



Training at CIAT

The Cassava Program's training activities played an important role in the substantial progress achieved this year in Latin America and Asia. Several countries of Oceania are developing more positive links with CIAT in cassava research and transfer of technology, with the assistance of the United Nations Development Programme (UNDP) for the South Pacific islands.

In cooperation with CIAT's Training Office, the Cassava Program trained 38 professionals from 15 countries at CIAT in 1980. Participants came from the following countries: Brazil and Colombia, 8 trainees each; Mexico, Bolivia and the United States, 3 each; Thailand, the Dominican Republic and South Africa, 2 each; Ecuador, Haiti, Honduras, West Germany, the Netherlands, Great Britain and Italy, 1 each. The 21 students from 6 Latin American countries attending the 1980 intensive special training course are included in these figures.

Activities in Latin America

Several Latin American countries, including Brazil, Cuba, the Dominican Republic, Ecuador, Haiti, Honduras, Mexico and Paraguay, were visited by Program scientists to follow up the development of national cassava programs and to strengthen cooperation. More emphasis has been given to visiting countries without established cassava programs that have good possibilities of starting programs. While other new national programs for cassava continue to develop, the cases of Cuba and Ecuador illustrate how these typically came about.

Cuba. Of particular interest was the eight-day visit to the Cuban Cassava Research Center (Centro de Mejoramiento de Semillas Agámicas—CEMSA), located at Santo Domingo, Villa Clara province. Before establishing a cassava program four years ago, Cuba had a national average cassava yield of 7 t/ha per year. The country has

made tremendous progress; provisional estimates suggest that average production has increased to 25 t/ha per year over large areas. The way this happened was simple.

Three cassava researchers trained at CIAT validated and adapted the technology recommended for Cuba. Two outstanding Cuban varieties were selected for testing under CIAT technology; results were so good that officials decided to promote the improvements over the whole country. Groups of agronomists from the 1900 state agricultural enterprises were trained during three-day sessions at CEMSA.

The basic technology they were taught included:

- a) Good soil preparation with construction of ridges taller than those used for sugarcane;
- b) selection and treatment of 30-cm stakes from the basal part of mature plants, to reduce the problem of CBB;
- c) planting vertically on top of the ridges;
- d) timely weed control; and
- e) reduced irrigation.

Before the training, Cuban farmers had planted short stakes horizontally on the bottom of small ridges and irrigated heavily.

The Cuban experience reflects the fact that simple technology can make an impact if it is properly conveyed to farmers.

Ecuador. Based on the agro-economic description of cassava by Luzuriaga in 1975, indicating that Ecuadorian cassava yield was low (10t/ha), the CIAT Cassava Program started cooperation with this country by setting up an international cooperative trial at Pichilingue Experiment Station near Quevedo. This trial, planted with promising material, has completed four cropping cycles.

The Pichilingue trial and those planted in other cassava-growing regions by the National Agricultural Research Institute (Instituto Nacional de Investigaciones Agropecuarias—INIAP) have served to measure the potential yield of the selected germplasm. Using improved agronomic practices, yields of promising material have surpassed those of local varieties. This led INIAP directors to launch a formal cassava program this year. This was the result of INIAP's interest and desire to offer a cheaper source of carbohydrates to the poultry and swine industries and to have cheaper commercial starch.

CIAT's Cassava Program will continue to assist the organization and development of this new program.

Cultural practices workshop. A great amount of research has been done on cultural practices for cassava production in different environments. To consolidate existing information into one document for use by national cassava programs in developing further research, research priorities and technology transfer, a Cassava Cultural Practices Workshop was held in Salvador, Brazil, March 18-21, 1980. The workshop was sponsored by the International Development Research Centre (IDRC) and organized by the Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), CIAT and IDRC. Thirty-five cassava scientists from 14 countries participated.

Within-country training. CIAT has assisted in training personnel within those countries having strong national cassava research programs linked to a well developed extension program and those having the goal of increasing national cassava production. Short intensive courses were given this year in Mexico and the Dominican Republic.

