON BEAN RESEARCH

1992/93

Prepared for steering committee April, 1993

by Teshome Girma

### Organization and Priority

After a break for one year due to civil unrest in the Country, all bean research are back to track in all main research organizations [Institute of Agricultural Institute (IAR), Alemaya University Agriculture (AUA) and Plant Protection Research Center (PPRC)].

Gradual implementation of zonal varietal improvement is done by supplying quite large number of germplasm to four centers (Areka, Awasa, Bako and Pawe ) and AUA and sharing our experience with them.

### Staffing

Mr Frew Mekbib has taken the position of Bean Program leader at AUA and it is hoped that the program in the eastern zone will be strengthened.

Mr Behailu Atero in the Field Crop Division at Jima Research Center (IAR) assigned to work exclusively on pulses including beans.

### RESEARCH HIGHLIGHT

#### Breeding

##### Introduction and evaluation

In 1992 season, 520 lines were introduced for open quarantine and seed multiplication at Melkasa. 669 lines were distributed as Nursery I to five centers including Melkasa and AUA as a base for their own varietal selection .

##### Variety performance trials

Until all centers/stations moved to formulate their own zonal trials , the National Program continue sending its trials to test across locations. In this season, nine trials at different ~~stages of selection were sent to several centers and raw data still~~ coming in for analysis.

In the advanced variety trials entries EMP 175, G 17450, Quarantino and PAC 29 did well across locations in White pea bean national variety trial. In different color bean variety trial A 67, TY 3396-7, TY 3396-6 and TY 3397-6 are the best performing

varieties . In the large seed bean variety trial ICA 15541, A 410 , MX 2500-19 and 997-CH-173 are found to be better as compared to other lines and the check (Table 1).

### Food science

In the Food science division, three classes of beans in the breeding trials are being tested for their cooking time including local checks. This trial will be completed with 1993 crop harvest. Another trial being carried out by this division is a survey on utilization of beans. The target groups for this trial are farmers and urban dwellers household, boarding schools and NGO feeding programs.

### Agronomy

Several research trials were carried out in this division. This include the study of maize-bean base intercropping systems, screening of post emergence herbicides of bean and the critical period of weed competition in erect type of bean.

### Crop protection

Screening of bean germplasm was conducted at several locations to determine resistance to leaf diseases. Based on this year observations several varieties to resistant to bean rust ,CBB, anthracnose were identified.

Experiments on storage pest, bruchids in bean, using botanical gave promising results. The ground seeds of Neem and pepper tree gave comparable results with the standard insecticide, actellic.

### Socio-economics

In this season, the Agricultural Economics Division at Melkasa conducted three programs concerning beans of which two were surveys and one was on-farm trial .These are -

- Crop profitability study under small conditions in the Nazret area.
- Marketing of tef, bean and potato in Nazret and Meki-Ziway areas.
- Variety verification consisted of four varieties.

## OTHER ACTIVITIES

### Improved seed dissemination

IAR Nazret Research Center supplied the following seeds to different organizations since the beginning of the year to now.

variety	amount (quintal)	organization	purpose
Awash 1	100 }	4th Livestock project in eastern Ethiopia	distribution to farmers in the project area
Roba 1	30 }		
Awash 1	20 }	World Vision	to Melkasa area
Roba 1	10 }		
Awash 1	1	Action Aid	to Guraghe area

Also, the National Program supplied the Ethiopian Seed Corporation the following breeder seeds for their pre-basic seed farm at Shalo.

Awash 1	25 kg
Roba 1	25 kg
Red Wolayita	25 kg
Mexican 142	80 kg

### Seed Multiplication

During the offseason about one hectare different bean lines are multiplied for the distribution to the requesting centers and for multi-location testing.

### Meeting/Workshop

- Two breeders joined others breeders in the regional travelling workshop in Uganda and Kenya from Oct. 31- 8 Nov.1992 .
- An agronomist and an economist participated On-farm research travelling workshop in Uganda from Oct.27- 8 Nov.1992.
- National Coordinator participated in the USAID organized workshop in Nairobi , Jan.18-22,1993,in his capacity of the current chairman of the steering committee.

### Training

- One young graduate is now in training on crop research management at Egerton for six months.
- Anthracnose subproject leader left to CIAT HQ for five weeks to acquire new techniques in his field.

- Nazret Research Center farm manager leave in mid May to ICRISAT for three months training on farm management on partial support of CIAT regional network.

Table 1. High yielding varieties in the advanced trials tested across locations, 1992.

Type of trial	variety	mean yield (kg/ha)	yield increase over the check in %
White pea bean national variety trial	EMP 175	2650	29
	G 17450	2639	28
	Quarantino	2597	26
	PAC 29	2590	26
	Mexican 142 (check)	2055	
Different color bean variety trial	A 67	2819	66
	TY 3396-7	2700	59
	TY 3396-6	2655	56
	TY 3397-6	2641	55
	Red Wolayita(check)	1700	
Large seed bean variety trial	ICA 15541	3582	46
	A 410	3380	37
	MX 2500-19	3357	36
	997-CH-173	3205	30
	Brown Speckled(check)	2461	

## KENYA COUNTRY SUMMARY REPORT

### ON BEAN RESEARCH, 1992/93

#### Introduction

In Kenya research on beans continues to be conducted in five Research Centres and two National Universities. The bean programme has a team of breeders, pathologists, agronomists, an entomologist and social economists who are distributed in various centres. The funding of the programme remains inadequate. The budget which used to be allocated to bean research was cut and as a result, it was sometimes difficult to collect data from on farm trials due to lack of operation facilities particularly transport. However, experiments of the CIAT funded projects were conducted in various sites without much problems. The research personnel and supporting staff continued to receive local and long term training in various institutions. Other Officers participated in working groups on drought, pathology, soil fertility in maize/bean systems while the rest attended breeders' travelling workshop in the region and on farm researchers' travelling workshop in Uganda.

#### Research activities

Some crosses were made between snap bean variety Monel and food beans adapted in Kenya conditions and resistant to rust, angular leaf spots and anthracnose. Results indicated that at  $F_2$  some of the lines of the crosses were still segregating for growth habit and therefore necessitated for single plant selections for another two generations so as to stabilize this character.

In a survey on the marketing channels of snap bean seeds, it was revealed that those involved in the marketing of seeds included farmers, cooperative women groups, snap bean exporting agencies, retailers, parasitatal snap

bean canning factories and farm to farm purchases.

Other informal surveys on marketing of dry bean cultivars showed that out of twenty one retail markets surveyed GDF-2 was found in all the markets while GDF-x97, GDF-185 and GDF-24 were common.

Preliminary on farm trials conducted in farmers fields to determine the most sustainable arrangement for beans/maize intercrop and optimum fertilizer requirement indicated that research plots significantly outyielded farmers plots in terms of seed yield.

The characterization of several bean varieties for the Bean Cro Model was investigated by local staff with collaboration with CIAT research personnel. Data was collected and is being computerized. Several experiments were conducted to evaluate adaptation of CIAT germplasm in the cool dry highlands of semi arid areas. Other trials and surveys which were undertaken during 1991/1992 season were those concerned with water harvesting systems, IIT, angular leaf spot, weed management and charcoal rot.

Training:

Mr. S.G. Muigai, the leader of snap bean Breeding subproject and Mr. P. Kamupia the leader of Nitrogen Flux Subproject left for Ph.D Research Programmes in the U.S.A. Their subprojects were taken over by misters J.K. Kamau and Macharia respectively.

# EASTERN AFRICA REGIONAL BEAN RESEARCH NETWORK ✓

## MAURITIUS NATIONAL COORDINATOR'S ANNUAL REPORT FOR 1992-1993

Ref: FC B19 ✓

April 20, 1993

### 1. Introduction

Mauritius was formally invited to join the network in 1992 and to send its representative to the meeting of the Steering Committee held in Ethiopia in June 1992. Unfortunately, no one was able to attend. This is therefore the first time that a Mauritian representative attends the Steering Committee Meeting. For this reason, this first annual report is longer than usual.

### 2. The local situation

Sugar cane is by far the most important crop of Mauritius, and all of the following are more important than beans: tea, tobacco, potato, tomato, groundnut, maize, fruits and even anthuriums flowers. In fact, agriculture itself is no longer the backbone of the economy; light industries and tourism have a larger share in the gross domestic product.

The bean situation has deteriorated in the past 5 years. Mauritius used then to export snap beans, but it does not any more. This is mainly because full employment has been achieved and agricultural labour has become scarce and expensive. Snap beans are now produced for the domestic market only. Dry bean production has never taken off. Even though yields are not low, returns are marginal because of high costs of production. At present, local beans are not competitive with imports and the Government does not wish to subsidize local production. The future of dry bean is therefore bleak.

The situation is different in the island of Rodrigues, a district of Mauritius situated 350 miles to the East. Unemployment still prevails and opportunity cost of labour is lower. Dry beans are produced on a limited scale, and this production appears to be viable. Moreover, in contrast to Mauritius where all farmers are entrepreneurs, there are still peasant farmers in Rodrigues and they consume much of their production.

### 3. Organization of Research

Four organizations are involved in research on beans but to different degrees.

- (i) At the Faculty of Agriculture of the University of Mauritius some research is conducted on pulses in general including beans, mainly to meet student training needs. On and off, in the past, thesis research has been done on beans, e.g BNF.
- (ii) The Agronomy Division of the Ministry of Agriculture, Fisheries and Natural Resources has one fully-trained full-time scientist working on pulses, mainly beans. His main areas of bean research are breeding, selection and crop management. Other specialist Divisions (Entomology, Pathology) provide support. The Ministry of Agriculture is currently being re-organised, and Research Divisions will be separated from the services.
- (iii) The Mauritius Sugar Industry Research Institute (MSIRI), in spite of its name, has a national mandate for research on beans in addition to sugar cane and selected field crops. Up to 1992, one fully-trained scientist worked full-time on beans, but as from July 1993, he will work on beans in the winter and on groundnuts in the summer. His areas of research include snap and dry bean variety selection, plant nutrition and intercropping with sugar cane. Other specialists in several Divisions of the Institute (Chemistry, Entomology, Pathology and Weed Agronomy) work part-time on beans.
- (iv) The Agricultural Services of the Ministry for Rodrigues are responsible for research on beans in Rodrigues. Their staff is skeletal and mostly untrained, and little is presently done. However, a major staff upgrading is being undertaken. Some additional training at different levels is required.

### 4. Highlights of Research Achievements

#### (i) Variety selection

The Ministry of Agriculture has been selecting varieties for several years and has, indeed, released several CIAT varieties. However, none seems to have found favour with growers who still plant variety long Tom, which is preferred because it can be harvested green or dry.

MSIRI has also screened CIAT varieties, mostly from IBYAN's, and has shortlisted several. However, it has not been possible to obtain seeds for on-farm testing because of plant protection regulations.



(ii) Diseases and Pests

Numerous diseases affect beans in Mauritius. The main ones (rust, common bacterial blight) have been studied in some depth. They are presently controlled with chemicals.

Mauritius is one of the rare countries in the region where leaf miners, Liriomyza trifolii and L. huidobrensis are major pests of beans. In addition, pod-borers cause losses, particularly in snap beans. Abusive use of insecticides is sometimes made in an attempt to control pests.

(iii) Cultural practices

Studies on the production methods for beans in pure stands have been completed. The technical feasibility of intercropping sugar cane with snap and dry has been demonstrated and the cultivation of snap beans in interrows of sugar cane is currently practised by small and large farmers alike. Selective herbicides have been chosen for the control of weeds in mixed cropping of sugar cane with beans, and some equipment have been tested for mechanical planting and threshing.

Fertilizer practices have been worked out. Exploratory investigations have been completed on the use of sugar cane filter muds as soil amendments and on-farm trials are due to start in 1993.

(iv) Seed production

The technical problems of cleaning parental stocks and of bulking seeds have been studied, but no large-scale seed production and certification scheme is presently in operation. There is a need for one.

5. **Country Needs**

(i) Training

Mauritius itself does not require any training, but Rodrigues does. Rodrigues should train at least one, and preferably two research associates in crop management along the lines of Egerton's CMRT course. In addition, several technicians have to follow short courses on such aspects of on-farm research and extension as diagnostic techniques and rural surveys, farmer participatory research in soil fertility management, agroforestry, water harvesting etc.

(ii) Information

Most of the senior scientists in Mauritius and one in Rodrigues working part-time on beans stand to benefit from participating in the various workshops and working group meetings. However, they have not been involved yet in the network activities to be invited. Some of the Mauritian specialists could be resource persons at some of the group meetings.

Mauritius has not received much of the regional publications, such as for instance, the CIAT African Workshop Series. The National Coordinator will therefore make a request for some.

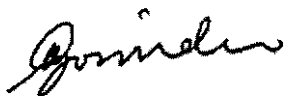
(iii) Research

The guidelines for project proposals were not circulated within the NARS. Only one project, MSIRI's intercropping of sugar cane with beans has been submitted at the request of the Regional Coordinator.

(iv) Other needs

In addition to the above, Mauritius looks forward to receiving from the network germplasm of various types: snap beans as well as drybeans, the preferred types being small white (navy or panarito) and large red kidney (with or without speckles). The snaps need not be stringless. Desirable varieties should have one or more of the following attributes: heat tolerance, disease (rust, bacterial blights) and pest resistance, tolerance to low pH, low P, low N, high aluminium and high manganese, drought tolerance.

In view of the strict plant import regulations, it would be advantageous if all germplasm were cleaned and bulked at one central station in the region under conditions that would be accepted by the different plant protection services. If the seeds can be imported, Mauritius will participate effectively by growing quite a number of nurseries (disease and pest resistance, tolerance to climatic and edaphic stresses). This should accelerate progress in breeding in the region.



**N GOVINDEN**

National Coordinator

Mauritius Sugar Industry Research Institute

REDUIT

Annual Progress Report on Bean Research  
in the Sudan; 1992/93 Season

By: Salih H. Salih

I. Introduction:

Most of the bean research is executed by the Agricultural Research Corporation (ARC) and part is tackled by the Faculty of Agriculture, University of Khartoum. Hudeiba Research Station is the main station where the bean research is carried with Shendi research station carrying few trials.

1992/93 season had been conducive for grain legumes production in general and for common bean in particular; there were no severe insect outbreaks which are usually the main constraint affecting bean seed yield.

The average seed yield was 1570 Kg/ha but yields as high as 2270 Kg/ha were realized.

II. Research Highlights

The research activities on bean in 1992/93 season included:

1. Breeding work
2. Agronomic studies
3. Pathological studies

1. Breeding work

a- Germplasm Evaluation:

During the past few years about 250 bean accessions were

received from CIAT and the United States; all of them are white seeded as was requested and many of them are bush types. Most of the material were found to be non-adapted to Sudan conditions, but 27 genotypes were retained as being promising. Nine of these are from the WANABAN, three from the IBYAN'A' (large white seeds), six from the IBYAN'B' (medium white seeds), six from the IBYAN'C' (small white seeds), and three from an introduction from the United States. All these genotypes were raised in a non-replicated observation trial. The three American genotypes, viz: JM24, JM24 x Greenlight and JM24 x Anfa gave high yields. These lines are also thought to be resistant to the curly top disease which is important in the Sudan.

b- Variety Trials:

There are two local trials and two trials sent by CIAT Breeder.

i- National Variety Trials

Here the 12 promising genotypes as in the previous season were compared with a standard check line in two localities. Two of the genotypes (Giza 3 and Red Mexican) <sup>gave</sup> each about 42% more yield than the standard check.

ii- Advanced Yield Trial:

In this trial only one out of the 15 tested genotypes gave better seed yield than the standard check.

iii- African bean yield adaptation Nursery 'AFBYAN' III

This consisted of 24 lines compared with a check variety. Most of the genotypes are coloured. Only two genotypes: K 20 and PEF 14 gave better yields than the standard check; the former gave an increase of 37% while the later gave an increase of about 5% over the local check.

iv- East African Zone Bean Yield Trial 'EABZYT'

The trial consisted of 24 lines compared with RO/2/1 as a standard check. Fifteen lines gave high seed yields than the standard check. The increase in yield ranged between 3 and 38%. The genotype PEF2 gave the highest yield though it shatters at maturity.

2. Agronomic studies

Only one trial was conducted to test the influence of sowing time and seed rate on seed yield of five bean genotypes.

Since the trial had just been harvested no results could be given.

3. Pathological Studies:

Here three trials were conducted to solve the problem of the seedling blight and root rot disease:

a. Effect of sowing date and irrigation interval on incidence of seedling blight and wilt/root rot disease of dry bean.

b. Effect of seed-dressing fungicides on incidence of seedling blight and wilt/root rot disease. Here three fungicides each of three doses were used : Benlate, Captan and Tecto-TM.

c. International Bean Macrophomina phaseoli Nursery (1991/92). The nursery included 40 genotypes + one check.

### III. Other Activities

Seed multiplication : Multiplication of seed for promising genotypes for multi-locational and possible on-farm testing was carried out. The genotypes included : RO/2/1, HRS 545, Giza 3 and Basabeer.

Staff movement: A new agronomist, Mr. Omer H. Ibrahim has been posted to Hudeiba Research Station. He will be doing work on bean agronomy.

The breeder was not able to join the bean breeders travelling workshop and that was for some urgent commitments.

The scheduled training of one of Hudeiba technicians in Uganda was not conducted.

The proposed sub-project on screening of bean genotypes for salt tolerance was, unfortunately, not conducted for reasons concerning the leader of the project.

