CIMMYT REGIONAL PROGRAM FOR CENTRAL AMERICA
AND THE CARIBBEAN.

OVERVIEW OF STRATEGIES AND PLANNED ACTIVITIES FOR 1989.

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OVERVIEW OF STRATEGIES AND PLANNED ACTIVITIES FOR 1989. CIMMYT REGIONAL PROGRAM FOR CENTRAL AMERICA AND THE CARIBBEAN.

I. INTRODUCTION

After a very successful planning meeting involving CIMMYT directive and regional staff (December 88), it is felt that 1989 will mark a turning point in the development of CIMMYT Regional Program for Central America and the Caribbean. The present overview of strategies and activities tries to capture the basic nature of such turning point. Accordingly, emphasis has been placed on the description of the new upcoming areas of operations, particularly, those involving strategic agronomic research, as well as the ones referring to the strong commitment to expand the interdisciplinary work agronomy-economics. Training activities will be as important as ever and are subsumed in each one of the major areas of research.

More details of objectives and activities to met them will be available in the MBO plans which will be adjusted by each member of the team to conform the present guidelines. Since major changes are being incorporated, the implications of the present plan go beyond 1989 and will certainly enter in due time into the CIMMYT-SDC discussions which will shape the future of the Regional Program. In this context, priority countries have been tentatively ordered, with the commitment of being reviewed for the future in the light of the experience of planned operations in 1989. Critical issues as team location have been also discussed, some decisions taken and others committed to be taken during the coming year. This is the perspective with which the following sections are organized.

II. STRATEGIC AGRONOMIC RESEARCH

The starting point for this area is given by the fact that there are some agronomic problems important in terms of implications for farm income and productivity, which are common across megaenvironments and which require research with a long term perspective. CIMMYT's role on this area is to help in clearly identifying these problems in terms of research topics and to provide technical assistance and material support to national programs to cope with them as well as to promote networking (involving national programs and other international institutions) and training on those issues.

Due to the increasing importance of sustainability of agricultural systems in the developing world, all of the planned projects will take this issue into consideration as it relates to applicable methods and economic assessment. The majority of CIMMYT agronomic activities in Central America will focus more on strategic research which has potential applications across all of the region. This is a function of having been able to define areas which have application throughout Central America and which are expected to promote horizontal collaboration across national programs.

The following research topics will be included in agronomic research activities for 1989:

1. Legume Rotations/Interseeding. Because soil erosion on the predominantly marginal lands used for maize production in Central America continues to be the most important production constraint, alternative maize production systems need to be evaluated. Previous success with Stizolobium deeringianum (Mucuna) both in rotations and interseeding in Honduras has promoted our ability in utilizing this concept with various species, seeding dates and fertility levels in other countries where soil erosion is a problem. Additional benefits of weed control by use of this practice is of considerable economic importance where the farmer practice on weed control takes a considerable portion of cost of production. Economic evaluation of these systems relative to potential adoption will be included in this effort.

2. Sulfur Projects/Research. The continued use of ammonium sulfate on the predominantly acid volcanic ash soils of Central America is in sharp contrast with the objective of sustainability, due to the increased acidity generated by use of this source. While this element is considered a critical factor in production, efficiency of sulfur use is affected by applications of both Ca and P which are also deficient. Specific issues as related to this work are methods of application and sources of Ca, P and S. The Sulfur Institute in Washington D.C. is collaborating in this effort with the provision of alternative sources and possible funding for Master Degree Scholarships for students in the area. Economic assessment will focus on price policies and source availability.

3. Minimum Tillage Projects/Research. Consistent with the interseeding project defined above, these trials represent alternative systems of production. Principal objectives will continue to be soil erosion control, reduction in marginal lands where residues are commonly burned and soil fertility interactions. The economics staff have initiated an economic assessment of these methods versus conventional

practices in El Salvador, and will begin working with the agronomy projects in the Dominican Republic.

