



CIMMYT News

CENTRO INTERNACIONAL DE MEJORAMIENTO DE MAIZ Y TRIGO
INTERNATIONAL MAIZE AND WHEAT IMPROVEMENT CENTER

Department of Communications
Londres 40, México 6, D. F.

International Board of Directors for CIMMYT completed

Several distinguished personalities have been invited to be members of the International Board of Directors for CIMMYT. The function of the board is to establish general policy for the Center, administer its funds, and supervise cooperative projects at the international level. The membership of the Board includes the following persons:

- Prof. Juan Gil Preciado, Minister of Agriculture & Animal Industry, Mexico, D. F., President of the Board.
Dr. J. G. Harrar, President, Rockefeller Foundation, New York, N. Y., Vice-President of the Board.
Dr. E. J. Wellhausen, Director of CIMMYT, Mexico, D. F., Secretary of the Board.
Dr. Virgilio Barco V., Minister of Development, Bogotá, Colombia.
Prince M. C. Chkrabandhu, Director-General, Department of Agriculture, Ministry of Agriculture, Bangkok, Thailand.
Ing. Manuel Elgueta G., Director, Instituto de Investigaciones Agropecuarias, Santiago, Chile.
Dr. Carlos A. Krug, Regional Agricultural Officer, Food and Agriculture Organization of the United Nations, Rio de Janeiro, Brazil.
Mr. Galo Plaza, Quito, Ecuador.
General Carlos P. Romulo, Minister of Education and President of the University of the Philippines, Quezon City, Philippines.
Dr. Nicolás Sánchez D., Director, Instituto Nacional de Investigaciones Agrícolas, S.A.G., México, D. F.
Mr. C. V. Subramaniam, Minister for Food and Agriculture, Government of India, New Delhi, India.
A Representative of the Ford Foundation (as yet unnamed).

The first meeting of the Board has been tentatively set for next September, in Mexico City, according to Dr. E. J. Wellhausen, Director of CIMMYT and Secretary of the Board.



At a warehouse in Hermosillo, Sonora, Drs. S. D. Kohli, Norman E. Borlaug, and S. M. Sikka (left to right), inspect part of the Lerma Rojo seed being shipped to India.

India Imports 18,000 Tons of Mexican Wheat Seed

In the biggest sale of wheat seed which Mexican farmers have made up to the present, 17,500 tons of Lerma Rojo 64 and 500 tons of Sonora 64 and Penjamo 62 have been contracted for export to India.

With this seed and that already obtained from plantings made with a smaller shipment last year, India will be able to plant 400,000 hectares next Fall. This is an area equivalent to half of the total wheat acreage in Mexico. With this harvest, in turn, it is expected that a million tons of the new seed wheat will be available for future planting.

The purchase was made in Northwest Mexico by an Indian delegation composed of Drs. S. M. Sikka, Agricultural Commissioner, S. P. Kohli, coordinator of the wheat improvement program in India, and D. S. Khang, director of the extension service. This delegation made the arrangements for acquiring this seed in the region of

Hermosillo, principally, and in the zones of Caborca, Ensenada and Mexicali, through five credit unions.

According to Dr. Norman E. Borlaug, director of the wheat program of the CIMMYT, the Indian interest in Mexican wheat began three years ago when he sent a small sample of varieties, advanced lines, and segregating materials which he, in turn, observed in India in 1963. By 1964 the results of the tests were so promising that the Institute of Agricultural Research of India asked the collaboration of the Rockefeller Foundation in a cooperative wheat improvement program. The Foundation then contracted to commission Dr. R. Glenn Anderson, who previously worked in the Canadian Department of Agriculture, to take charge of a wheat improvement program in India.

In 1965 India decided to buy 150 metric tons of Mexican seed wheat

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Seed of World Sorghum Collection Multiplied

The world collection of sorghums was grown in Tepalcingo, Morelos, Mexico during the winter of 1965-66. The main objective in growing this collection, according to Dr. Elmer C. Johnson, plant breeder of the CIMMYT and chief of the sorghum program, was to preserve the germplasm of all the known sorghums in the world, study them systematically and make them available to interested private and governmental institutions.