### IV. Future Plans

I. There will be some work on bean entomology since the insect pests constitute a major problem in bean production.

2. Depending on the availability of funds there will be on-farm verification trials to test the validity of the on-station trials specially with regard to the superior bean genotypes.

3. There is a paramount need for technicians to be trained in bean crossing techniques. Perhaps if funds are available an in-country training program could be organized.

## PROGRESS IN RESEARCH BY THE UGANDA NATIONAL BEANS PROGRAMME :

### INTRODUCTION :

The National Beans Programme in Uganda has continued to focus on evaluation of many sources of germplasm in an effort to identify good varieties with multiple advantages over the existing ones. As a team of scientists, positive efforts have also continued to be made in the field of standardisation of screening methods for pest and disease resistance. Tangible recommendations have been forwarded which can be exploited by other programmes in the region, the continent and elsewhere.

The programme lost one of the agronomists though we are in contact with her for some on-farm surveys and evaluations plus treatment advise. Collaboration with other countries especially for CBB, BCMV, rust and bean bruchids sub-projects has continued to be good. We need more contact with anthracnose, ALS, bean fly and some biotic stresses work in the region where the contact is inadequate.

### SALIENT FEATURES ON THE PROGRAM :

#### CBB

1. Methodologies on screening, selection, hybridisation, transmission, variation and survival have been devised and in some cases standardised for use by other researchers. A nursery plus segregating materials have<sup>been</sup> generated for use by members of the region.

#### Future needs :

- a) Determination of minimum populations in<sup>a</sup> crop and seeds to initiate epidemics.
- b) Evaluation of breeders elite materials for transmissibility.
- c) Survival in weeds soil and debris.
- d) Variation in the region and replenishment of the nursery.
- e) Genetic variation for multiple factors; in a hybridization programme.

#### 2. BCMV

- Work on wild hosts as a source of inoculum especially for the NL strains.
- Characterisation of the available strains has revealed more variation than what was previous reported in the region.



## Future

Transmissibility from weeds to plants is a very important component plus continued weed collection from region and characterisation of .....

### 3. Phoma

Has generated segregating populations from which nurseries could be compiled and resistant varieties derived for use in the region.

Important discovery on the mode of inheritance to the disease as a guide to future breeding and selection.

## Future:

Will embark on multiple resistance with Anthracnose included.

### 4. BRUCHIDS

- Sexing of insects, sieving as a control measure plus resistance to *Zabrotes* by the RAZ lines needs to be exploited by ~~indicate~~ on-farm (sieving) on station (sexing) and crossing program for *Zabrotes* resistance.
- Could be part of the IPM package.

### 5. Mn and Farmer participation

Mn - needs to diversity more for on-farm research plus standardisation of methodologies for evaluation and soil tests farmer participation needs to be tested elsewhere in Uganda and the region.

One scientist came back with an MSc, two have submitted their Ph.D thesis and one hopes to submit in June. Five scientists have benefitted from short course training.

The programme successfully screened both on-farm and on-station three varieties that are accepted by farmers, are high yielding, tolerant to the major diseases plus a member of adaptive stresses i.e. MCM 5001, CAL 96 and RWR 136. Three more varieties are in the pipeline for release and are undergoing on-farm tests., We need to evaluate the impact on a multidisplinary level though a survey.

### On-farm and seed dissemination.

The released varieties need to reach the farmers from whom we can access our impact. This has to be done through more on-farm trials in the districts that more not formally covered. In the

other districts than demonstration plots and dissemination through sale of small seed samples needs to be carried out.

Vigour must be maintained in the smooth running of the breeding sequence with all the component disciplines.

#### Problems

Transport to the program has been a strain with number of vehicles and the use of petrol engines. Funding during the year has also been erratic.

Reports from Working Groups and Traveling Workshops

Soil Fertility in Maize/Bean Systems

Bruchid Survey

Bean Breeding in East Africa

Alternative Approaches to On-Farm and Participatory Research

## BRIEF REPORT ON THE CIAT-CIMMYT SOIL FERTILITY WORKSHOP ←

15170

28 ABR. 1994

## PROBLEM IDENTIFICATION AND PRIORITIZATION

N and P deficiencies, soil moisture deficits and soil erosion were identified as the major problems.

Problem Identified	Wide-spread distr.	Severity	Total	Final ranking
N deficiency	1	2	2	1
P deficiency	2	3	5	2
Poor biological N fixation	5	6	11	6
Toxicities (cation)	6	4	10	5
Soil erosion	3	5	8	4
Low potential cultivars	7	8	15	7
Micronutrient deficiency	10	7	17	8
Soil moisture deficits	4	1	5	3
K deficiency	9	9	18	10
Inappropriate fertilizer use	8	10	18	9

RESEARCH TOPICS SELECTED FOR COLLABORATIVE PROJECTS  
BY WORKING GROUP MEMBERS

A number of collaborative projects were identified. Preparation of proposals for these projects was at an advanced stage when the meeting ended. Individuals were given responsibility for their completion and advancement for review or to donors. (To my knowledge, only one has been completed. I do not know if they attempted to obtain funding.)

1. Study of hedgerow management and effects on the nutrition of the maize bean intercrops.
2. Research on improving the efficiency of use of farm yard manure by developing management practices for reducing nutrient losses before and after applying to the field, and for improving the compatibility of use with crop residues.
3. Study of factors which affect performance and persistence of Rhizobial strain and which cause strain by environment interactions.
4. Research on conservation tillage for soil and water conservation.

5. Research on technologies for improved fertilizer use efficiency and for improved extrapolation of research results.

## RECOMMENDATIONS OF SMALL WORKING GROUPS

Small working groups addressed various topics, including short and long term training to meet special needs, improvement of collaboration in research, improvement of motivation to conduct research and policy recommendations relative to soil fertility research and management.

### TRAINING AND SPECIALIZATION NEEDS

#### Short courses for mid-career specialized training

1. Application of computer models
2. Methodologies for  $N_{15}$  studies
3. Interpretation of results of studies of complex systems, i.e. intercrops
4. Methodology approaches
5. Methodologies for systems research with an agro-ecology approach

#### MSc and PhD research areas

1. Study of extrapolation of fertilizer use research results--evaluation of various bases for extrapolation, including soil classification systems, soil properties, and models.
2. Studies of mineralization of different types of organic materials as it relates to nutrient use efficiency and soil organic matter
3. Management of agroforestry hedgerow systems in relation to nutrient use efficiency and soil organic matter
4. Efficiency of use of applied nitrogen and phosphorus fertilizers in maize-bean production systems

### IMPROVED COLLABORATION IN RESEARCH

#### Specialization

1. Greater use of existing experts within the Region, rather than bringing scientists from outside the region to address specific problems.

2. Improved matching of available specialists with needs.

3. Short-term scientific visits and monitoring tours.

4. Improved access to research facilities.

#### **Analytical facilities for soils and plant tissue analyses**

1. Standardization of available methods through better information exchange between the laboratories in the Region.

2. Quality control through routine comparison of results with other laboratories and through participation in international laboratory testing programs.

3. Training of laboratory technicians to ensure they understand and use the methods of analysis well.

#### **Research facilities and equipment**

1. Ensuring equipment and chemicals match with research needs.

2. Repairs for existing laboratory equipment.

#### **Monitoring and evaluation**

1. Joint and regular monitoring and evaluation of projects.

2. Travelling workshops.

#### **Information exchange**

1. Financial support in publication and journal membership.

2. Annual workshops on research for maize-beans production systems.

3. Providing information on maize and beans research to scientists -- updating of the concerned IARCs' mailing lists.

4. Newsletter on maize and bean research activities.

#### **Improved collaboration between IARCs in the Region**

1. Collaborate in giving technical support to research projects.

2. Find opportunities to further collaborate in systems research.
3. Continue collaboration in training.
4. Continue collaboration in administration.
5. Facilitate technical support across research sites, especially for less visited sites.

#### IMPROVED MOTIVATION TO CONDUCT RESEARCH

1. Respect of promotion/demotion procedures.
2. Increased efforts to generate funds for research
  - national agriculture research funds
  - revolving funds
3. Improved control of research funds.
  - limited funds from the Ministry
  - funds solicited by researchers
4. Provision of professional allowances
5. Provision of publication incentive
6. Provision of top-up allowances/per diem.
7. Maintenance of training funds
  - workshops and seminars
  - short and long term training
8. Improved accountability.
9. Provision of adequate working facilities.

#### RECOMMENDATIONS ON POLICIES AFFECTING SOIL FERTILITY RESEARCH AND MANAGEMENT

1. Provision of credit for fertilizers, especially to small-scale farmers.
2. Timely provision of fertilizers--reduce bureaucratic constraints on import and distribution mechanisms.
3. Intensify training of farmers on benefits of soil fertility enhancing strategies.
4. Investigate alternative extension approaches for improved effectiveness.
5. Provide relevant technical information and promote use of

organic manures to complement inorganic fertilizers.

6. Pricing policies for fertilizers should adequately consider the benefits of using fertilizers.

7. Training on soil fertility management should focus on local needs.

8. Provide incentives to reduce the high turn-over of qualified personnel from research institutes.

9. Progressively reduce role of government in output/input markets to allow market forces to operate more effectively. Government should aim at market regulation and meeting strategic needs.

10. Support long-term research on soil fertility management.



## FULL REPORT (BY WORKSHOP PARTICIPANTS)

### BRUCHID TRAVELLING WORKSHOP : PRELIMINARY REPORT

#### INTRODUCTION

A travelling workshop (monitoring tour) of bean bruchid researchers held from 16th September - 3rd October, 1992 was sponsored by SADCC/CIAT. The participants included Dr. Ampofo (SADCC/CIAT) Dr. Giga (Zimbabwe) Dr. Nchimbi (Tanzania) Mr. Negassi (Ethiopia), Mr. Nahdy (Uganda) and Mr. Nahimana (Burundi). The travelling workshop visited locations in Uganda, Tanzania and Zimbabwe.

#### Terms of Reference

- i) to determine the distribution of the bean bruchid species in different agro-ecological zones in the 3 countries
- ii) to familiarize ourselves with post-harvest storage strategies used by small scale farmers
- iii) to critically examine small farmers' storage practices and bruchid control methods
- iv) to evaluate the efficiency and potentials for the improvement of small scale storage management systems
- v) to gain an insight into small scale farmers' perceptions of losses in storage
- vi) to assess on-farm damage levels
- vii) to determine the end use patterns of beans (sale, seed, consumption).

#### Procedure

To obtain the necessary information, farming villages in different agroecological zones were randomly selected and farmers, also randomly selected, were interviewed individually or in small groups. Approximately 35, 40, and 6 farmers were interviewed respectively in Uganda, Tanzania and Zimbabwe. These roughly represented a cross section of farmers in 8 different regions.

<sup>1</sup>Beans are spread in the open sun.

A detailed analysis of our observations on farmer storage practices, perception of damage and loss as well as their reaction to, and management of storage problems will be submitted in a comprehensive report in due course.

#### Highlights of the Travelling Workshop

##### Distribution of Bruchid Species

Current literature suggests that *Acanthoscelides obtectus* is restricted to the cooler highlands whilst *Zabrotes subfasciatus* is more prevalent in the warmer (lower altitude) areas. Whilst in South America the distribution of the two bruchid species is clearly defined according to altitude, No such relationships were found in Uganda and Tanzania. Previous surveys by S. Nahdy in Uganda have shown *Zabrotes* to be more important in urban stores but rare in on-farm storage situations. In our monitoring survey no *Zabrotes* infestations were observed, except for a few isolated infested beans at the Produce Marketing Board (Kampala) and Mbale Market. *Acanthoscelides* was the only species observed in the diverse ecologies.

However, interviews with traders, store managers and farmers suggested that *Zabrotes* do occur in various parts of Uganda, but infestations commence later in the year when temperatures are high and on beans stored for long periods. This implies that, infestations of *Zabrotes* arise from carry over populations in storage i.e. if stores are not adequately cleaned before new harvest is received. The presence or absence of *Zabrotes* in any particular areas is thus dependent on the time in the season when the surveys are conducted. Surveys conducted during the hottest months and later in the storage period may show *Zabrotes* to be predominant whilst *Acanthoscelides* may be of lesser importance at that time of the year. These observations may explain some of the contradictory results of surveys reported by Davies in the 1970s in Uganda.

In Tanzania, *Acanthoscelides* was found to occur in areas ranging in altitude from 600-1600m, with one notable exception. Low but predominant infestations of *Zabrotes* were observed in Babati District (alt. 1500 m). According to the farmers, infestations of *Zabrotes* commence approximately 2-3 months after storage and necessitates insecticide treatments for protection. In contrast, in Kilosa (alt. 600m) where *Zabrotes* were expected, and previously reported by Nchimbi to be the predominant species, this species was not observed. High infestations of *Acanthoscelides* were evident in farmers' samples. However, farmers were well aware of *Zabrotes* and indicated that infestations of this species become significant when temperatures increase i.e. late October onwards.

Our observations from this workshop indicate that the distribution of the bruchid species in Africa is not clearly defined. The situation is much more complex than previously expected. There is need for greater understanding of bruchid species distribution within the region so that resistant varieties and specific management strategies can be better targeted.

##### Control Methods

A detailed analysis and synthesis of the various control methods used by farmers in the different countries and agroecological zones will be submitted in due course. In general, the methods of control used by farmers in the different countries were similar but different in detail. The majority of farmers use sunning; beans are spread out in the sun. This allows adult bruchid to fly, and eggs of *Acanthoscelides* may be left behind during the rebagging. The process also airs and dries the produce further for disinfestation with varying degrees of success. The use of insecticides especially in Tanzania and Zimbabwe is widespread. This, we believe, is due to the good extension services in those countries and particularly in Tanzania, a spin-off of the post-harvest extension programmes targeted against larger grain borer (*Prostephanus truncatus*) in maize.

The range of protection methods used by farmers interviewed is listed below

<u>Uganda</u>	<u>Tanzania</u>	<u>Zimbabwe</u>
1. Sunning	Sunning	Sunning
2. Insecticides Actellic most common	Insecticides Super Actellic most common	Insecticides Actellic most common
3. Admixtures of soil	Admixtures of soil	-
4. Admixture of wood ash	Admixtures of cow dung ash	Admixtures of wood ash
5. Plant products: <i>Eucalyptus</i> , <i>Tagetes minuta</i>	Plant products: Unidentified plants	-

#### Damage levels

Bruchids were perceived by farmers to be the major storage problem. Detailed levels of damage were not possible to determine on site due to the "hidden infestations" which are not visible. Samples were therefore collected randomly from farmers and markets for incubation to hatch out any hidden infestations. The species of bruchids that emerge and extent of damage will be recorded. No samples were collected in Zimbabwe due to the small quantities of bean (as a result of the drought) that farmers had saved for seed. Indications are, however, that samples with high moisture content, as collected in Uganda, may be relatively more damaged than the beans with lower moisture contents in Tanzania or Zimbabwe. The bruchids problem was considered to be most serious in Uganda despite the short (3-4 months) storage times.

#### End use pattern of harvests

Investigations were made on how beans were used at the farm level and quantities used. The major end-use of beans was found to be for sale, food and seed in that order. Information on what percentage was sold, when beans were sold, and why they were sold at particular times was collected. These details will be presented in the final report.

#### Conclusions

The bruchid travelling workshop was very beneficial for all participants and we believe the objectives of the workshop were achieved. The monitoring team enabled the bruchid researchers to gain first hand experience of practices and problems in other countries and the sharing of ideas. A significant volume of data has been collected from Uganda and Tanzania to enable comparisons to be made between different ecological regions and countries.