4. Methodology for Estimating Sustainable Production Systems. A coordinated economics/maize effort will be made to identify specific components that contribute to sustainable production systems. In light of the time required to agronomically estimate sustainability (complexity of environment, nutrient cycles, climatic fluctuations), this work will target the identification of variables in existing sustainable systems . During the "Sustainability Tour" conducted in August, 1988, different areas were identified that both provided increased maize production and maintenance of the resource base (limited soil erosion, compaction, etc.).

5. Regional Agronomy Trial. During the "Sustainability Tour" conducted by CIMMYT Central America Regional Staff, a regional agronomy trial was proposed. This trial will employ interseeding methods, interseeding dates, and two legume species. Conceptually, this trial should assist in horizontal collaboration amongst NARS, regional agronomic communication, and economic understanding of altered systems of production.

Project proposals for outside funding, collaboration with RISTROP (Red de investigacion de suelos tropicales), and TROPSOILS are other activities which will be included in CIMMYT functions within the region. Essentially, this will provide increased collaboration amongst organizations which are either interested or are already functioning in the area. Also, no present fertilization recommendation is made based on soil testing data generated in Central America. Therefore, critical nutrient levels for fertilizer recommendations need to be established based on data collected within the region.

III. ON FARM RESEARCH.

The basic strategy in this area will continue to focus around OFR methods for national programs but with a strong reorientation towards a more structured and formal organization of a networking type. Accordingly institutionalization of OFR and training in OFR methods will be key elements around which OFR activities are oriented for 1989. A decrease in time allocated by the economics staff and an increase in time allocated by agronomic staff is planned. The latter will be particularly focused on the development of the agronomic methodological components of OFR (training materials) which are not at present complete. Increased cooperation between economics and agronomy has been strongly emphasized as a necessary condition to meet

the objectives defined for OFR in 1989. The development of that cooperation will be closely monitored. In the long run, a decrease in the overall CIMMYT involvement is anticipated in this area, with an increase in national self-sufficiency and horizontal cooperation. Potential for an increased role of other regional or international institutions in support of national OFR operations is also expected.

A call system OFR training course with the participation of 10 OFR areas jointly selected by the regional staff is going to start in 1989, with completion anticipated towards the end of 1990. Network activities in OFR will be organized initially based on this course. The detailed activities involved are described in the UNDP project document discussed in the SDC-CIMMYT meeting held in El Batan in March 1988. However, a decision has been taken to proceed with the course on the basis of SDC funding, without waiting for expected additional funding from UNDP (basically for national operational costs) that was to be approved by the end of 1988.

Given the prevalence of maize and bean crops in most of the areas involved, conversations with the CIAT bean regional program in San Jose, suggests the potential of organizing the course as a joint CIMMYT/CIAT training operation. A meeting of CIMMYT-CIAT regional staff in San Jose in late February will define whether or not such a joint venture will be feasible for 1989. In any case the organization of the course will proceed as scheduled, and later on, additional funding will be sought from UNDP or EEC projects particularly for equipment and operational costs of national programs. The UNDP project document is being rewritten to serve this objective. Time allocations for this activity will involve 30 and 20 percent of the total regional economics and maize staff time respectively amounting to a total of one person year allocated to OFR.

IV. GERMPLASM DEVELOPMENT AND SEED PRODUCTION TECHNOLOGY

Breeding strategy will emphasize both population improvement and hybrid development. Hybrid development, and highland maize improvement continue to provide yield gains via tolerance to biotic and abiotic stress factors. Conventional and non-conventional hybrids are being developed by producing inbred lines on the basis of heterotic patterns reported by CIMMYT headquarters and NARS.

The continued need for increased availability of disease free seed with adequate germination and storage qualities exists in the region. Success in seed programs depends on reliable supplies of foundation seed. Foundation seed units have thus been established to produce, process

and maintain quality. Technological improvements and other assistance is continually required.

1. Germplasm Development/Improvement

Activities in this area can be grouped as follows:

1.1. Individual Country Projects. The development of hybrids tolerant to stunt, downy mildew, stalk and ear rot pathogens will continue in 1989. Also, early maturity open pollinated varieties suitable for multiple cropping are receiving added attention in the region. Increasing yield stability is integrated into most of the breeding programs and increases our ability to enhance country to country cooperation in these trials. Also, collection of materials adapted to steeply sloping areas in the highlands has begun.

