

C I M M Y T

CIMMYT was created as an institution to focus efforts on the improvement of the production of two of the world's principal cereal crops - corn and wheat. In spite of the many research programs dealing with various aspects of these two basic food crop resources, large gaps exist in filling the world's needs. Tropical and sub-tropical areas have been grossly neglected and coordinated regional activities are almost non-existent.

The exploding world population and its related food problems have been widely discussed. That major efforts toward the resolution of these problems must be undertaken is obvious. How best to commit the limited resources of CIMMYT in organizing a program to meet the role it has been assigned is of utmost importance. It is unrealistic to assume that a single, small organization could resolve the myriad local problems of production that exist. Thus it becomes apparent that the main role of CIMMYT must be one of stimulation, of leadership and of ideas.

Any continuing program of such a nature requires a sound system to develop information - a research program appropriate to the task undertaken and specifically oriented toward solution of the problems encountered and considered of highest priority. Adequate facilities and equipment are indispensable.

A possible general view of a CIMMYT program might be

to define it as consisting of three major concepts: (1) Derive new information on production techniques (2) Develop useful improved varieties and (3) Train technicians from many parts of the world in the principles of corn research and production work.

In considering these three aspects we must recognize the danger of falling into research projects that might be little more than duplications or extensions of work already in progress at other institutions and from which information is coming. The research should be specially relevant to tropical and sub-tropical conditions. The values attributable to new and useful varietal materials are those most likely to be of major significance in achieving improved production. New varieties have appeal as a means of gaining attention. Improved varieties may consist of having more nutritive grain, greatly modified plant size and type that would permit more intensive management, varieties tolerant to insects and diseases, or having other attributes that may not yet have been considered. The importance of useful materials cannot be overemphasized, and there are many diverse and limiting factors of production in different areas of the world. Every effort should be made to employ the most widely useful materials available in all projects.

Implicit in the world-wide role of CIMMYT is the need to do research on the critical problems in the areas where they occur. This means that programs must not be restricted to local research work at central stations only, but that a continuing interchange of

information and materials must occur among problem areas and central research activities. Among the methods that might be helpful in carrying this out would be (1) Uniform variety yield trials on a continuing basis and (2) Disease garden type plantings in those areas with certain particularly severe insect or disease problems. The interchange of breeding materials should be strongly encouraged.

A network of cooperating workers might thus be informally set up around the tropics and sub-tropics of the world. CIMMYT could then assemble potentially useful material and prepare uniform variety trials to be distributed among such cooperators encouraging them to include each year their best materials. Results should be compiled and distributed. Special projects might be supported in critical problem areas such as mildew on corn in the Philippines, stunt virus in Central America, insects in Jamaica and others.

The trainees who participate in the practical training work will become a large body of contacts and information distribution points as time goes on. Effort should be made to exploit this as a CIMMYT strength.

The overall philosophy of the CIMMYT program should be one of concern with the tropics and sub-tropics of the world and how to get the most productive and desirable corns we can develop into commercial production in the shortest time.

1. The Cooperative Program in Central America is an example of interaction with CIMMYT in information and exchange of materials. It can be intensified with more help to visit regularly in the area.
2. Selected materials should be assembled from other areas of the world: Africa, South America, and Asia. These should be the best materials available in each place according to the local corn breeder, and should be brought to CIMMYT.
3. At the same time as materials are assembled, assistance should be solicited from each of the breeders involved in planning a uniform type yield trial. Not everything should go in a given trial, but succeeding trials should be based on results as accumulated.
4. Results of uniform trials should be compiled, published and distributed.
5. Nutritional value studies on high lysine, high tryptophane, and high protein corns should be expanded. A range of varieties should be formed and attempts made to recover more nearly normal grain appearance than that of Opaque 2 and Floury 2. Marker genes should be combined with Opaque 2 and Floury 2.
6. Major emphasis is suggested to be focused on reducing plant height. Tropical corns in general are too tall. Recurrent selection within "normal" populations should be greatly intensified as well as more study of various genetic dwarfs.
7. An attempt should be made to develop good early varieties with better yields than now available.

8. As shorter corns are developed, the cultural practices should be modified to suit the plant. Hopefully we can make major changes.
9. Cooperative studies in selected areas should be developed.
 - a) Proposal for Mexico, India and Africa on population now in Bajio.
 - b) Establish effort on mildew resistance in Far East.
 - c) Support stunt virus work in Central America (Nicaragua and El Salvador).
 - d) Others as seem opportune.