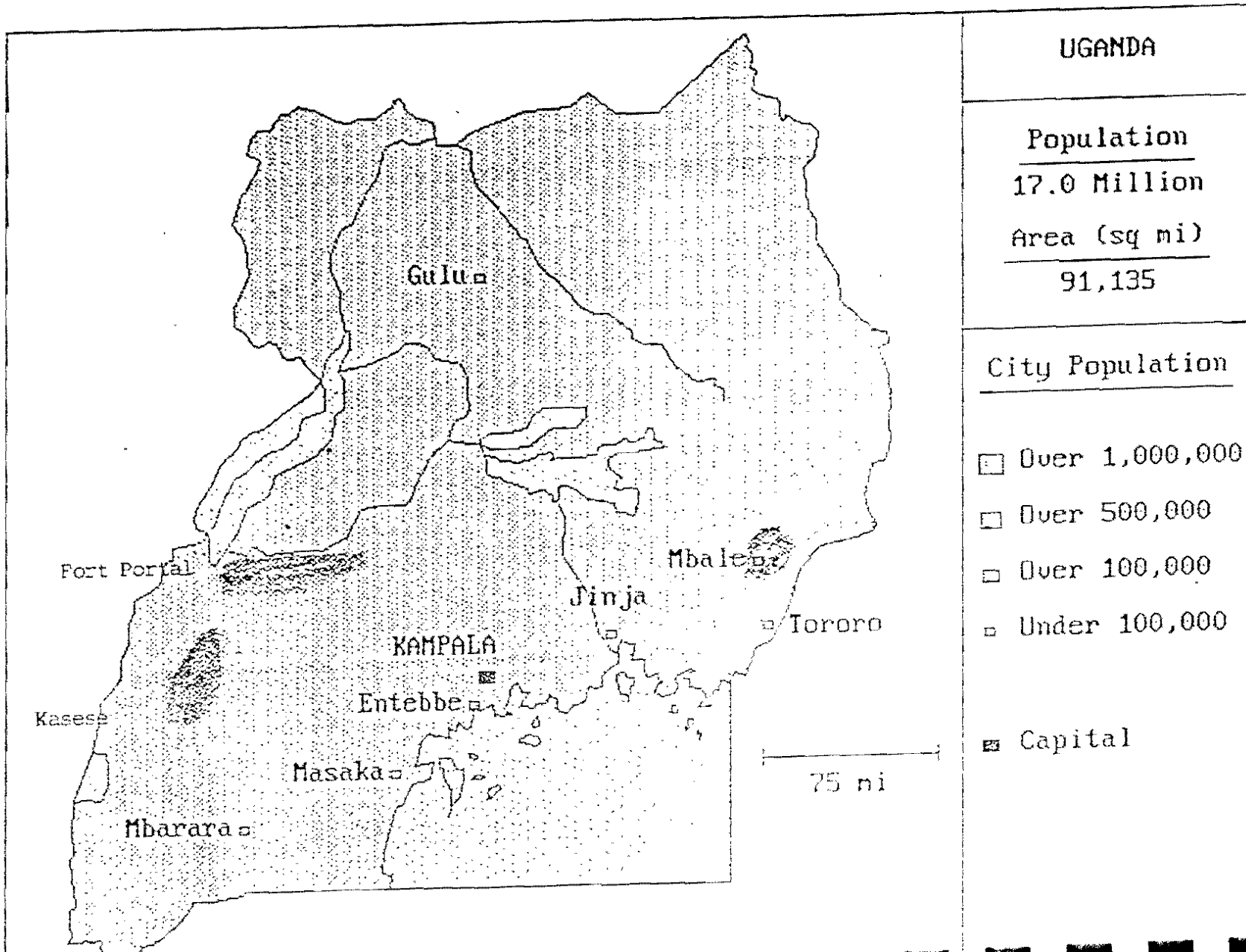
1. Based on our observations a number of research lines may be recommended:
  1. Critical evaluation of sunning (solar heating) in on farm trials
  2. Further studies on the distribution of bruchids to find correlations, if any, with environmental conditions viz temperature and humidity
  3. Given that *Acanthoscelides* was found in a very wide range of environments

conditions (including low altitude hot areas) and *Zabrotes* in high altitude areas, it appears that these species are well adapted to diverse conditions in Africa. It is thus very likely that differences in the bionomics, and ecology of these species exist between Africa and S. America. Detailed studies to characterize these differences are therefore necessary.

4. Given that *Zabrotes* infestations may be more serious in large scale storage (in urban stores in Uganda) studies on the ecology, influence of carryover stocks (which provide reservoirs of infestations) and store management need to be initiated.

Workshop participants came away satisfied that the objectives of the monitoring tour were met. Interactions between the researchers and farmers were useful in putting progress to date in perspective and the strategies for future research.

D.P. Giga, S. Nahdy, M. Nahimana, S. Nchimbi, F. Negasi, K. Ampofo  
October 6, 1992



UGANDA

Population

17.0 Million

Area (sq mi)

91,135

City Population

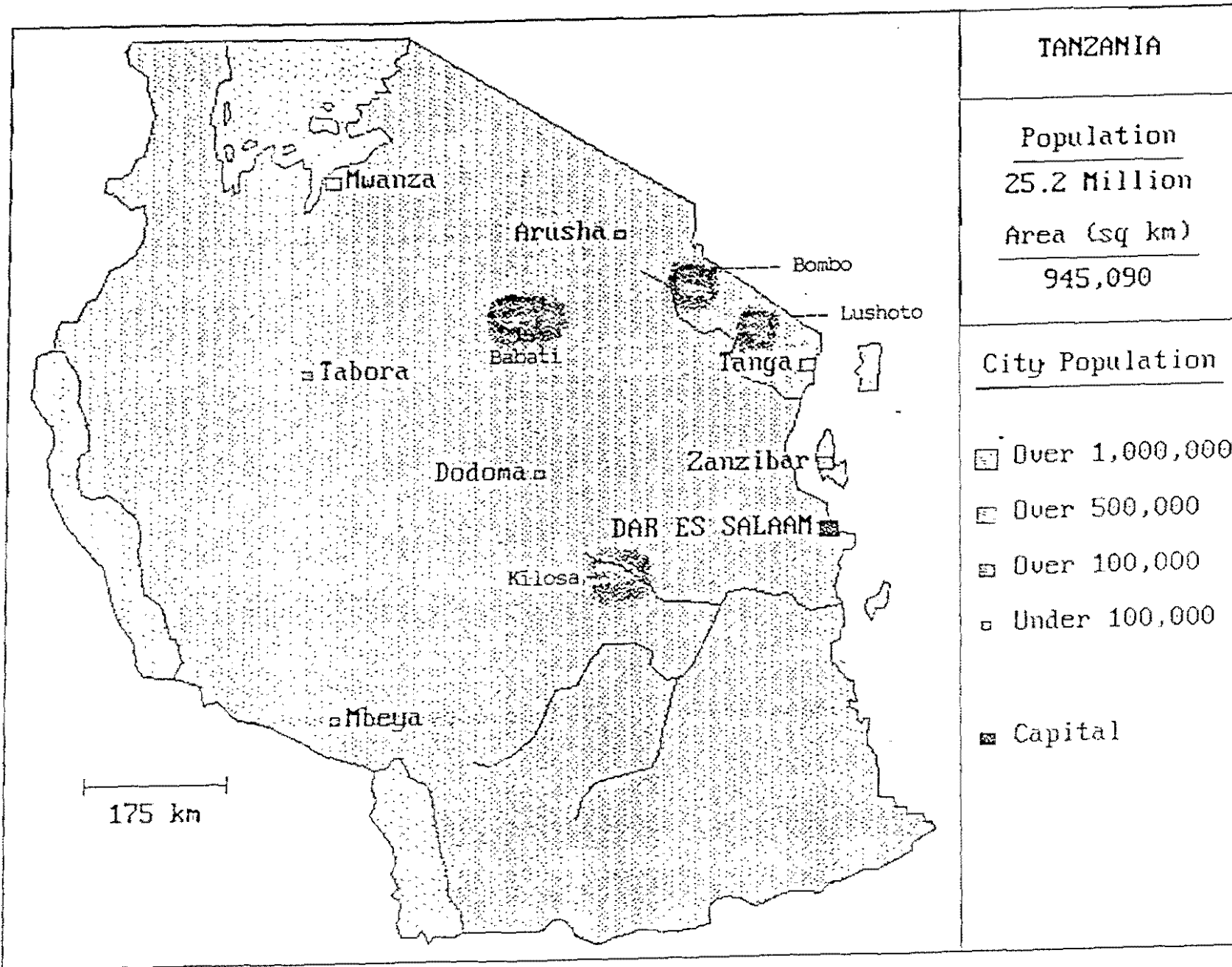
▣ Over 1,000,000

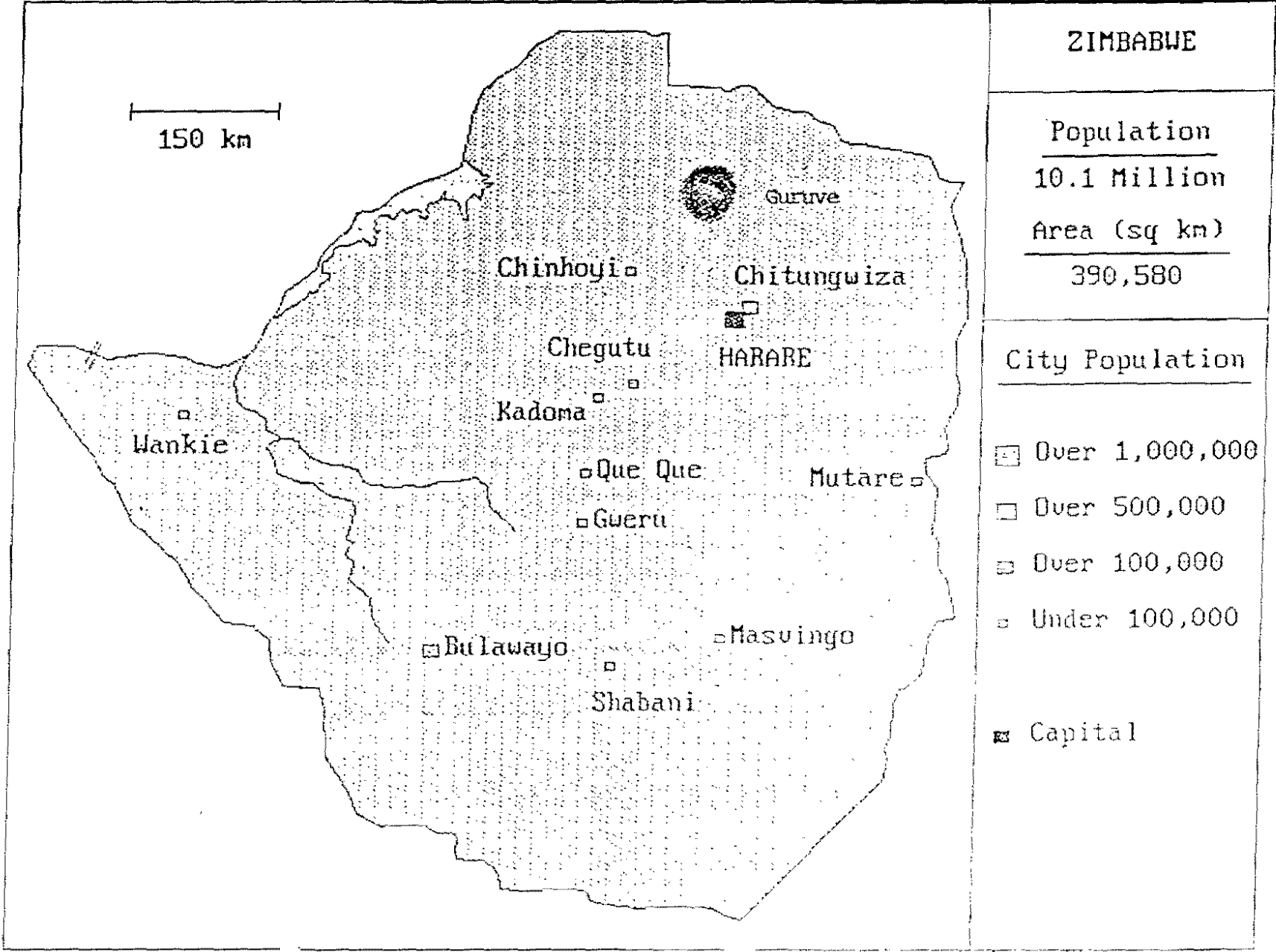
▣ Over 500,000

▣ Over 100,000

▣ Under 100,000

■ Capital





BREEDER'S TRAVELLING WORKSHOP TO UGANDA AND KENYA, 2-7 NOV., 1992.

1. The participants of the workshop comprised:

- Teshome Girma and Melaku Ayele from Ethiopia,
- S. Muigai and Wilson Rono from Kenya,
- Mrs S. Musaana and Mrs B. Male-Kayiwa from Uganda,
- H Gridley (CIAT) from Uganda.

2. UGANDA, 2-4/11.

During the first two days National and CIAT regional crossing blocks, nurseries and trials were visited at Kawanda and Bukalasa.

Exchanges between scientists centred on the flow of material through the testing system, the plot sizes and number of replications needed at the different stages of testing needed to obtain accurate estimates of seed yield and the value of multilocation testing at the preliminary yield trial stage.

The visitors were impressed by the amount of material being handled by the two programmes and felt that as such considerable progress should be achieved in the development of new cultivars. In Kenya financial restrictions precluded a similar size of breeding programme and quarantine restrictions still hampered the introduction of significant amounts of genetic material.

On the third day (4 Nov) the planned visit to Nakabango had to be canceled due to the delay in obtaining a passport for the driver and travel to Kenya was delayed to 5 November. Also due to this delay it was not possible to visit trials at Kakamega.

3. KENYA, 5/11.

Due to the late start of the rains in Kenya trials had been planted at Thika but not at Katumani. Accordingly the visit to Katumani, at Machakos had to be canceled although Wilson Rono gave a brief description of his breeding activities at this station.



## KATUMANI.

In the dry Machakos region, which produces around 20% of the beans in Kenya, rainfall averages 250-400mm in each of the two growing seasons thus requiring the development of cultivars with early maturity of 70-75 days and tolerance to heat and related flower drop. Charcoal rot is the main disease problem with BCMV, CBB and ALS of local importance. Large seeded, determinate types are preferred by the farmers although the small seeded indeterminate types are heavier yielding. Considerable local collections have been made and selection within these has resulted in the release of new cultivars.

The regional sub-project handled by Wilson Rono has introduced 300 lines from CIAT for the development of lines adapted to the cool, arid highland areas and to date 13 promising, large seeded, determinate lines with early maturity have been identified and are being multiplied for multilocation testing.

## THIKA.

The growth stage of the 12 lines in the National Performance Trial (NPT) varied from just emerged to first and second trifoliolate leaf stage with main (line) plot split for fertilizer/no fertilizer. Differences in growth stage largely reflected the accidental overhead irrigation of plots nearby to a tomato variety trial. Due to financial constraints the NPT was only being conducted at Thika. One entry in the trial, namely GLPX 1231, had proven to be very well adapted to the dry areas in the East in previous seasons.

F3 snap bean populations, derived from crosses done at CIAT, between Monel (the main snap bean cultivar grown in Kenya) and rust resistant sources were undergoing selection for rust and ALS resistance and pod quality. It was agreed there was a need to import the rust differentials to determine the race situation. Some snap bean lines developed from Mr Muigai's own crossing programme were already being grown by the farmers.

A bean stem maggot trial comprised 12 lines selected from the CIAT BSM re-confirmatory trial and local sources with the line sub-plots arranged in the main plots of endosulphan/no endosulphan. This trial also was only starting to emerge.

4. At an informal meeting over dinner on 5/11 it was agreed that although the visit to Uganda was very worthwhile the visit to Kenya would have been more beneficial two to three weeks later.

EVALUATION OF ALTERNATIVE APPROACHES TO ON-FARM AND PARTICIPATORY RESEARCH

Charles S. Wortmann

One objective of a recent monitoring tour of OFR (see attached program) was to view and evaluate a number of approaches to on-farm and participatory research. This paper address this objective and attempts to present the views of the participants on the five situations, including the Southwest Rural and Agricultural Rehabilitation Project, Field Extension Staff in Maziba county of Kabale District, the CARE forest margins project, AFRENA--Kabale, and Field Extension Staff in Mitiyana district. The visits in each case were brief and our understanding of the work is often incomplete, but we offer suggestions to consider for the improvement of the research effort. Also, I have not been able to consult with all members of the tour after writing the report and the views may not always be adequately presented.

**SWRARP approach.** The Southwest Rural and Agricultural Rehabilitation Project (SWRARP) has been conducting on-farm bean trials since 1989. In addition to on-farm bean variety trials (OFBVTs), SWRARP has been collaborating with farmers in multiplying seed of three newly released varieties including MCM 5001, CAL 96 and RWR 136. These seed multiplication plots range in size from 100 to 400 m<sup>2</sup> and are to supply seed to the farmer and the farmer's neighbors.

Extension field staff who are selected by the DAO are responsible for farmer and site selection for the trials and multiplication plots. An extension staff member appears to be responsible for 1-5 OFBVTs and the trials are widely scattered. Apparently researchers from Rubare and Mbarara assist with planting and harvesting of trials. Trials are typically row-planted, although farmers generally opt against planting beans in rows. It appears that trials tend to be with farmers who are more prosperous and have relatively more cultivated land than normal, that several different trials are conducted on these farms in a season, and that there is a tendency to continue using these farmers. It appears that farmer evaluation of trial results is not emphasized except for the bean variety trials in which the agronomist of the Uganda Bean Program (UBP) participates.

The tour participants offer the following suggestions for consideration.

1. Clustering of the trials, rather than scattering the trials widely, would have the advantages of easier implementation and reduced costs, and would provide more opportunity for participating farmers to interact.

2. There might be an advantage to selecting farmers who are more representative.

3. Farmers might play a greater role in the trial management, especially sowing of the trials.

4. More effort might be made to involve the farmers in the evaluation of the trials.

5. It might be the right time to extend to more complex problems / technologies, i.e. beyond variety and input use testing. Greater farmer involvement and a less extensive approach to the OFR may be needed.

Field Extension Staff, Maziba county, Kabale district.

Here an extension field staff has been collaborating with the UBP for 5 years, primarily for bean variety evaluation. Activities observed include bush bean variety trials and seed multiplication plots for climbing bean varieties which had been evaluated previously.

Here the EFS conducts 10 trials per season within a radius of about three kilometers. The EFS selects the farmers and the sites and assists to lay out the trial. The farmers plant according to their preferred practice and manage the trials through to harvest. Farmers appear to be representative. However, there appears to be a tendency to continue working with the same farmers season after season. The EFS receives the equivalent of US\$4-5 per trial successfully completed as lunch allowances from the UBP.

Generally, the trials were well managed. A major challenge for farmers growing the new climbing bean varieties appears to be the finding of sufficient staking material.

The UBP agronomist visits the participating farmers each season to get individual farmer assessments of the varieties and to discuss the results with groups of farmers.

The four participants identified advantages of this approach and suggested modifications. Advantages include:

1. farmer and extension involvement in variety evaluation;
2. low requirement of researcher's time; and,
3. inexpensive.