1.2. Horizontal Collaboration. With the coordination of CIMMYT staff, NARS continue to work together in both breeding techniques and seed production technology. These combined efforts have enhanced the corn stunt project. Also this has improved the use of limited human and natural resources and has opened avenues of communication and information. Development of germplasm adapted to limited moisture conditions has demonstrated increased responsibility amongst the NARS staff involved from El Salvador, Guatemala, Honduras. Materials tolerant to Diplodia and Fusarium are needed for the Atlantic coast (high rainfall) where farmers commonly leave the crop in the field for long periods following physiological maturity. The collaborative project between Honduras and Costa Rica is effectively addressing this problem. More importantly, the collaborative hybrid development project attempts to integrate fertilizer, insecticide and system variables within the transfer of new hybrids having improved yield potential.

2. Seed Production Technology:

Operations in this area are organized in the following groups of activities.

2.1. Individual Country SPT Projects. Open pollinated varieties in commercial production will continue in our efforts for areas where hybrids are not adapted or not available. Inbred lines and single crosses are continuing to supply parents for commercial hybrid seed production in Central America and the Caribbean. These efforts continue to strengthen stability in newly released hybrids. Descriptions of varieties and hybrids that are already present in Central America is needed for certification purposes. A specific document relative to these descriptions should be available by mid 1989. Characterized

differences will be established in another SPT project whereby single cross parents presently used as females in seed production (also double and three-way cross hybrids) are to be evaluated for commercial production. Planting ratios (male:female) are also continually evaluated in seed production units. This includes conventional 4:1, alternative 5:1, 8:2 and compact female planting (male interplanting). Field deterioration is also being evaluated in farmer trials whereby weed control and harvest date are controlled independent variables. All of these concepts will be slowly worked into foundation seed production units as they apply to the specific country involved.

2.2. Horizontal Collaboration. This is an awkward issue since it involves moving patented genetic material across national borders. However, many of the country restrictions have been removed via collaborative efforts of CIMMYT and NARS. Seed treatments are continually evaluated for insect control, as it relates to both damage, and time intervals where critical control is obtained. Responsibility for seed pathology relative to seed borne diseases has been assumed by Costa Rica and Panama but has horizontal implications. Detasseling techniques that reduce operational costs are also being evaluated. Training in SPT and promotion of seed strategies receives increased CIMMYT support via our ability to combine NARS staff for regional workshops/short courses where extensive interaction amongst participants is realized.

V. POLICY RELATED ACTIVITIES

Policy-related activities will continue to focus on farm-based policy analysis (FPA) and commodity sector/comparative advantage studies (CCA). In addition, the regional data base on basic grains for the region developed in the San Jose office will be enriched by biological information provided through the participation of the regional maize specialists in this activity. All the information will be integrated in country profiles which should increasingly provide the basis for the programming of commodity programs at the national level. An initial exercise on priority setting for commodity programs will be conducted in early 1989, using the Honduras maize program as a case and with the participation of national, CIMMYT and SDC staff.

Three commodity sector/comparative advantage cases were started in 1988 with national collaborators: Panama on maize/sorghum (the leading case in terms of progress and methodological developments), Guatemala, on small scale wheat production and El Salvador, on maize/beans relay cropping on hilly lands of El Salvador. With the exception of Guatemala, the cases are based on technological

information available (current and potential technologies) from on going OFR programs being conducted with CIMMYT support. The cases will be completed and reported in 1989.

All cases are concerned with the impact on basic grain production and potential technological development of the changing macroeconomic policy environment prevailing in the different countries of the region. The generalized implementation of structural adjustment programs with strong financial support of international institutions are drastically changing the economic scenarios for basic grain production. In particular, a pricing policy which tends to eliminate government interventions and moves basic grain prices closer to the ones prevailing in the international markets, imposes a treadmill on the future feasibility of basic grain production and the technological options presently or potentially available for national basic grain production. For example, preliminary findings of the Panama case, based on the on OFR data of the area of Azuero, identified minimum tillage as a technological alternative that would permit the preservation of competitiveness for area maize production, given the high incidence of machinery on total costs of production under the present technology.