In the Mexican course, organized by the Secretaría de Agricultura y Recursos Hidráulicos (SARH), the Instituto Nacional de Investigación Agropecuaria (INIA) and CIAT, 11 researchers, 8 extension workers and 1 farmer were trained. The course in the Dominican Republic, organized by the Centro Norte de Desarrollo Agropecuario (CENDA) with CIAT cooperation, trained 1 researcher and 24 extension agents. Extension participants were important components of both courses because these countries realize that the generation of technology must be linked closely to an effective transfer of technology to the client farmers who are the ultimate users. These two courses focused on field practices.

This type of training may prove to be a very appropriate method to more quickly reach a larger critical mass.

Activities in Asia

This continent, excluding the Republic of China, has one-fourth of the world's population and produces 36% of the world's cassava, mostly in Thailand, India and Indonesia. These countries and Malaysia, the Philippines and Sri Lanka are paying considerable attention to strengthening research capabilities in cassava production systems.

Of the 316 persons receiving cassava training from CIAT to date, 70 have been Asians. The 70 included 24 from Thailand, 13 from Malaysia, 12 from Indonesia, 11 from the Philippines, 5 from India, 4 from Sri Lanka and 1 from Japan.

Seven CIAT cassava scientists visited five Asian countries during 1980 to become acquainted with Asian cassava production, research and extension, to formulate new approaches for program development and to teach in the First Asian Training Course.

First Asian cassava course. With the participation of six CIAT cassava staff including the outposted staff member for Asia and members of Asian national programs, the First Asian International Training Course on Cassava Production was held at Visayas State College of Agriculture (VISCA), Baybay, and South East Asian Regional Center for Graduate Study and Research in Agriculture (SEARCA), Los Baños, the Philippines. This course was organized by CIAT and financed by IDRC. The June 2-30 course was attended by 24 professionals; 6 each from Thailand, the Philippines and Indonesia; and 3 each from Malaysia and Sri Lanka.

Activities in Oceania

Although this continent produces only 0.2% of the world's cassava, the UNDP established a Root Crops Project two years ago, with headquarters in Apia, Western Samoa. The project leader had received training at CIAT earlier. The main interest in increasing cassava production is its use for animal feed, starch extraction and alcohol fuel. In this region, cassava is used only to a limited extent for human food because the sweet potato, taro and yams are the major staple root crops.

Two CIAT cassava scientists visited the project this year and offered to assist with the training course next June.

Adoption of Selected Germplasm

Table 1 shows the cassava varieties and hybrids selected and distributed by CIAT that are now or soon will be in commercial production. It is noteworthy that seven hybrid

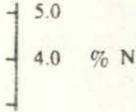
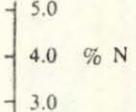
lines from CIAT's breeding program have been adopted in eight countries.

Table 1. *Cassava varieties and hybrids selected and distributed by CIAT and now being planted commercially or being multiplied for commercial use.¹*

Countries	M Col 1468	M Col 1684	M Mex 59	M Col 22	M Ven 218	M Pan 51	SMI-150	CM 309	CM 323	CM 308	CM 192	CM 407	CM 305
								165	375	197	1	7	13
Brazil	*	**											
Colombia	*	*		*									
Cuba	*												
Dominican Republic	*	*											
Ecuador	*	*		*									
Honduras		*	*						*				
Mexico			*			*		*					
Venezuela	*	*			*		*			*	*		
Australia			*		*		*						
Philippines		*											
Thailand												**	**

¹ * Planted commercially; ** under multiplication.

Errata

Page	Column	Element	Printed:	Should be:
6	1	Figure 2	M Col 59	M Mex 59
6	2	Figure 3	M Col 59	M Mex 59
6	2	Figure 3	LSD ($P < 0.05$)	LSD ($P < 0.05$)
7	1	Figure 4	M Col 59	M Mex 59
60	2	Second para., line 8	more to growth	more top growth
61	2	Line 1	and K contents	and K concentrations
20	1	Figure 1	I - Tolerant III - Tolerant V - Tolerant	I - Intermediate-resistant III - Intermediate-resistant V - Intermediate-resistant
62	1	Figure 3	Stems □	Stems Δ
64	1	Figure 5		
66	1	Figure 8	Figure 44	Figure 8
93	2	Footnote	*Left during 1979.	*Left during 1980.