Suggestions for modification made by four participants include:

1. Try to avoid working with the same farmers season after season.
2. Give the staking problem more attention.
3. Further encourage the farmers in multiplying and disseminating seed of the preferred varieties.
4. Further emphasize the demonstrative value of the trials.
5. Make more observations of sites, diseases and plants harvested.
6. Investigate possibility of disease transmission by stakes.
7. Trial sites might be more accessible.

OFR of AFRENA-Kabale

We did not see any OFR but rather a good program for the promotion of tree planting. This program is organized around womens groups which maintain tree nurseries to supply the members with tree seedlings. One of the purposes of the tree promotion is to reduce soil erosion, but it was our impression that most of the trees are being planted around the homes or widely spaced and not likely to have much effect on erosion. The upper slopes which may be most affected by erosion were not receiving attention. There did not appear to be much concern with trying to introduce specific planting patterns such as hedgerows.

While the activities observed were impressive, the nurseries successfully producing tree seedlings and the demand well in excess of supply, the tour participants wonder:

- 1. should AFRENA be more concerned with the testing and promotion of specific planting patterns such as hedgerows; and
- 2. likely species for protecting the
- 3. up studies be done on the adoption

mu  
of

*Investing in  
participation*

Th

in Kabale

an  
ma  
wi  
pr  
co  
as

ed with the UBP in the evaluation of bean varieties. The project's of alternative technologies than existing technologies. However, the testing of the varieties and is now demonstrations to promote the varieties ability of seed.

co  
la  
ar  
fa  
di  
po  
to  
ot

Project are not experienced in the testing of the varieties was by the farmers. As climbing beans this area, the farmers were not and the trial results were often ers often to failed to see to yield ies. The reactions of the farmers have stopped growing these while

- 1. do not have much comparative advantage in the testing of technologies and many of the farmers in the area are probably better qualified. Considering that even promising technologies usually need some testing and adaptation, and that many of the problems are complex and may require a variety of solutions, the OFR approach maybe should be of a high level of farmer involvement. The primary role of the field staff may be to facilitate farmers in their own research to solve problems or to adapt technologies. This may be facilitated by a course/seminar in

which farmers give consideration to research that they have done and their methods, and to give training to improve on these methods.

#### Field Extension Staff--Mitiyana district

Two FESs are collaborating with the UBP much as in the case of Maziba county, and are in the second season of this collaboration. They work with farmers to evaluate bush bean varieties and Crotalaria as a green manure. The Crotalaria trials were poorly implemented, partly because they were put on poor soil and partly because most observations were not being made. With one FES, the trials were poorly laid out, unlabeled and neither she or the farmer could easily identify the varieties.

Suggestions for consideration are:

1. the need for better quality research must be emphasized; and
2. further training in the implementation of trials may be needed.

#### Cooking and Tasting Tests in Magango, Mpigi District

Here cooking and tasting tests were observed. The purpose of the tests were to enable a large number of farmers to evaluate the varieties for these characters without consuming much. This allows more seed of the preferred varieties to be planted the following season which is important for beans which has quite a low seed multiplication rate.

Six bean varieties were cooked on a charcoal-fueled cooker. Cooking time was noted for each variety. Each farmer was given a tablespoon to taste.

Several problems were noted with the tests.

1. To determine if consumption of a variety causing flatulence, larger quantities need to be consumed. However, it was realized that this may not be feasible as consumption of larger quantities of seed would leave less for planting the following season.
2. The taste of one variety will affect the taste of the following varieties. It was suggested that each farmer taste the varieties in a different order to minimize this problem.
3. It was noted that different beans are prepared in different ways, so that the optimal quantity of salt for example varies from variety to variety. With the cooking test, the beans are not prepared in the optimum fashion. this was considered to be an unavoidable problem as it takes several meals to determine to the optimal way of preparing a new variety.
4. It is important that the seeds used for the cooking test are not infested with weevils.
5. Have individuals taste fewer varieties in total by assigning a few varieties to each farmer.

ON-FARM RESEARCH AND PARTICIPATORY RESEARCH MONITORING TOUR -- 27  
OCT. TO 8 NOV, 1992

**Purpose:**

To enable experienced OFR researchers to learn more about OFR and FPR through observing alternative approaches, participation in various exercises and in the evaluation of approaches and methods; and to constructively evaluate the various approaches and techniques observed.

**Objectives:**

1. Observe OFR/FPR approaches being used by the Uganda Nat. Bean Prog. (UNBP) and other programs in Uganda.
2. Participate in the use of various methods for OFR/FRP.
3. Evaluate the various approaches and methods and recommend improvements.

**Program:**

- Oct., 27 Arrival in Uganda and depart for Mbarara. Overnight at Lake View Hotel.
- Oct. 28 Meet SWRARP officials and visit SWRARP OF trials.
- Oct. 29 Depart for Kabale. Visit OFT's for bean variety testing in Maziba. Lunch in Kabale. Visit on-station bean trials at Kachwekano. Overnight at Highland Hotel.
- Oct 30 Visit OFR of AFRENA in morning. Visit OFR of CARE in afternoon.
- Oct. 31 Meeting of tour participants to present reports of their OFR activities. Return to Kampala. Accomodation at Makerere Univ. guesthouse.
- Nov. 1 Free
- Nov. 2 AM -- visit Kawanda research station. Visit Kagoma to see collaborative UNBP/extension on-farm bean variety trials and participate in cooking and taste tests with farmers.  
PM -- Lunch at Kagoma Inn. Visit OFR of UNBP in Matugga.
- Nov. 3 AM -- Visit collaborative UNBP/extension OFR in Mityana and evaluate Crotalaria and bean variety trials with farmers.  
PM -- Lunch in Mityana. Drive to Jinja. Accomodation at the Timton Hotel.
- Nov. 4 AM -- farm visits and farmer interviews on soils and their management in Ikulwe of Iganga district.  
PM -- Lunch in Jinja. Meeting of participants for a report on background information for Ikulwe and planning

of activities for Nov 5 & 6.

- Nov. 5 AM -- meeting with farmers to use participatory diagramming and other group approaches to get additional information about the farmers' situations, and to identify important crop production problems.
- Nov. 6 Short meeting of tour participants to evaluate activities of Nov.5. Meeting with Ikulwe farmers to prioritize problems, to look at the causes of the important problems and to identify possible solutions.
- Nov. 7 Meeting of tour participants to evaluate the work with farmers in Ikulwe and to complete evaluation of the OFR approaches and methods observed during the tour. Return to Kampala.
- Nov. 8 Departure.

Strategic Plan

for Increasing Management and Funding by the NARS



## EASTERN AFRICA BEAN RESEARCH NETWORK

### STRATEGIC PLAN FOR INCREASING MANAGEMENT AND FUNDING BY THE NARS

#### A. Network Objectives and Strategies

##### *General Objectives*

The Network is formed by the NARS of the region. It functions through collaboration among them in areas of mutual interest, and also in collaboration with CIAT, with other regional bean networks and international centers, and with donors. The Network aims to improve food security and availability for small farmers, to improve farmers' incomes and to increase protein availability for low income groups in member countries, by building on previous achievements to improve bean productivity and develop sustainable technology that is adopted by bean producers.

##### *Specific Objectives*

<u>Objective</u>	<u>Strategy</u>	<u>Output</u>
1. To strengthen and sustain national research programs	Institutionalise and refine national research planning	Research priorities refined by focussed diagnostic studies
		Annual national review/coordination meetings
	Assist NARS to sustain or increase their resource allocation to bean research	All NARS define responsibilities & allocate budgets for national bean coordination
		Impact of bean research documented & publicised
		Partnerships developed with farmers, NGOs, development agencies and private sector
		Individual research scientists held accountable
	Increase effectiveness of national research	Greater use of information by researchers: publish, library, seminars, annual reports
		Research staff better trained to meet country-specific priorities
		Scientists more professionally motivated
		More exposure of scientists to farmers' problems

2. To improve the sustainability of the Network

Increase the role of NARS in Network management

Steering Committee and Directors' Committee meet annually

Increased steering committee management of network budget and reporting

Institutionalised coordination within the network

Encourage national government and donor financial support to NARS and Network

Research impact information provided to governments and donors

Network training and information executed within NARS

NARS contributions to the network documented

Increase effective collaboration within the network

Scientists exchanged within and between networks for on-the-job training

Regional solutions developed by sub-projects

Sub-project leaders strengthened as regional technical leaders

Information exchange by workshops, tours, meetings & reports within and between regional networks

Extend collaboration between bean networks

Experiences shared and priorities set by Working Groups

Regional germplasm nurseries implemented on agro-ecological basis

Communication among steering committees e.g. by exchange of meeting minutes

3. To reduce biotic constraints to bean production

Develop high yielding, resistant varieties

Effective screening methods adapted and used against biotic factors

Increased availability of segregating populations

Effective crossing programmes in NARS

Increased flow of resistant materials from specialised regional programmes

	Maintain and enhance germplasm diversity on farms and in NARS	Targetted collection & storage of landraces within NARS
		Increased germplasm diversity on farms through numerous releases of new varieties
		Maps of the variation and appearance of pathogenic strains
	Devise other solutions to biotic constraints	Inovative ideas devised for cultural control
		Farmer selection of clean seed extended
		IPM solutions developed
4. To improve cropping systems which include beans	Increase productivity of cropping systems in relatively high-potential areas	Diagnostic studies appraised across agro-ecozones
		Technology to intensify important regional cropping systems: cereal/bean, banana/bean, coffee/bean
	Contribute to sustain cropping systems productivity in fragile environments	Improved and environmentally sound soil fertility management technology, eg. compost/green manure/agroforestry
		Improved biological nitrogen fixation
		Improved genotypic tolerance to (or efficiency in) infertile soils (especially low P)
		Minimum tillage technology
5. To increase market potential of beans	Address consumer preferences for beans	Feasibility studies on urban market potentials for new varieties and bean products
		Acceptable ways developed for utilising non-preferred grain types
		Consumer preferences reassessed periodically
		Effective feedback to bean breeders on consumer preferences
	Reduce post-harvest losses	Bruchid resistance incorporated into existing and new varieties
		Farmer assessments of the effectiveness of cultural methods against bruchids

	Improve export opportunities	Study on export markets: potential & requirements
6. To improve the transfer of technology	Increase farmers' participation in research	On-station evaluations by farmers included in research systems
		Evaluation of inexpensive on-farm research methods, e.g. for segregating materials, soil fertility management
		Farmer participatory seminars for researchers in the network
	Improve national links between extension services and research institutions	Distribute research reports to extension officers
		Leaflets on new bean technology
		Periodical review meetings with extension services
	Accelerate technology transfer through improved seed systems	Non-formal seed systems used, monitored and documented
		Impact of non-formal seed systems publicised
	Encourage inter and intra-network technology transfer	Pan-African bean newsletter published
		Continued publications in the pan-African series (Proceedings; Working Documents; Reprints)
		Pan-African workshops and seminars
		Germplasm exchanged within Africa
		Bean environments in Africa better classified for technology extrapolation

## B. Targets for Technology Development and Productivity Changes

The following targets were set in 1992 by the Great Lakes Network, for achievement by 1995. These targets are proposed for adoption by the Eastern Africa Network, after adding an adjustment for the later startup of network activities in anglophone countries:

### *Productivity Increases*

At least 2000 farmers, in at least two regions of each country, adopting technology which increases their yields by 25%.

### *Many Higher Yielding Varieties Available*

Ten specifically adapted varieties available in each principal zone. At least 25% of varieties in multilocational trials outyielding the farmers' check by at least 25%.

### *Potential Productivity of Beans Better Exploited*

Yields of at least 30% of collaborating farmers raised by 15% through use of non-genetic (i.e. crop management) technology. At least two management technologies adopted by 30% of farmers collaborating in these studies. One technology developed in each of three regions per country.

### *More Use of Improved Varieties*

80% of disseminated varieties being used by at least 1% of a sample population of farmers. 10% of the population using at least one improved variety.

## **C. Present Organization and Management of the Network**

The Network's operational organization is summarized in Fig.1.

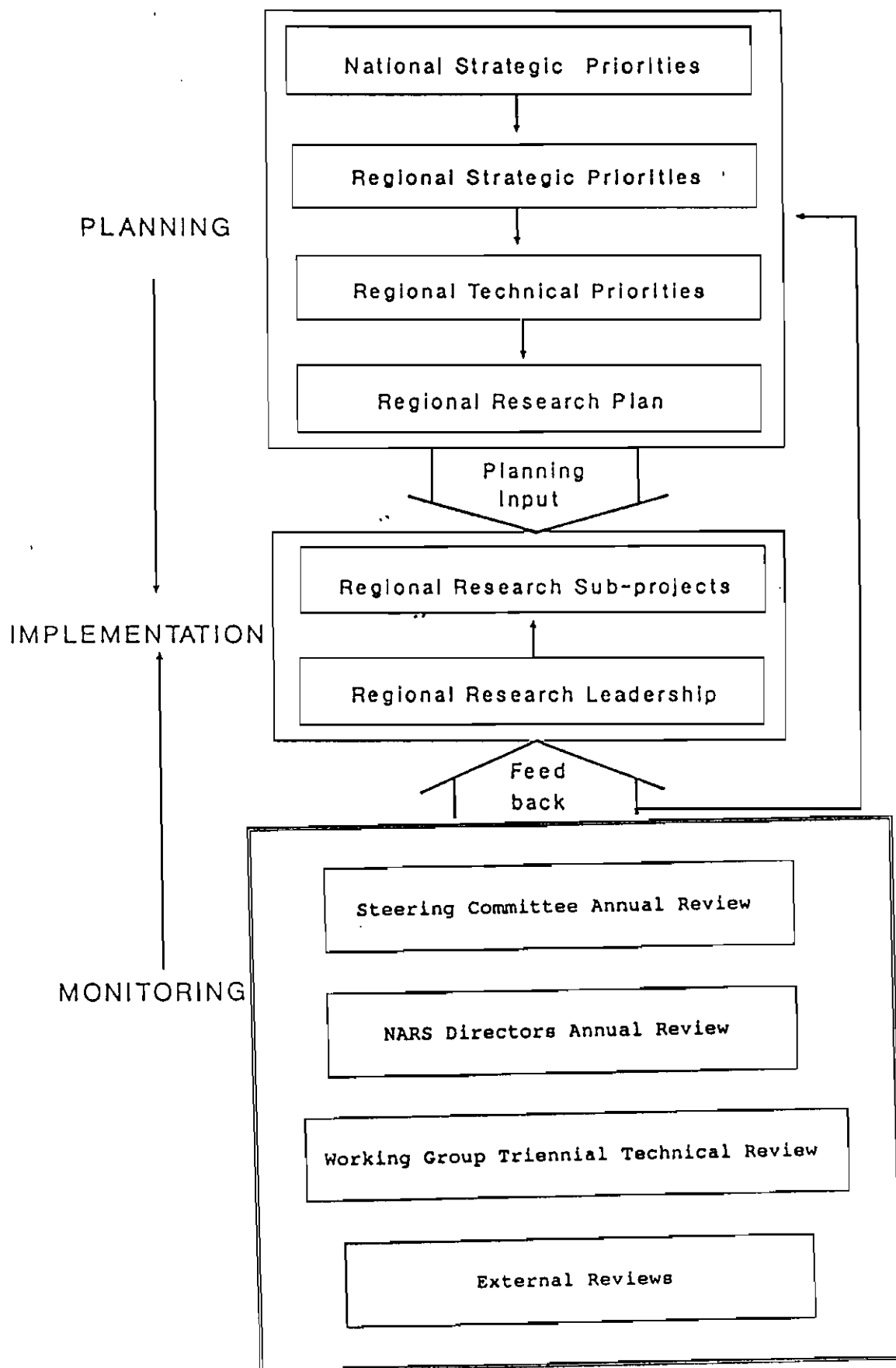
### *Stage 1: Planning*

1.1 National Bean Improvement Plans: These prioritize national problems and strategies for solving them. National strategic priorities are developed through interinstitutional, interdisciplinary workshops employing participatory planning techniques, and become the basis for annual program or station reviews and planning meetings. Setting effective national priorities depends on the flow of information from farmers, consumers and farm trials to national researchers; CIAT assists these systems to develop, and has catalyzed national planning workshops in Ethiopia, Kenya, Tanzania and Uganda.

1.2 Regional Strategic Priorities: These are based on commonalities in national priorities that emerge in participatory regional planning workshops. Regional prioritization forms a consensus about major common problems to be tackled over a multi-year period. Participants include coordinators of all national bean research programs in the region as well as invited resource people from extension, universities, the seed sector, and a diversity of research disciplines including socio-economics.

1.3 Working Group Technical Priorities: These are developed by leading disciplinary specialists on a Pan-African basis at the request of the Regional Steering Committees. The Working Groups advise Steering Committees on specific research needs on a particular problem area. Working groups currently guide the design of regional research sub-projects in the areas of entomology, pathology, cropping systems, biological nitrogen fixation, drought

Fig. 1. OPERATIONAL ORGANIZATION OF REGIONAL BEAN NETWORKS IN AFRICA



and soil fertility management. CIAT provides additional technical input to the working groups, which meet approximately every three years, and has catalyzed linkages with other regional and international groups relevant to the problem area.

1.4 Steering Committee Regional Workplan: This is developed based on regional priorities and the technical recommendations of the specialized working groups. The Committee, comprised of all national program bean research coordinators in the region, assigns responsibilities among participating NARS and CIAT for specific activities in research, information exchange and training. In research, the Committee solicits proposals and allocates resources for regional research sub-projects proposed by national scientists. Criteria for support to research sub-projects include relevance to regional priorities; likelihood of producing results; demonstrated capacity of national scientists; and availability of national infrastructure to conduct the proposed research. Regional budgets for sub-project research, information transfer and training are approved on an annual basis and form part of a written work plan for the Network. CIAT currently serves as regional coordinator to execute the decisions of the Steering Committee.