The information generated through the cases will be sequentially integrated in the general framework of country profiles contributing to: a. an expanded knowledge on the different dimensions of basic grain sectors in Central America and the Caribbean (agronomic and policy environment for research planning) and b. training materials for national programs in the new area of commodity sector/comparative advantage studies.

Finally, in the area of farm-based policy analysis, a journal publication of the interesting results of the Haiti case will be sought during 1989.

A total of 45% of economics staff time will be allocated to this area, while the maize allocation is planned at about 5%, the latter will be concentrated on incorporating the biological components into the country profiles.

VI. PATTERNS OF STAFF TIME ALLOCATION BY MAJOR ACTIVITY AREA.

Important reallocations of staff time have been planned for 1989. The increasing role of agronomy in OFR and the participation of the economists in strategic agronomic research reflect the recognition of the need to make a strong commitment to develop the cooperative agronomy-economics work far beyond the levels of 1988. In addition a

small percentage of economics time has been allocated to explore the potential role of the discipline in breeding and seed production. While some of sections above have already included staff time allocations others have not done so. The table below provide the complete information in terms of percentage of staff time and total man/years allocated to the major groups of activities. If additional resources (agronomy) are added to the regional team they might be distributed among the activities with a likely emphasis on strategic agronomic research and only to a lesser extent to OFR

Table 1. Summary of time allocations by major activity area in 1989

	Percentage of total staff time		Total man/ years
	maize	economics	
1. Strategic agronomic research	30	10	0.8
2. On farm research	20	30	1.0
3. Breeding and seed production	40	5	0.9
4. Policy-related activities	5	45	1.0
5. Administration	5	10	0.3
Total for the Regional Program	100	100	4.0

Another element which is clear from the table is the importance of policy related activities in terms of economics research. In addition, the plan for 1989 explicitly recognize in terms of time allocations the contribution to be made by the maize specialists on the biological components of the country profiles (reflected in the five percent included under maize in grouping four). Breeding and seed production activities are roughly maintained a their present levels. Finally, the larger percentage of time allocated to administration by economics as compared with maize is a reflection of the fact that efforts will continue on the part of economics to contribute to establish the institutional conditions which will permit in the future the transfer of CIMMYT regional responsibilities in OFR as well as to bring additional funds for national OFR operations.(UNDP and EEC projects).

VII. LOCATION OF THE REGIONAL TEAM.

Directive and regional staff have agreed to unify team locations in the future. However, whether or not San Jose or Guatemala will be the host site for the combined efforts has not yet been determined. Both alternatives present

advantages and disadvantages in terms of the different roles to be played by the team members. Discussions on this issue will continue during 1989, and it is expected that a decision will be taken and a transition period defined to allow for a minimum reallocation cost to be assumed by the staff and families involved.

VIII. INITIAL IDEA OF PRIORITY COUNTRIES FOR 1989 AND BEYOND.

In principle, a set of countries have been identified as first priority concerns for the regional program as a whole. These are Guatemala, Honduras and Haiti. Some differences are allowed for El Salvador, Nicaragua and Costa Rica, which would be first or second priority depending on the type of activity. For example, El Salvador will be first priority country for the maize specialists, but still second priority for economics. The rest of the countries (including the small Caribbean countries) will be on second or third priority. The tentative ranking would be reviewed towards the end of 1989 attempting to establish, if at all possible, a unified ranking for the regional program on the basis of the experience of the increased interdisciplinary agronomy-economics work.

IX. CONCLUSION: BEYOND 1989.

During the first two months of 1989 some time will be allocated to discuss the basic ideas for the future orientation of the regional program beyond 1989. It is thought however that the planning discussion held for 1989 shed some light on some of those basic ideas, given the long run nature of the new activities included for 1989. It is expected at this time that the increasing emphasis on strategic agronomic research will continue with emphasis on joint agronomic-economic cooperation. The role in OFR would decrease in terms of training and technical support, as might be the case for breeding. Emphasis on networking activities is expected to increase, and some additional new activities might be considered as promising candidates to be included in regional operations. The area of priority setting for national commodity programs could be one of them.