## *Stage 2: Implementation*

2.1 National Institutions Conduct Regional Research Sub-projects: These sub-projects reflect regional and national priorities while capitalizing on national comparative advantage in scientific expertise, appropriate ecology, and infrastructure. National institutions contribute personnel and facilities to help support regional research. The institution and the specific scientist responsible for each sub-project conduct research according to the Steering Committee's approved proposal, and prepare an annual written workplan, budget, progress report and financial report. CIAT provides technical assistance to regional sub-projects and, where necessary, conducts training and strategic research to develop methods and materials for application in the sub-projects.

2.2 Information Transfer: National annual reports are exchanged among national coordinators. Regional multidisciplinary workshops focus on results obtained from regional research (by national and regional scientists); these are held annually among francophone countries and every two or three years in anglophone Eastern Africa. CIAT publishes, on behalf of the Network, three series of publications: workshop proceedings, working papers and reprints. Genetic information is exchanged as germplasm and reports within eco-zone series of breeders' nurseries and trials.

2.3 Regional Research Leaders: Regional research leadership assists in standardizing methods, providing training to young scientists, coordinating information exchange, and organizing working group meetings. The Steering Committee, with CIAT, foster the emergence of regional research leadership through advanced training opportunities (e.g. post-graduate scholarships and

internships with CIAT scientists) and responsibility for sub-project research. An evolution is in progress, with several regional leaders assuming coordination responsibilities including organization of courses and workshops, and making technical visits to other countries that are initiating research in their field of specialization.

*Stage 3: Monitoring*

3.1 Steering Committee Review of Annual Reports: The Steering Committee appraises technical progress and financial administration based on annual progress reports submitted by national scientists responsible for regional sub-projects. Resources are allocated to the subsequent work plan/budgets for sub-projects based on past progress and appraisal of future promise in light of regional strategic priorities. Regional multidisciplinary workshops are organized to assist in peer review.

3.2 NARS Directors' Annual Review: A regional Committee of NARS Directors reviews the minutes of Steering Committee meetings to verify that national priorities are reflected, to ensure that the Network maintains strong roots in the NARS with good collaboration among countries, to address policy issues that arise, and to monitor Network expenditures and performance.

3.3 Working Group In-Depth Technical Review: This is conducted on a periodic basis roughly every three years at the request of Steering Committees to assess progress and recommend any revisions in technical priorities or strategy. CIAT scientists also provide technical input to the working groups. Working group technical review is a major element both for regional strategic priorities and Steering Committee decisions.

3.4 External Reviews: These are conducted in full coordination with donors to appraise the institutional and organizational operation of the network as well as its evolution towards regional self-sufficiency. The reviews also contribute an external assessment of the technical quality of network research, and an evaluation of the effectiveness of CIAT's support to the network.

**D. Portfolio of Regional Sub-projects in Eastern Africa, 1993**

Title	Country	Leader	Station	Year of Start-up	1992/93 Budget (USD)
<u>Variety Development</u>					
Semi-arid Highlands	KE	W. Rono	Katumani	1990	1600
Snap Beans	KE	S. Muigai	Thika	1991	3360



Variety Development/Resistance Breeding

Rust	ET MD	Habtu Asefa A.Rabakoa- rihanta & G. Rakotomalala	Nazreth Antana	1987 1991	2000 4080
Ascochyta	UG	B.Male-Kayiwa	Kawanda	1987	2500
Bean Common Mosaic Virus	UG TZ	T.Sengooba A.F.Lana	Namulonge SUA	1988 1990	4000 6000
Charcoal Rot	KE	W.Songa	Katumani	1991	1340
Root Rots	RW	-	Universite'	1989	NA
Angular Leaf Spot	KE	F. Makini	Kisii	1992	2000
Halo Blight	BU	-		1990	NA

Integrated Pest/Disease Management

Anthracnose	ET BU RW	T.Beshir - -	PPRC Ambo Universite' Rubona	1991 1992 1988	3000 NA NA
Common Bact. Blight	UG TZ	F. Opio & S.Musaana R.Mabagala	Kawanda SUA	1987 1992	5000 5000
Bruchids	UG	S.Nahdy	Kawanda	1990	3500
Bean Stem Maggot	ET TZ	T.Abate C.Mushi	Awassa Lyamungu	1989 1990	3000 7000
IPM in Snap Beans	KE	J.Nderitu	NAL	1992	1000

Genetic Tolerance to Soil Constraints

Drought	ET	A.Abebe	Nazreth	1988/91	3500
Biological Nitrogen Fixation	ET BU RW	M.Haile - -	Alemaya Rubona	1989 1992 1989	3500 NA NA
Low Nitrogen	ET	H. Admasu	Nazreth	1991	1500
Saline Soils	SU	S.Salih & S. Ahmed	Hudeiba	1990	1000
Manganese Toxicity	UG	V. Ochwoh	Makerere	1992	1000
Low Phosphorus	KE TZ	G.Rachier et al I.Kullaya	Kakamega Lyamungu	1992 1991	500 4000

Integrated Crop/Soil Management

Acid Soils Management	MD	B.Rabary	Antana	1992	3500
Minimum Tillage	KE	J.Muthamia	Embu	1991	2000
Nutrient Flux	KE	F.Kanampiu	Embu	1992	1000

Water Harvesting	KE	D.Michieka	Thika	1992	1500
Fertilization Possibilities - Long-term	BU	-	-	1992	NA
<u>Social Science Issues</u>					
Farmer Participatory Research on Soil Management	UG	M.Ugen & P.Jjemba	Kawanda	1992	2000
Seed Dissemination Methods	ET	Getatchew	Awassa	1991	2000
Studies on Existing Seed Systems	BU	-	-	1990	NA
	KE	M.Wanjiru	Thika	1992	2000
Promotion Strategies for Climbing Beans	RW	-	Rubona	1990	NA
Sources of Staking Material	RW	-	Rubona	1992	NA
<u>Service Activities</u>					
Multiplication of Seed for Regional Nurseries /Trials	TZ	C.Mushi	Lyamungu	1992	NA
	RW	-	Rubona	1990	NA

#### **E. Action Plan for Network Leadership and Management by NARS**

##### *Financial Management of Network Funds*

The NARS already make collectively all decisions regarding the allocation of network funds, through the Steering Committee and monitored by the Directors' Committee (see Section C). The Directors' Committee agreed in 1992 that at least 25% of the nominal cost of each regional sub-project should be contributed by the lead NARS. This proportion would increase over time, in recognition of and in conformity with the priority given to beans by member countries. (Reference: Minutes of Directors' Committee, Nairobi, 18 June 1992).

NARS also manage a large part of the expenditures approved by the Steering Committee. Funds for each sub-project are transferred by CIAT to the institution responsible, which provides the Committee with an annual financial report signed by the sub-project leader and the institution's financial manager; the signed sub-project agreement provides for external audit upon request. Similarly, funds for most workshops and training courses within the region are managed by the NARS responsible for organizing each activity, against its written work plan and budget. Funds still largely managed direct by CIAT are those for which foreign exchange and/or a high degree of regional coordination is required: major regional workshops in which airtickets constitute the principal

expense; travelling workshops which move across two or more countries; training outside the region; publishing of regional documents; and purchase of equipment not available in the country.

Recent currency liberalization in several countries may open up some further opportunities for NARS to manage foreign exchange components and, more importantly, will facilitate the eventual management and regional disbursement of all network funds under the umbrella of a local research organization.

Early in 1993 CIAT will redesign its regional accounting software so as to serve more directly the financial information needs of the regional coordinator and steering committee. These requirements are more detailed and include expenditures by country and by sub-project; the present system was designed principally to serve the needs of CIAT in reporting to donors. The new system will also serve as a management tool for the network once its coordination passes from CIAT.

#### *Technical Leadership and Management*

Technical leadership jointly by NARS and by CIAT is currently assured by six specialized Working Groups, which advise Steering Committees on research needs and progress in the bean networks. Several Groups already include members from other relevant international organizations (e.g. CIMMYT, ICRAF and TSBF in the Working Group on Soil Fertility Management in Cropping Systems of the Eastern Africa Highlands). It is envisaged that this particular Working Group could move in 1994 from the Bean Network to the inter-institutional initiative on Integrated Natural Resources Management for the Highlands of Eastern and Central Africa, assuming the latter develops an appropriate coordination role under a committee of NARS directors and international institutions.

The Steering Committee will continue to encourage experienced sub-project leaders to become active regional leaders. The proposed continuation of short-term regional research fellowships is intended to assist the process whereby some NARS scientists become regional resource persons, eventually taking over some functions of regional scientists. While real opportunities exist, the process is also constrained by the small proportion of postgraduate staff in most national bean programs (less than 40% of scientists, except in Tanzania and Uganda). Additional scholarships, mostly for tenure within the region, are also important to achieve this objective.

Several NARS are starting to tap non-governmental resources to ensure that the most appropriate scientific expertise is brought to bear on critical problems. Bean network steering committees have helped catalyze this development particularly in the area of seed systems for disseminating new varieties to small farmers, by awarding sub-project support to research on traditional seed channels, dissemination by NGOs and the local small scale private

sector, and on pricing policy. A more important linkage mechanism should continue to be the interinstitutional national planning workshops for bean research.

It is anticipated that CIAT will remain in the long term a member of the Network, contributing technically to its activities.

#### *Network Coordination*

The Steering Committees for the bean research networks in Africa have recommended that, for ease in decision-making and for agroecological reasons, the three networks continue with separate coordination for Eastern Africa, for the Great Lakes and for the SADC region. However, many activities will continue to be implemented jointly as at present; minutes of their meetings are routinely translated and exchanged.

The Committee of Directors for each network (or SACCAR Board in the case of SADC) has taken the decision to move progressively towards establishing the network locally by attaching the small coordination unit, currently managed by CIAT, to a member NARS. In each case this would involve regional recruitment of a coordinator who would gradually take over these responsibilities from CIAT.

This process is furthest advanced in the Great Lakes, whose NARS directors are currently investigating institutional and legal aspects, and are to report at their next meeting. This coordinator position is to be advertised during 1993, the candidate selected by the Directors, and a one-year overlap with CIAT's coordinator is planned before the latter position phases out in September 1995. The Eastern Africa Committee agreed in 1992 to await the deliberations of their colleagues in the Great Lakes, with a view to following their lead on a somewhat later timetable. The existing operational organization will be followed, under the detailed management of the Steering Committee and supervision of the Directors' Committee.

Regional Collaborative Research Sub-Projects

List of Sub-Projects Approved for 1993/94

Summaries of Objectives, Workplans and Budgets

Guidelines (revised)

Title	Country	Leader	Institution & Station	Year of start-up	Budget (US\$) 1993/94
<u>Variety Development &amp; Resistance to Biotic Constraints</u>					
<del>Aschya</del>	UGA	B. Male-Kayiwa	NARO Kawanda	1987	2000
<del>Bean</del> Stem Maggot Screening	ETH	Tsedeke Abate	IAR Awassa	1989	4000
<del>Seed</del> Arid Highlands Varieties	KYA	W. Rono	KARI Katumani	1990	1400
<del>Bean</del> Common Mosaic - Resistance	UGA	T. Sengooba	NARO Namulonge	1991	4000
<del>Anthr</del> acnose	ETH	Tesfaye Beshir	PPRC Ambo	1991	3200
<del>Charcoal</del> Rot (Macrophomina)	KYA	W. Songa	KARI Katumani	1991	1150
<del>Snap</del> Bean Breeding	KYA	J. Kamau	KARI Thika	1991	2000
<del>Angular</del> Leafspot	KYA	F. Makini	KARI Kisii	1992	2000
<del>Nematodes</del> in Snap Beans	KYA	S. Kanyagia	KARI Thika	1993*	1500
<del>Common</del> Bacterial Blight - Service	UGA	S. Musaana	NARO Kawanda	1993*	2500**
<u>Integrated Pest Management</u>					
<del>Rust</del>	ETH	Habtu Assefa	IAR Nazreth	1987	1500
<del>Rust</del>	MDG	G. Rakotomalala	FOFIFA Ant'rivo	1991	3090
<del>Bush</del> ids	UGA	S. Nahdy	NARO Kawanda	1990	2000**
<del>IF</del> in Snap Beans	KYA	J. Nderitu	Univ. of Nairobi	1992	2110**
<del>Rust</del> Malaria Leafspot	UGA	F. Opio	NARO Kawanda	1993*	1000
<del>Rust</del> Rots	KYA	R. Otsyula	KARI Kakamega	1993*	1000
<del>Bean</del> Common Mosaic - Transmission	KYA	M. Gethi	KARI Embu	1993*	1500

Tolerance to Soil Constraints

Biological Nitrogen Fixation	ETH	Mitiku Haile	Alemaya Univ.	1989	1960
Drought Tolerance	ETH	Teshome Girma	IAR Nazreth	1990	1000
Salinity & Heat Stress	SUD	S. Ahmed	ARC Hudeiba	1990	2000
High Manganese	UGA	V. Ochwoh	Makerere Univ.	1992	1500
Low Phosphorus	KYA	G. Rachier	KARI Kakamega	1992	850

Integrated Crop & Soil Management

Minimum Tillage	KYA	J. Muthamia	KARI Embu	1991	1460**
Acid Soils Management	MDG	B. Rabary	FOFIFA Ant'rivo	1992	2500
Nutrient Flux	KYA	N. Macharia	KARI Embu	1992	1340
Water Harvesting	KYA	D. Michieka/ A. Ndegwa	KARI Thika	1992	280

Socio-Economic Constraints

Seed Dissemination Methods	ETH	Getachew Kassaye	IAR Awassa	1991	2000
Seed Distribution Channels	KYA	M. Wanjiru	KARI Thika	1992	390
Farmer-Participatory Research on Soil Fertility Management	UGA	M. Ugen	NARO Kawanda	1992	3000
Seed Dissemination - Rift Valley Case Study	ETH	Aberra Deressa	IAR Nazreth	1993*	1000
New Bean Products	KYA	F. Kusewa	KARI Katumani	1993*	<u>1000**</u> <u>\$ 56230</u>

Notes: \* denotes first approval at April, 1993 meeting of Steering Committee.

\*\* denotes approval was conditional upon completion of proposal formalities.

# 1. ASCOCHYTA BLIGHT: RESISTANT VARIETIES

Leader: Beatrice Male-Kayiwa

Institution: NARO, Uganda

Collaborators:

Base Location: Kawanda

## Objective:

Through better understanding of the disease in Africa and evaluation of research methods and materials, to develop bean varieties having improved resistance and reduced losses.

## Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Screen and select within back-crosses and segregating populations at Katchwekano and in Kawanda screenhouse	Seasons 93A/B	Researcher: 1 month Technician: 2 months Labour: 4 Travel expenses Transport Field & lab supplies	2,000	1,200
1.2 Use resistant sources from sub-project and CIAT in new crosses to be made at Kawanda	Seasons 93A/B	Researcher: ___ months Technician: ___ months Labour: ___ man-days	700	500
1.3 Distribute questionnaires to other countries on Ascochyta importance and genotype responses	Season 93A	Researcher: ___ months Technician: ___ months Office supplies Communications	800	300
Total (US\$)			3,600	2,000



## 2. BEAN STEM MAGGOT: SCREENING FOR RESISTANT VARIETIES

Leader: Tsedeke Abate  
Collaborators:

Institution: IAR, Ethiopia  
Base Location: Nazreth

### Objective:

Minimise crop loss to bean stem maggot throughout Africa, by identifying, developing and confirming sources of resistance.

### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Screen F4 materials and new introductions (Nursery-1) at Awassa and Areka	Main season 93	Researcher: 8 months	3,600	-
		Technician: 8 months	2,400	-
		Labour: 580 man-days	-	406
		Travel expenses	-	387
		Transport	84	126
1.2 Seed multiplication F5 at Nazreth	Dry season 93/94	Researcher: 4 months	1,800	-
		Technician: 4 months	1,200	-
		Labour: 360 man-days	168	84
		Supplies	-	324
1.3 Plant F6 material at Areka and Awassa	Belg season 94	Researcher: 8 months	3,600	-
		Technician: 8 months	2,400	-
		Labour: 550 man-days	-	385
		Travel expenses	-	387
		Transport	84	126
1.4 Evaluate BSM resistance nursery at Awassa & Areka	Main season 93	Researcher: 8 months	3,600	-
		Technician: 8 months	2,400	-
		Labour: 550 man-days	-	385
		Transport	84	126
		Travel expenses	-	387
1.5 Evaluate Nursery-1 introductions at Awassa and Areka	Main season 93	Researcher: 8 months	3,600	-
		Technician: 8 months	2,400	-
		Labour: 520 man-days	-	364
		Transport	84	126
		Travel expenses	-	387
<b>Total (US\$)</b>			<b>27,504</b>	<b>4,000</b>

### 3. BEAN VARIETIES FOR SEMI-ARID HIGHLANDS

Leader: Wilson Rono

Institution: KARI, Kenya

Collaborators:

Base Location: Katumani

**Objective:**

To develop higher yielding varieties adapted to the cool but drier upland areas of Africa.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Increase seed under irrigation at Katumani and despatch to collaborators in Kenya and elsewhere	Dry season 93	Researcher: 2 months Technician: 2 months Labour: 120 man-days Travel expenses Transport Communications	600 300 - - - -	- - 120 300 250 100
1.2 Verify 27 selected lines at Matanya	2nd season 93	Researcher: 2 months Technician: 2 months Labour: 90 man-days Field supplies	600 300 - -	- - 90 340
1.3 Plant new introductions at Katumani	1st season 94	Researcher: 2 months Technician: 2 months Labour: 120 man-days Office supplies	600 300 - -	- - 120 80
Total (US\$)			2,700	1,400

#### 4. BEAN COMMON MOSAIC: RESISTANT VARIETIES

Leader: Theresa Sengooba  
Collaborators:

Institution: NARO, Uganda  
Base Location: Namulonge

##### Objective:

Minimise crop loss to bean common mosaic (and especially necrotic strains) throughout Africa, by understanding disease epidemiology, developing research methods and identifying sources of resistance.

##### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Collection and pathogenicity of weed isolates from around Uganda	Seasons 93A/B	Researcher: 1 month Technician: 4 months Travel expenses Transport	1,000	1,000
1.2 Crop loss trials with various strains and isolates, at Kawanda	Seasons 93A/B	Researcher: 1 month Technician: 4 months Labour: 12 Field supplies	1,800	1,000
1.3 Transmission studies with seed and aphids, at Kawanda	Seasons 93A/B	Researcher: 2 months Technician: 4 months Labour: 6 Laboratory supplies	1,500	1,000
1.4 Screen breeders' lines at Kawanda	Seasons 93A/B	Researcher: 1 month Technician: 3 months Labour: 4	1,000	500
1.5 Assess inoculum dose effect on highly resistant genotypes, at Kawanda	Seasons 93A/B	Researcher: 1 month Technician: 2 months Labour: 2 Laboratory supplies	1,000	500
<b>Total (US\$)</b>			<b>6,300</b>	<b>4,000</b>

**5. ANTHRACNOSE: SOURCES OF RESISTANCE**

Leader: Tesfaye Beshir

Institution: Plant Protection Research Center  
(PPRC), Ethiopia

Collaborators:

Base Location: PPRC, Ambo

**Objective:**

Reduce crop loss due to anthracnose in beans in Eastern Africa by identifying sources of resistance.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Assess importance of anthracnose by yield loss studies at Ambo and at _____	Main season 93	Researcher: __ months Technician: __ months Labour: __ man-days Travel expenses Transport Supplies		-
1.2 Extend work on pathogen race identification to the following sites: _____, and monitor variation	Dry season 93/94	Researcher: __ months Technician: __ months Travel expenses Transport Laboratory supplies		-
1.3 Evaluate local and introduced bean materials for resistance at Ambo	Belg season 94	Researcher: __ months Technician: __ months Labour: __ man-days Field & office supplies Communications		-
<b>Total (US\$)</b>				<b>3,200*</b>

\* 1992/93 balance of \$200 to be deducted from amount payable

## 6. VARIETIES RESISTANT TO CHARCOAL ROT (MACROPHOMINA)

Leader: Wilson Songa

Collaborators: W.K.Rono (KARI Katumani); A.W.Mwang'ombe (Univ Nairobi);  
R.Buruchara (CIAT Rubona)

Institution: KARI, Kenya

Base Location: Katumani

### Objective:

To reduce losses to charcoal rot in Eastern Africa by developing and disseminating resistant varieties, and methods for their development.

### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Screen introduced, improved and local germplasm in the field at Kiboko and Kibwezi.	Main season 93	Researcher: 3 months	900	-
		Technician: 3 months	300	-
		Labour: 115 man-days	-	100
		Travel expenses	-	200
		Transport	-	200
		Communications	100	100
1.2 Develop disease-resistant nursery at Kiboko, and multiply seed.	Short rains 93	Researcher: 3 months	900	-
		Technician: 3 months	300	-
		Labour: 115 man-days	-	100
		Field supplies	-	215
1.3 Facilitate new introductions in national quarantine.	1st season 94	Researcher: 0.5 month	150	-
		Office supplies	-	70
		Quarantine expenses	-	165
Total (US\$)			2,650	1,150

## 7. DEVELOPMENT OF SNAP BEAN VARIETIES

Leader: Joseph K. Kamau  
 Collaborators: P. M. Kimani (Univ. of Nairobi); H. Gridley (CIAT Kawanda)

Institution: KARI, Kenya  
 Base Location: Thika

### Objective:

To develop, and later to disseminate in the region, higher yielding varieties of snap bean having improved resistance to principal diseases in Eastern Africa.

### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Evaluate F <sub>2</sub> progeny rows in the field at Thika.	1st season 93	Researcher: 3 months	900	-
		Technician: 3 months	600	-
		Labour: 200 man-days	-	200
		Field supplies	80	150
		Land preparation	100	100
1.2 Make crosses at Thika among materials identified for rust and ALS resistance.	1st & 2nd seasons 93	Researcher: 2 months	600	-
		Technician: 3 months	600	-
		Labour: 300 man-days	-	300
		Field supplies	50	100
1.3 Arrange introductions of new genotypes from CIAT and Europe.	2nd season 93	Researcher: 1 month	300	-
		Labour: 100 man-days	-	100
1.4 Evaluate F <sub>2</sub> progeny rows in the field at Thika.	2nd season 93	Researcher: 3 months	900	-
		Technician: 3 months	600	-
		Labour: 250 man-days	-	250
		Field supplies	150	150
		Land preparation	150	150
1.5 Process seed and results at Thika. Dry season 93/94		Researcher: 3 months	900	-
		Technician: 3 months	600	-
		Labour: 200 man-days	-	200
		Lab supplies	-	100
		Office supplies	50	200
<b>Total (US\$)</b>			<b>6,580</b>	<b>2,000</b>

## 8. VARIETIES RESISTANT TO ANGULAR LEAFSPOT

Leader: Felister Makini

Institution: KARI, Kenya

Collaborators: Margaret Wekesa

Base Location: Kisii

**Objective:**

To reduce losses to angular leafspot in Eastern Africa by developing and disseminating resistant varieties, and methods for their development.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Collect disease samples from the bean-growing areas of Kenya	1st season 93	Researcher: 2 months	380	-
		Travel expenses		300
		Transport	30,440	-
1.2 Make isolations and identify pathogen.	All year 93/94	Researcher: 12 months	2,290	-
		Technician: 12 months	1,475	
		Labour: 252 man-days	-	830
		Field supplies		
1.3 Inoculate collected materials at Kisii.	All year 93/94	Researcher: 12 months	2,290	-
		Technician: 12 months	1,475	-
		Labour: 252 man-days	-	870
		Office supplies		
Total (US\$)			38,350	2,000

## 9. NEMATODES AS PESTS OF SNAP BEANS

Leader: S.T.Kanyagia

Institution: KARI, Kenya

Collaborators: R. Buruchara (CIAT Rubona)

Base Location: Thika

### Objective:

To identify and map nematode species attacking snap bean in Kenya, and to determine yield losses as an aid to priority setting for future research in Eastern Africa.

### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Collect soil and bean root samples from main production areas, and identify species in the Thika lab.	Two seasons 93/94	Researcher: 3 months	900	-
		Technician: 3 months	600	-
		Travel expenses	200	300
		Transport	100	400
		Laboratory supplies	50	300
1.2 Assess yield losses in commercial fields by relating yields to infestation levels and by carrying out a yield loss trial.	Two seasons 93/94	Researcher: 3 months	900	-
		Technician: 3 months	600	-
		Labour: 200 man-days	80	200
		Field preparation	-	100
		Field supplies	50	100
		Office supplies	-	100
<b>Total (US\$)</b>			<b>3,480</b>	<b>1,500</b>



10. COMMON BACTERIAL BLIGHT: RESISTANCE CROSSING SERVICE

Leader: Sophie Musaana  
 Collaborators: Fina Opio

Institution: NARO, Uganda  
 Base Location: Kawanda

**Objective:**

Using techniques, experience and resistant sources developed in a previous sub-project, provide a service to other countries by which their elite materials and varieties are improved for resistance to CBB disease.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Advertise service, assess demand and receive introductions at Kawanda	Season 93A	Researcher: 4 months Technician: 12 months Labour: 12 Travel expenses Transport Office supplies	900	- 300 450
1.2 Make crosses and advance them at Kawanda	Season 93B	Researcher: 1 month Technician: 2 months Labour: 4	900	- 200 300
1.3 Screen new nurseries as possible improved donors of resistance	Season 93A/B	Researcher: 4 months Technician: 4 months Labour: 12 Field supplies		-
1.4 Assist other countries to grow CBB regional resistance nursery	Season 93B	Researcher: 3 months Communications	900	- 730
<b>Total (US\$)</b>			<b>3,600</b>	<b>2,500</b>

## 11. MANAGEMENT OF BEAN RUST

Leader: Habtu Assefa

Institution: IAR, Ethiopia

Collaborators:

Base Location: Nazreth

**Objective:**

Reduce bean yield losses to rust by developing or verifying techniques for management of resistance, and disseminating adapted sources of resistance.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Determine race pathogenicity of the organism	Main season 93 Dry season 93/94	Researcher: __ months Technician: __ months Greenhouse maintenance		-
1.2 Conclude crop loss studies	Main season 93	Researcher: __ months Technician: __ months Labour: __ man-days Transport Travel expenses		-
1.3 Conclude experiments on rust management by varietal mixtures and partial resistance	Main season 93	Researcher: __ months Technician: __ months Labour: __ man-days Office supplies		-
Total (US\$)				1,500

12. VARIETIES RESISTANT TO BEAN RUST

Leader: Georges Rakotomalala  
 Collaborators:

Institution: FO.FI.FA., Madagascar  
 Base Location: Ambatobe

Objective:

Reduce bean yield losses to rust by developing and disseminating resistant varieties

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Survey bean growing zones and collect rust samples from each	Main season 93/94	Researcher: __ months Technician: __ months Transport Travel expenses		-
1.2 Identify rust races and pathogenicity, at Ambatobe	Main season 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Laboratory supplies		-
1.3 Screen germplasm against prevailing races in each region and partial resistance	Main season 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Field cultivations Field and office supplies		-
Total (US\$)				3,090*

\* 1992/93 balance of US\$ 1090 to be credited towards this budget

### 13. BRUCHIDS: INTEGRATED MANAGEMENT

Leader: N. Silim

Institution: NARO, Uganda

Collaborators:

Base Location: Kawanda

#### Objective:

Devise, evaluate and promote management techniques for minimising losses due to bruchids in stored beans (especially *Acanthoscelides* sp., against which effective varietal resistance is not known).

#### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Conclude solar drying study by taking most promising technology to potential users (traders???) for joint evaluation	Dry season 93	Researcher: 2 month Technician: 1 month Materials & supplies Travel expenses Transport	2,000	1,000
1.2 Develop, with sample of small farmers near Kawanda(?), tumbling methods	Dry season 93	Researcher: 1 month Technician: 1 month Transport	1,000	500
1.3 Refine bean sieves at Kawanda and test performance and acceptability with sample of small farmers near Kawanda	?	Researcher: 1 month Technician: 1 month Transport Travel expenses	600	500
Total (US\$)			3,600	2,000

#### 14. INTEGRATED PEST MANAGEMENT IN SNAP BEANS

Leader: John Nderitu  
Collaborators: KARI

Institution: University of Nairobi  
Base Location: Kabete

**Objective:**

To develop, and evaluate with farmers, integrated management of the principal pests attacking snap bean in Kenya, with the objective of reducing present levels of pesticide use while maintaining profitability.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Determine principal insect pests and their natural enemies on station and on-farm trials at Kirinyaga	Two seasons 93/94	Researcher: 6 months	1,200	-
		Technician: 6 months	600	-
		Labour: 200 man-days	-	200
		Field Supplies	-	150
		Transport	-	150
		Accommodation	-	250
1.2 Assess knowledge on control measures in light of farmers' practices, and identify several potential technologies.	Dry season 93/94	Researcher: 3 months	900	-
		Office supplies	-	160
1.3 Assess yield losses in commercial fields by relating yields to infestation levels, and by carrying out yield loss trials on selected species.	Two seasons 93/94	Researcher: 6 months	1,200	-
		Technician: 6 months	600	-
		Labour: 200 man-days	-	200
		Transport	-	100
		Accommodation	-	250
1.4 Develop, in consultation with selected farmers, technology assessment trials to be carried out on-station at Mwea Tebere and on farms in Kirinyaga.	Two seasons 93/94	Researcher: 6 months	1,200	-
		Technician: 6 months	600	-
		Labour: 200 man-days	-	200
		Field supplies	-	100
		Transport	-	100
		Accommodation	-	250
Total (US\$)			5,400	2,110*

\* 1992/93 balance of US\$ 400 to be credited towards this budget

15. RAMULARIA LEAFSPOT: INTEGRATED MANAGEMENT

Leader: Fina Opio

Institution: NARO, Uganda

Collaborators: S.M.Musaana, M.A.Ugen

Base Location: Kawanda

**Objective:**

To minimise crop loss to Ramularia leafspot throughout Africa, by understanding pathogenic variation and identifying resistant varieties and management techniques.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Assess crop losses due to FLS in field trial at Kawanda and through field survey methods	Seasons 93A/B	Researcher: 3 months Technician: 3 months Travel expenses Transport Office supplies	2,750	450
1.2 Evaluate inoculation methods at Kawanda	Seasons 93A/B	Researcher: 2 months Technician: 2 months Labour: 30 man-days Laboratory supplies	550	350
1.3 Introduce and screen FLS nursery initially at Kawanda	Seasons 93A/B	Researcher: 2 months Technician: 2 months Labour: 15 man-days	500	200
<b>Total (US\$)</b>			<b>3,800</b>	<b>1,000</b>

16. MANAGEMENT OF ROOT ROTS IN BEAN

Leader: R.M.Otsyula

Institution: KARI, Kenya

Collaborators: S.A.Ajanga, G.O.Rachier and N.Ambitsi

Base Location: Kakamega

**Objective:**

To reduce losses to root rots in Eastern Africa (using Western Kenya as a case study) by identifying and disseminating resistant varieties and cultural practices.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Evaluate 200-400 local materials in the field at identified hotspots for root rots in Western Kenya; reduce number of lines each season.	Two seasons	Researcher: __ months Technician: __ months Labour: __ man-days Field supplies		-
1.2 Arrange introduction of varieties known to be resistant, facilitate progress through quarantine and evaluate as in 1.1 above.	All year 93/94	Researcher: __ months Quarantine expenses		-
1.3 Survey farmers' practices and design a set of inovations to be evaluated collaboratively.	Two seasons	Researcher: __ months Office supplies		-
<b>Total (US\$)</b>				<b>1,000</b>

17. BEAN COMMON MOSAIC: TRANSMISSION BY APHIDS

Leader: Macharia Gethi  
 Collaborator: L.M.Muriithi

Institution: KARI, Kenya  
 Base Location: RRC Embu Thika

Objective:

To improve, as an aid to disease management in the region, understanding of the epidemiology of bean common mosaic virus transmitted by aphid vectors.

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Determine aphid population dynamics by field trapping at Embu and in farmers' fields.	All year 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Field supplies		-
1.2 Determine aphid species composition from trap samples.	All year 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Field supplies		-
1.3 Relate environmental data to aphid population changes.	Dry season 94	Researcher: __ months Technician: __ months Labour: __ man-days Equipment		500
1.4 Record severity and incidence of BCMV, and relate to aphid populations and environment.	All year 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Office supplies		-
Total (US\$)				1,500



## 18. BIOLOGICAL NITROGEN FIXATION

Leader: Mitiku Haile

Institution: Alemaya University of Agriculture,  
Ethiopia

Collaborators:

Base Location: Alemaya

**Objective:**

Contribute to raising bean yields on nitrogen-deficient soils in Eastern Africa, by identifying and developing bean materials and rhizobial sources that fix more nitrogen.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Evaluate N-fixing potentials of introduced bean lines (AFBYAN, ANSES, CIAT nursery, etc)	Main season 93	Researcher: ___ months Technician: ___ months Labour: ___ man-days Field and lab supplies	-	-
1.2 Evaluate 25 exotic and local strains of rhizobium	Main season 93	Researcher: ___ months Technician: ___ months Labour: ___ man-days Field and lab supplies	-	-
1.3 Evaluate promising strains under farmers' conditions	Main season 93	Researcher: ___ months Technician: ___ months Labour: ___ man-days Travel expenses Transport	-	-
1.4 Compile and interpret data on N as a regional constraint to bean productivity	Dry season 93/94	Researcher: ___ months Office supplies	-	-
Total (US\$)			-	1,960 *

\* 1992/93 balance of \$1,960 is held by Alemaya

**19. DROUGHT TOLERANCE: VARIETAL TRAITS AND INHERITANCE**

Leader: Teshome Girma

Institution: IAR, Ethiopia

Collaborators: Amare Ababe

Base Location: Nazreth

**Objective:**

Minimise crop loss due to soil moisture stress in Africa, by identifying varietal characteristics associated with tolerance, and their heritability.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Conduct trials at Nazreth and Debre Zeit to enable estimation of heritability based on the F3 generation, to conclude the sub-project.	Main season 93	Researcher: 1 month	300	-
		Technician: 5 months	750	-
		Field Assistant: 5 months	-	140
		Labour: 900 man-days	-	720
		Land preparation	70	-
		Supplies	-	80
		Communications	-	60
Total (US\$)			1,120	1,000

20. SALINITY AND HEAT STRESS: TOLERANT VARIETIES

Leader: S. H. Ahmed and Omar H. Ibrahim

Institution: Agricultural Research Corporation,  
Sudan

Collaborators: Salih H. Salih

Base Location: Hudeiba Research Station

**Objective:**

Raise bean yields and improve adaptation of high potential varieties under conditions of salinity and heat stress, particularly for lowland and irrigated areas of Eastern Africa.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Initial screening of introductions on two contrasting soil types at three sowing dates at Hudeiba	Main season 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Travel expenses Transport Supplies	300 150 100 - 100 100	- 200 900 200 200 500
Total (US\$)			750	2,000

21. BEAN VARIETIES TOLERANT TO HIGH-MANGANESE SOILS

Leader: Victor Ochwoh  
Collaborators:

Institution: Makerere University, Uganda  
Base Location: Makerere

Objective:

To develop higher yielding varieties and management techniques adapted to high-manganese soils in Africa.

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Identify more sites associated with Mn toxicity and estimate crop losses	Season 93A/B	Researcher: 1 month Technician: 1 month Travel expenses Transport Office supplies	500  500	- 125 50 250 115
1.2 Field screening of 36 selected lines at Buikwe and Sempa	Season 93A/B	Researcher: 2 months Technician: 1 month Labour: 30 man-days Field supplies	1,000	- 200 100 100
1.3 Plant 200 new ANSES introductions at Buikwe	Season 93B	Researcher: 2 months Technician: 2 months Labour: 30 man-days	1,000	- 250 100
1.4 Test a laboratory screening technique at Makerere	Season 93A	Researcher: 0.5 month Technician: 0.5 month Laboratory supplies	500	- 60 150
Total (US\$)			3,500	1,500

## 22. VARIETIES TOLERANT TO LOW-PHOSPHORUS SOILS

Leader: Gedion Rachier

Institution: KARI, Kenya

Collaborators:

Base Location: Kakamega

Objective:

To increase bean yields at low cost on soils deficient in phosphorus in Africa, by identifying and disseminating tolerant varieties.

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Evaluate available materials in the field at a site shown to be low in soil-P.	Two seasons	Researcher: 2.4 months Technician: 3.6 months Labour: 240 man-days Soil analyses	720 360 - -	- - 150 150
1.2 Facilitate passage of ANSES lines through national quarantine.	Mid-late 93	Researcher: 1.2 months Quarantine expenses	360 -	- 100
1.3 Evaluate ANSES materials at the low-P site.	2nd season	Researcher: 2.4 months Technician: 3.6 months Labour: 240 man-days Field and office supplies	720 360 - -	- - 150 300
Total (US\$)			2,520	850

### 23. MINIMUM TILLAGE FOR BEAN PRODUCTION

Leader: John Muthamia

Institution: KARI, Kenya

Collaborators: Extension officers and farmers

Base Location: Embu

**Objective:**

Devise, in close collaboration with farmers, reduced tillage techniques for conservation of soil and soil moisture in semi-arid areas, and/or for reducing crop labour constraints.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Improve understanding of reduced tillage systems used by farmers in study area of Embu, and of farmers' perceptions.	1st season	Researcher: 1 month Technician: 1 month Travel expenses Trans Sub-total	550	530
1.2 Develop, in collaboration with farmers, alternative tillage methods for overcoming limitations of one important system in this area.	1st season	Researcher: 1 month Technician: 1 month Travel expenses Transport Sub-total	550	350
1.3 Work with farmers in taking observations on experiments to evaluate innovations (feasibility, economics, conservation).	2nd season	Researcher: 1 month Technician: 2 months Sub-total	1,000	580
Total (US\$)			2,100	1,460*

\* 1992/93 balance of US\$ 190 to be credited towards this budget

24. ACID SOILS MANAGEMENT

Leader: Bodovololana Rabary

Institution: FO.FI.FA., Madagascar

Collaborators:

Base Location: Ambatobe

Objective:

Devise, in close collaboration with farmers, management techniques for arresting yield decline on acid soils; identify bean varieties tolerant to low soil phosphorus levels.

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Improve understanding of systems and perceptions in study sites at _____.	Seasons 93/94	Researcher: __ months Technician: __ months Travel expenses Transport		-
1.2 Develop, in collaboration with farmers, crop and soil management methods for evaluation on farms.	Seasons 93/94	Researcher: __ months Technician: __ months Travel expenses Transport		-
1.3 Work with farmers in taking observations on experiments.	Seasons 93/94	Researcher: __ months Technician: __ months		
1.4 Evaluate bean varieties for tolerance to low soil P level, at _____.	Seasons 93/94	Researcher: __ months Technician: __ months Labour: __ man-days Field supplies Office supplies		
Total (US\$)				2,500*

\* 1992/93 balance of US\$ 400 to be credited towards this budget

25. PLANT NUTRIENT FLUX IN MAIZE-BEAN SYSTEMS

Leader: Ngari Macharia

Institution: KARI, Kenya

Collaborators: Farmers

Base Location: Embu

Objective:

Determine, in close collaboration with farmers, the nature and importance of plant nutrient flows among enterprises in the maize-bean production systems of Eastern Africa (using Central Kenya as a case study), so as to better plan interventions for soil fertility sustainance.

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Detailed monitoring and measurement of nutrient additions, off-take and losses on plots on sample farms.	Two seasons	Researcher: 1 month Technician: 2 months Travel expenses Transport Laboratory analyses Sub-total	1,000	600
1.2 Extend survey work of previous year to one additional important maize-bean system.	2nd season	Researcher: 1 month Technician: 2 months Travel expenses Transport Office supplies Sub-total	1,000	740
Total (US\$)			2,000	1,340*

\* 1992/93 balance of US\$ 450 to be credited towards this budget

Note: literature searches can be performed free by CIAT Library upon request.



## 26. WATER HARVESTING METHODS FOR BEAN PRODUCTION

Leader: David Michieka

Institution: KARI, Kenya

Collaborators: A. Ndegwa

Base Location: Thika

### Objective:

Design and evaluate, in close collaboration with farmers, methods for harvesting and conserving rainfall and surface run-off, so as to raise bean productivity in drought-prone areas (using Central Kenya as a case study).

### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Detailed monitoring and measurement of on-farm experimental treatments initiated in previous year.	One season	Researcher: 3 months Technician: 3 months Travel expenses Transport	900 450 - -	- - 50 110
1.2 Obtain farmers' assessments of feasibility of adopting each treatment.	One season	Researcher: 1 month Travel expenses Transport Office supplies	300 - - -	- 30 60 30
Total (US\$)			1,650	280*

\* 1992/93 balance of US\$ 280 to be credited towards this budget

Note: literature searches can be performed free by CIAT Library upon request.

## 27. BEAN SEED DISSEMINATION METHODS

Leader: Getachew Kassaye

Institution: IAR, Ethiopia

Collaborators:

Base Location: Awassa R. C.

### Objective:

Contribute to accelerated use of new bean varieties throughout Africa, by comparing rates of adoption following different approaches to seed dissemination with two types of new variety.

### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Assess acceptance by farmers of the varieties distributed in Year 1	Main season 93 Belg season 94	Researcher: ___ months Technician: ___ months Travel expenses Transport		-
1.2 Collect and analyse site- and farmer-descriptive data that may explain differences in adoption	Main season 93 Belg season 94	Researcher: ___ months Technician: ___ months Enumerators: ___ man-days Office supplies		-
Total (US\$)				2,000

## 28. SEED DISTRIBUTION CHANNELS

Leader: Mercy Wanjiru

Institution: KARI, Kenya

Collaborators:

Base Location: Thika

**Objective:**

Understand and document the channels by which bean seed reaches farmers, and determine implications for design of cost-effective systems for distribution of improved seed (using snap beans in Kenya as one case study).

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Continue informal surveys of registered seed companies, seed retailers and distributors.	One season	Researcher: __ months Technician: __ months Travel expenses Transport	-	-
1.2 Complete data analysis and develop conclusions and recommendations.	Dry season	Researcher: __ months Office supplies	-	-
Total (US\$)			-	390*

\* 1992/93 balance of US\$ 390 to be credited towards this budget

Note: literature searches can be performed free by CIAT Library upon request.

29. BEAN SEED DISSEMINATION: RIFT VALLEY CASE STUDY

Leader: Aberra Deressa

Institution: IAR, Ethiopia

Collaborators: Alelign Kefyalew

Base Location: Nazreth

Objective:

Contribute to accelerating the use of new bean varieties in Africa, by developing and documenting a case study in a contrasting, small-scale commercial production environment.

Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding (US\$)	
			National	Network
1.1 Distribute seed to 20 contact farmers in each of two villages, and to similar numbers chosen randomly in two other villages.	Main season 93	Researcher: 2 months	600	-
		Technician: 3 months	450	-
		Labour: 310 man-days	400	-
		Travel expenses	700	200
		Transport	700	-
		Seed	-	300
1.2 Assess farmer acceptance of each variety, and information on factors that later could explain differences in adoption rates.	Dry season 93/94	Researcher: 2 months	600	-
		Technician: 2 months	300	-
		Supplies/equipment	100	300
		Travel expenses	400	-
		Transport	600	200
Total (US\$)			4,850	1,000

### 30. FARMER-PARTICIPATORY RESEARCH ON SOIL FERTILITY MANAGEMENT

Leader: Michael Ugen-Adrogu  
 Collaborators: Patrick Jjemba-Kayondo

Institution: NARO, Uganda  
 Base Location: Kawanda

**Objective:**

Devise, in close collaboration with farmers, management techniques for arresting yield decline due to soil fertility; develop and promote a participatory approach that can serve as a model elsewhere in Africa.

**Workplan and Budget, 1993/94:**

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Improve understanding of systems and perceptions in study sites	Seasons 93A/B	Researcher: 3.0 months Technician: 1.5 months Materials & supplies Travel expenses Transport	900   100	- 1,000
1.2 Survey other villages for comparison with study sites methods	Seasons 93A/B	Researcher: 2.0 months Technician: 1.0 month Travel expenses Transport	600  100	- 1,000
1.3 Compare research method with others over seasons	Seasons 93A/B	Researcher: 3.0 months Technician: 0.5 month Transport Travel expenses	900  100	- 400
1.4 Work with farmers in taking observations on experiments	Seasons 93A/B	Researcher: 2.0 months Technician: 1.0 month	600	- 400
1.5 Document and analyse the various comparisons and methods	Seasons 93A/B	Researcher: 2.0 months Office Supplies	600 100	- 200
Total (US\$)				3,000

### 31. DEVELOPMENT OF NEW BEAN PRODUCTS

Leader: F. Kusewa

Institution: KARI, Kenya

Collaborators: W. K. Rono and P. Audi

Base Location: Katumani

#### Objective:

Test through urban market channels the demand for new food products containing beans, adjust product development if indicated, and foster commercial production and assess implications for bean variety selection criteria.

#### Workplan and Budget, 1993/94:

Activity	Timetable	Inputs	Funding Contributions (US\$)	
			National	Network
1.1 Identify potential retail outlets the bean samoza, and jointly plan test marketings.	Mid 93	Researcher: 3 months	900	-
		Technician: 3 months	450	-
		Travel expenses	-	100
		Transport	-	200
		Food ingredients	-	250
		Labour: 54 man-days	-	50
1.2 Monitor consumer acceptability, price charged by collaborating retailers, and retailers' interest.	Late season	Researcher: 3 months	900	-
		Technician: 3 months	450	-
		Travel expenses	-	150
		Transport	-	200
1.3 Assess potential for developing other bean-based products.		Researcher: 3 months	900	-
		Office supplies	-	50
Total (US\$)			3,600	1,000

Note: literature searches can be performed free by CIAT Library upon request.

EASTERN AFRICA BEAN RESEARCH NETWORK

GUIDELINES FOR REGIONAL RESEARCH SUB-PROJECTS

**Objective**

1. To encourage and assist bean scientists to design, conduct and interpret their research in a collaborative manner that increases the efficiency with which scarce research resources are used.

**Eligibility**

2. Open to all institutions, and scientists of any discipline, within the countries participating in the regional network.

**Criteria for selection**

3. The topic should be problem focused and specifically address a regional priority defined by the Network. The proposer should refer to the Regional Planning Framework and proceedings of the latest pan-African working group meeting relevant to the topic.
4. A sub-project is executed by an institution in a lead country, with one scientist being named as the sub-project leader. No scientist may lead more than one such project. A sub-project may also be designed for execution collaboratively with other institutions, or several linked sub-projects in different countries may be developed to address interdependent aspects.
5. The lead institution must have a comparative advantage to undertake the work, including access to essential facilities, suitable ecological conditions and any large items of equipment needed, and scientist(s) having appropriate experience. The proposal, including local budget contribution, should indicate endorsement by an institutional representative.
6. The proposal should indicate how a regional perspective to the research will be maintained and how results will be disseminated (e.g. by travelling workshops or germplasm nursery). The sub-project leader accepts primary responsibility for implementing this strategy.
7. Only the regional Steering Committee can approve a sub-project and allocate funds. The proposal should be submitted to the regional coordinator, normally via the national bean research coordinator, and is sent for review - preferably by the relevant pan-African working group or regional scientist - before being considered at an annual meeting of the Steering Committee.

## **Annual budget and financial reporting**

8. The budget request should be organized by activities within an annual workplan, and show national contributions. Staff time (in research-months) to be dedicated to each activity should be indicated. The total annual budget should demonstrate that at least 25% is contributed by the local institution (salaries may be computed at a notional regional standard of US\$300 per month for scientists; value of infrastructure and existing equipment not to be included). This contribution represents a formal contribution by the NARS to the network.
9. The network contribution to the budget may include operational costs, small items of equipment and materials, and the hiring of non-graduate technical assistant staff if justified. Graduate researchers may not be hired on sub-project funds. As a guide, the average network contribution to 30 sub-projects in Eastern Africa in 1993 was US\$2000 each.
10. Other network countries are encouraged to collaborate in sub-project research relevant to them, e.g. by growing a regional nursery. The motivation in doing so is expected to be self-interest, and the network does not normally meet the expenses of other members unless the research collaboration involves considerably more than growing and scoring a regional trial.
11. Annual financial reporting is by budgetted activities. The sub-project leader may only reallocate funds between line items with prior approval in writing; the Steering Committee allows a 20% deviation from individual line budgets. The progress report includes a self-evaluation of the sub-project's execution by activity. The Steering Committee judges whether funds for each activity have been correctly utilized, and may decide to withhold part of the funds requested for renewal, corresponding to activities funded but incompletely executed during the previous year.

## **Agreement**

12. An agreement for each year's workplan and budget is signed by a senior representative of the NARS (e.g. director or station director), the sub-project leader and the regional coordinator. The agreement specifies that funds will enter the national programme's accounting system; that the Steering Committee be provided annually with a progress report (signed by a financial representative of the NARS and the sub-project leader); that CIAT and the donor have the right to audit that portion of the NARS accounts that relates to the sub-project; and that a final technical report will be provided upon conclusion of the sub-project.
13. The regional coordinator reports to the sub-project leader regularly on the use of any funds it manages on behalf of the sub-project (i.e. for equipment imports).



Database on Regional Activities in 1992/93

Meetings of Steering Committee

Training at CIAT

In-Country and Regional Training Courses

Regional Workshops

Monitoring Tours

Regional Staff Travel

Network Publications

I MEETINGS OF STEERING COMMITTEE

Date	Location	Participant	Representing
<u>Steering Committee</u>			
21-26/6/92	Nazreth Ethiopia	Teshome Girma (Chair) S.T. Kanyagia S. Musaana L. Rampanana S. Salih H. Masambu R. Kirkby	Ethiopia Kenya Uganda Madagascar Sudan USAID CIAT
<u>Directors' Committee</u>			
18/6/92	Nairobi KE	J. Mukiibi (Chair) Hailu Gebre C. Kamau F. Rasolo F. Shao R. Kirkby	Uganda Ethiopia Kenya Madagascar Tanzania CIAT
<u>USAID Networks Meeting</u>			
18-22/1/93	Nairobi	Andre Nivyobizi Tadesse Gebremedehin J. Mukiibi Cyrus Ndiritu Ndereyehe Nichontuye Gaudens Mitawa Ndyanabo Masimango Teshome Girma	Burundi Ethiopia Uganda Kenya Rwanda Tanzania Zaire Chairman, Steering Committee

II TRAINING AT CIAT

Candidate	Gender	Country	Time frame	Course Title
Bodovololana Rabary	F	Madagascar	2/3-29/5/92	Bean breeding training course
Dereje Negatu	M	Ethiopia	2/3-29/5/92	Bean breeding training course

III IN COUNTRY AND REGIONAL TRAINING COURSES

Course Title	Country Benefiting	Location	Candidate	Gender	Time Frame	Remarks
Statistics & MStat	Kenya      Uganda	Egerton Kenya	1. W.K. Rono 2. S.G. Muigai 3. S.M. Munene 4. W.M. Songa 5. G.W. Mbugua 6. A.Ndegwa 7. J. Njogedde	M M F M F F F	8-18/9/92	Sponsored by CIMMYT/ CIAT/CIP CIAT resource person: C.Wortmann
Crop Management Research Training (CMRT) 1992	Mauritius	Egerton Kenya	1. B. Gowrea	M	1/3/92 -30/8/92	Organized by Egerton/ KARI/CIMMYT. CIAT resource persons: CW/OTE/LS
Crop Management Research Training (CMRT) 1993	Ethiopia Kenya Uganda	Egerton Kenya	1. H. Admassu 2. Alice Ndegwa 3. C. Niringiye	M F M	1/3/93 -29/8/93	Organized by Egerton/ KARI/CIMMYT. CIAT resources persons: CW & LS
Training of Trainers (communication skills for senior researchers)	Uganda	Univ. of Zimbabwe	1. S. Musaana 2. B.Male-Kayiwa 3. Michael Ugen	F F M	8-18/9/92	ICRAF/ICRISAT. CIAT resource person: J. Mutimba
Consumer Preference Testing for Food Scientists	Ethiopia	Bulawayo Zimbabwe	1. S.Yetnebark 2. T. Haile	F F	7-18/9/92	ICRISAT course
Participatory On-Farm Trials	Ethiopia	Soddo Ethiopia	26 participants  (5 female, 21 male)		12-24/10/92	FARM-Africa course for NGOs, (FARM-Africa, EECMY, Concern, Agri-Service, SOS Sahel, Redd Barna, Bodits/Darnot Galel); Moa; IAR Awassa; Awassa College. CIAT resource person: CW.

V REGIONAL WORKSHOPS

Candidate	Country	Gender	Location	Subject	Time Frame	Remarks
1. Amare Abebe	Ethiopia	M	Addis Ababa	Meeting of Drought	27-30/4/92	CIAT resource persons: J. White (HQ), O.T. Edje & W. Youngquist (Arusha)
2. Kidane Georges	"	M	Ethiopia	Pan-African Working		
3. W. Rono	Kenya	M		Group Research in		
4. Sir El-Khatim	Sudan	M		Beans		
1. K.J. Ruto	Kenya	M	Nakuru	Kenya National	25-26/5/92	Sponsors: KARI/CIAT CIAT resource persons: CW/BG/HG
2. M. Wabule	"	F	Kenya	Review Meeting		
3. C. Kamau	"	M		on Bean Research		
4. H. Ondato	"	M				
5. D. Michieka	"	M				
6. S. Muigai	"	M				
7. S. Kanyagia	"	M				
8. S. Munene	"	F				
9. Mercy Wanjiru	"	F				
10 G. Muthamia	"	M				
11 G. Mbugua	"	F				
12 A. Ndegwa	"	F				
13 B. Wafula	"	M				
14 K. Rono	"	M				
15 W. Songa	"	M				
16 G. Rachier	"	M				
17 A. Orodho	"	M				
18 Itysula	"	M				
19 A. Okoko	"	M				
20 F. Makini	Kenya	F				
21 F. Kanampiu	"	M				
22 M. Ogoro	"	M				
23 Julius Mbogo	"	M				
24 Peris Ochola	"	F				
25 Mr. Muranguri	"	M				

VI MONITORING TOURS

Candidate	Country	Gender	Location	Subject	Time Frame	Remarks
1. Habtu Asefa	Ethiopia	M	Madagascar	Rust collabora- tive research	1-9/6/92	Habtu Asefa saved as regional resource person
2. G. Rakotomalala	Madagascar	M				
3. A. Rabakoarihanta	"	F				
1. Silim Nahdy	Uganda	M	Uganda/ Tanzania/ Zimbabwe	Survey Techni- ques for Bruchid Research	21/9-6/10/92	CIAT resource person: K. Ampofo (Arusha)
2. Ferede Negasi	Ethiopia	M				
1. Teshome Girma	Ethiopia	M	Uganda & Kenya	Breeder's Traveling Workshop	2-7/11/92	CIAT resource person: HG
2. Melaku Ayele	"	M				
3. S. Muigai	Kenya	M				
4. W. Rono	"	M				
5. S. Musaana	Uganda	F				
6. B. Male-Kayiwa	"	F				
1. Susan Munene	Kenya	F	Uganda	On-Farm Research Techniques	27/10-8/11/92	CIAT resource persons: CW/MF
2. Mbugua Grace	"	F				
3. John Muthamia	"	M				
4. Mezengia, Waga	Ethiopia	M				
5. Senait Regasa	"	F				
6. Eliab Sennotozi	Tanzania	M				
7. Fabian Bagarama	"	M				
8. Isabirye Moses	Uganda	M				
9. Jane Kasakye	"	F				
10. Ugen Michael	Uganda	M				

(Continued)

Candidate	Country	Gender	Location	Subject	Time Frame	Remarks
1. Aliye Hussen	Ethiopia	M	Thika	Soil Fertility	1-4/9/92	Sponsored by CIAT/CIMMYT.
2. Amare Belay	Ethiopia	M	Kenya	Working Group		CIAT resource persons:
3. Kelsa Kena	Ethiopia	M		Meeting		CW/OTE. Also staff of ICRAF,
4. M Shiluli	Kenya	M				CIMMYT and TSBF.
5. D. Silunga	"	M				
6. F. Kanampiu	"	M				
7. F. M. Murithi	"	M				
8. B. Mochoge	"	M				
9. P. Njemba	Uganda	M				
10 M. Ugen	"	M				
1. G.Rakotomalala	Madagascar	M	Thika	CIAT Pan-African		CIAT resource persons:
2. B. Nake-Katuwa	Uganda	F	Kenya	Working Group Meeting	30/5-2/6/92	R.Buruchara (Rubona),
3. F. Opio	"	F		on Bean Fungal		D. Allen (Arusha),
4. Dr. M.E.K. Ali	Sudan	M		Diseases		H. Gridley (Kawanda)
5. Habtu Assefa	Ethiopia	M				M. Pastor-Corrales (Palmira).
6. Tesfaye Beshir	"	M				Also staff of ODA collabora-
7. S. Muigai	Kenya	M				tive project in Tanzania
8. W. Songa	"	M				
1. T. Sengooba	Uganda	F	Nairobi	Pan-African	1-2/10/92	Sponsored by CIAT/IITA.
				Meeting on Virus		CIAT resources persons:
				Diseases of Grain		D. Allen (Arusha)
				Legumes		R. Buruchara (Rubona)

**XIV REGIONAL STAFF TRAVEL**

Period	Staff Member	Country	Purpose
5-12 April 92	R Kirkby	Rwanda	Attend participative planning workshop for next phase of Great Lakes Bean Programme
6-16 April 92	C. Wortmann	Tanzania	Follow-up on Research and develop plans for the dissemination of Lyamungu 90 in Bukoba, Karagwe, Muleba and Kahama districts; Discuss with publication of recommendations of earlier working group meetings, the up-coming soil fertility w.g.
21-26 April 92	R. Kirkby	Kenya	Follow-up on low P work for ANSES at Lyamungu and Kagera research. Discuss with ICRAF the development of an agroecologically-based project for the East/Central African highlands, and various coordination matters with KARI
26-2 May 92	R. Kirkby	Ethiopia	Attend Pan-African Working Group on Bean Drought Stress Research, and general coordination.
25-29 May 92	R. Kirkby	Ethiopia	Attend a Masters' thesis defence and general coordination
29 May-5 Jun 92	R. Kirkby	Kenya	ICRAF natural resources management meeting; CIAT Africa staff meeting.
5-6/8-9 June 92	C. Wortmann	Rwanda	Survey soil fertility & seek possibilities for testing a soil erosion model
6-8 June 92	"	Kivu (Zaire)	Review the screening for tolerance to low Al
1-5 & 9-13 Jun 92	"	Kenya	Attend CIAT Africa staff meeting, Teach at CMRT course & plan future activities
2-5 Jun 92	"	Kenya	CIAT African Staff Meeting
"	H. Gridley	"	"
"	B. Grisley	"	"
14-18 Jun 92	R. Kirkby	"	Meeting of network NARS directors; also CGIAR directors meeting.
19-25 Jun 92	"	Ethiopia	Annual meeting of steering committee
23-26 Jun 92	B. Grisley	Zimbabwe	Present paper at CIMMYT impact of OFR workshop.
3 Jul-20 Aug 92	R. Kirkby	UK/USA	Home leave
6 Jul-7 Aug 92	C. Wortmann	USA	"
14-21 Aug 92	H. Gridley	Ethiopia	Inspect and discuss trials
22 Aug-20 Sep. 92	"	UK	Home leave
1-3 Sept 92	R. Kirkby	Arusha (TZ)	Visit with CIAT Board Chairman
4-5 Sept 92	"	Kenya	Visit KARI with CIAT Board Chairman
6-7 Sept 92	"	Uganda	Visit MoA " "
8-11 Sept 92	"	Arusha (TZ)	SADCC/CIAT staff meeting
13-20 Sept 92	C. Wortmann	Ethiopia	Visit & discuss agronomy trials
31 Aug.-9 Sep 92	"	Kenya	Participate in Working Group on Soil fertility; Teach in MStat course; Compile data from trials for testing the BEANGRO model.
11-17 Oct 92	"	Ethiopia	Participate as resource person in OFR course organized by FARM-Africa.
7-9 Oct 92	R. Kirkby	Swaziland	SADC/CIAT Regional Steering Committee meeting.



10-18 Oct 92	R. Kirkby	USA	USAID Conference on Impact of Agricultural Research in Africa.
19-27 Oct 92	"	Ethiopia	Coordination
4-6 Nov 92	"	Kenya	ICRAF Natural Resource Management Task Force
15-17 Nov 92	"	Netherlands	SPAAR meeting on networks (en route for Cali).
6-10 Dec 92	"	Ethiopia	Closing of regional office
4-9 Jan. 93	"	Uganda	Consultative workshop between NARS and IARCs on Integrated Resource Management Research for the Highlands of East and Central Africa.
9-12 Jan 93	"	Malawi	Visit regional base at Bunda and review prospects for new donor support.
17-23 Jan 93	"	Kenya	USAID Networks workshop
9-11 Feb 93	"	Kenya	Natural Resources Management and coordination with KARI
11-13 Feb 93	C. Wortmann	Kenya	Kakamega to prepare collaborative research on root rots.
16-23 Feb 93	J. Kamulindwa	Ethiopia/ Kenya	Handing over of regional administration from Abadi Haile
15-18 Mar 93	H. Gridley	Kenya	Support to breeding subprojects at all stations.
17-18 Mar 93	R. Kirkby	Botswana	SACCAR on SADC/CIAT network funding.
18-19 Mar 93	"	Zimbabwe	USAID and DANIDA on SADC/CIAT network proposal.
19-24 Mar 93	"	Malawi	Dept. of Research, Bunda college and ODA for development of bilateral proposal.
24-25 Mar 93	"	Ethiopia	Handing over of regional administration from Abadi Haile.
25-31 Mar 93	C. Wortmann	Tanzania	Soil Fertility and on-farm research support.
28-30 Mar 93	R. Kirkby	Kenya	ICRAF on Natural Resources Management task force.

---

**REGIONAL STAFF VISITS TO CIAT HEADQUARTERS**

---

Period	Staff Member	Country	Purpose
18 Nov-6 Dec 92	R. Kirkby	Colombia	5-year internal review of Bean Program
14 Nov-6 Dec 92	H. Gridley	"	"
14 Nov-6 Dec 92	C. Wortmann	"	"

---

TRAVEL TO EASTERN AFRICA BY CIAT'S NON-REGIONAL STAFF

Period	Staff Member	Country	Purpose
26-29 April 92	K. Ampofo (Ar.)	Kenya	Attend the 22nd Annual Research Conference of the ICIPE.
28 Apr-1 May 92	J. White (HQ)	Ethiopia	Attend second Bean Drought Working Group Meeting & Consult with Amare Abebe on Ethiopian drought research.
2 - 7 May 92	"	Uganda	Discuss drought research.
7 - 14 May 92	"	Kenya	Visit drought researchers, teach at CMRT.
29 May-3 Jun 92	D. Allen (Ar)	Kenya	Resource person for Pan-African Bean Pathology Working Group Meeting
"	R. Buruchara (Rb)	"	"
"	U. Scheidegger"	"	"
"	M. Pastor (HQ)	"	"
16-17 June 92	D. Allen (Ar)	Uganda	Appraise and advise on progress made by PhD researchers on CSB and BCMV.
21-24 June 92	O.T. Edje (Ar)	Kenya	Teach participants of the Crop Management Research Training Course
23 Jun-3 Jul 92	L. Sperling (Rb)	Kenya	Teach farmer participation at CMRT Egerton, and participate in CMRT diagnostic survey in Kitale district.
1- 4 Sept. 92	O.T. Edje (Ar)	Kenya	Attend working group meeting for soil fertility management research
16 Sept. 92	J. Ampofo (Ar)	Kenya	Delop Snap Bean IPM subproject at University of Nairobi
17 -23 Sept 92	J. Ampofo (Ar)	Uganda	Travelling Workshop which enabled to: visit and exchange research info; survey farmers storage systems; collect information on bruchid species.
25 Sept-2 Oct 92	R. Buruchara (Rb)	Kenya	Survey root rots problem in western Kenya; participate in virus working group.
2-4 Dec. 92	O.T. Edje (Ar)	Ethiopia	Attend International Authority on Drought and Development Workshop, Addis Ababa.
23-24 Dec. 92	W. Youngquist	Uganda	Observe trials at Kawanda including AFBYAN III

## PUBLICATIONS OF THE NETWORK ON BEAN RESEARCH IN AFRICA

### Workshop Series

- No. 1. Proceedings of the Bean Fly Workshop, Arusha, Tanzania, 16-20 November 1986.
- No. 2. Proceedings of a Workshop on Bean Research in Eastern Africa, Mukono, Uganda, 22-25 June 1986.
- No. 3. Proceedings of a Workshop on Soil Fertility Research for Bean Cropping Systems in Africa, Addis Ababa, Ethiopia, 5-9 September 1988.
- No. 4. Proceedings of a Workshop on Bean Varietal Improvement in Africa, Maseru, Lesotho, 30 January-2 February 1989.
- No. 5. Actes du Troisieme Seminaire Regional sur L'Amelioration du Haricot dans la Region des Grands Lacs, Kigali, Rwanda, 18-21 Novembre 1987.
- No. 6. Proceedings of First SADCC Regional Bean Research Workshop, Mbabane, Swaziland, 4-7 October 1989.
- No. 7. Proceedings of Second Workshop on Bean Research in Eastern Africa, Nairobi, 5-8 March 1990.
- No. 8. Actes de l'Atelier sur la Fixation Biologique d'Azote du Haricot en Afrique, Rubona, Rwanda, 27-29 October 1988.
- No. 9. Actes du Quatrieme Seminaire Regional sur L'Amelioration du Haricot dans la Region des Grands Lacs, Kigali, Rwanda, 21-25 Novembre 1988.
- No. 10. Proceedings of a Workshop on National Research Planning for Bean Production in Uganda, Kampala, Uganda, 28 January-1 February 1991.
- No. 11. Proceedings of the First Meeting of the Pan-African Working Group on Bean Entomology, Nairobi, Kenya, 6-9 August, 1989.
- No. 12. Proceedings of African Bean Research Workshop, Morogoro, Tanzania, 17-22 September, 1990.
- No. 13. Virus Diseases of Beans and Cowpea in Africa, Kampala, Uganda, January 17-21, 1990
- No. 14. Proceedings of the First Meeting of the SADCC/CIAT Working Group on Drought in Beans, Harare, Zimbabwe, May 9-11, 1988.
- No. 15. First Pan-African Working Grop Meeting on Anthracnose of Beans, Ambo, Ethiopia, February 17-23, 1991.
- No. 16. Cinquieme Seminaire Regional sur l'Amelioration du Haricot dans la Region des Grands Lacs, Bujumbura, Burundi, 13-18 Novembre, 1989.
- No. 17. Sixieme Seminaire Regional sur l'Amelioration du Haricot dans la Region des Grands lacs, 21-25 Janvier 1991.
- No. 18. Conference sur Lancement des Varietes, la Production et la Distribution de Semaines de Haricot dans la Region des Grands Lacs, Goma, Zaire, 2-4 Novembre 1989.
- No. 19. Recommendations of Working Groups on Cropping Systems and Soil Fertility Research for Bean Production Systems, Nairobi, Kenya, 12-14 February 1990.
- No. 20.\* First African Bean Pathology Workshop, Kigali, Rwanda, 14-16 November, 1987.

- No. 21.\* Soil Fertility Research for Maize and Bean Production Systems of the Eastern Africa Highlands - Proceedings of a Working Group Meeting, Thika, Kenya, 1-4 September 1992.
- No. 22.\* Actes de l'Atelier sur les Strategies de Selection Varietale dans la Region des Grands Lacs, Kigali, Rwanda, 17-20 Janvier 1991.
- No. 23.\* Proceedings of the Pan-African Pathology Working Group Meeting, Thika, Kenya, 26-30 May 1992.

#### **Occasional Publications Series**

- No. 1. Agromyzid Pests of Tropical Food Legumes: a Bibliography.
- No. 2. CIAT Training in Africa.
- No. 3A. First African Bean Yield and Adaptation Nursery (AFBYAN I): Part I. Performance in Individual Environments.
- No. 3B.\* First African Bean Yield and Adaptation Nursery (AFBYAN I): Part II. Performance across Environments.
- No. 4. \* Assessment of Yield Loss caused by Biotic Stress on Beans in Africa.
- No. 5. \* Interpretation of Foliar Nutrient Analysis in Bean - the Diagnosis and Recommendation Integrated System.
- No. 6. \* The Banana-Bean Intercropping System in Kagera Region of Tanzania - Results of a Diagnostic Survey.

#### **Reprint Series**

- No. 1. Bean Production Problems in the Tropics: Common beans in Africa and their constraints.
- No. 2. Bean Production Problems in the Tropics: Insects and other pests in Africa.

*\*These publications were produced during this reporting period.*