Ing. José Jiménez of the station at Tepalcingo, Morelos, inspects part of the 3,757 sorghum varieties multiplied on that station. The seed heads are covered to avoid crossing between varieties.

The world sorghum collection was grown in India for the first time.

Later, in 1965, Dr. Johnson received a small sample of each of the varieties included in the collection for multiplication at Tepalcingo. At present the collection includes 3,757 varieties from India, various countries of Africa, Burma, Japan, China, The Philippines, Iran, Egypt, Australia and the United States. These varieties have been tentatively classified into 70 groups.

Dr. Johnson has prepared tabular data on all of the varieties, including the pedigree, color and size of seed, date of flowering, height of plant, density and length of head, and number of tillers, as well as special notes on lodging and the level of attack by diseases.

This project has had financial support of the American Seed Trade Association, and 21 of the firms affiliated with it have received seed samples from the collection. The U. S. Department of Agriculture has also received a seed sample of each to be preserved in Beltsville, Maryland. The National Institute of Agricultural Research in Mexico has received samples of 553 varieties to be tested at the Bajío research center at Roque, Guanajuato. Through the Central American Food Crop Improvement Program, 64 varieties are being tested in Central America and some of these are already in the stage of commercial testing for use in the near future.

Syria. Mr. Abdul Kerim Koueidar (1962) is breeding wheat at two locations near Damascus. The two stations are irrigated, but the wheats are also tested in non-irrigated locations in other parts of Syria. Mr. Nafeh Orabi (1962) is presently working in another branch of the Ministry of Agriculture.

Iraq. Mr. Ahwar Iskander Alaka . . . (1962) is located at Bakrajo Station in Sulaymania liwa and is doing wheat breeding for the area. Mr. Saleem Muhy El Sahrawardi (1963) is located at the Abu Ghraib station near Baghdad and works closely with Dr. C. L. Pan, the FAO wheat specialist for Iraq. Mr. Shamoon Issa Bekou (1964) is now doing wheat breeding at the Talafer station in Mosul liwa.

Iran. Mr. Hussein Kaveh (1961) is presently doing graduate work in wheat breeding at North Dakota State University on a Rockefeller Foundation fellowship. Mr. Houshang Khazra (1962) is located at the main station at Karaj near Tehran and is doing the wheat pathology work with the excellent greenhouse facilities located at this station. Mr. Behrooz Sadri (1963) is in charge of the small grain work at Gorgan. Mr. Mohammad Dadain . . . (1964) is located at Ahwaz in charge of the wheat work there.

Afghanistan. Mr. Ghulam Sakhi . . . (1961) is doing wheat breeding in cooperation with various stations but is located at the main station near Kabul. Mr. Mohammed Khoja (1963) has recently been appointed director of one of the outlying stations but will still be able to work cooperatively with the wheat program.

Pakistan. Mr. Mansur Ahmed Bajwa (1961) is presently studying for his PhD degree at North Dakota State University with a Rockefeller Foundation fellowship. Mr. Nur Mohammed Chaudhri (1962) is working with the large wheat research staff at Lyallpur. Mr. Ilyas Tunio (1963) is located at Tandojam and Mr. Mohibul Haq . . . (1963) is at Peshawar. These four men form a key part of the Pakistan wheat improvement program with which Dr. Ignacio Narváez and Dr. Norman E. Borlaug are collaborating.

Philippines. Mr. Amado Yambao . . . (1963) is working in wheat and corn research at Los Baños. Some of his more promising material is from Colombia and Mexico.

Activities of Ex-trainees in Wheat Breeding

As a follow up of the report in the last issue of the CIMMYT News on the recent trip of Dr. Charles F. Krull to the Near East, the following list of ex-trainees whom he visited is presented. Numbers following the names indicate the year of training in Mexico.

United Arab Republic. Mr. Alham Talaat (1961) has been carrying on a wheat breeding program in Sakha as well as being instrumental in the development of this large new station. Much of the emphasis in his work has been in incorporating the short, strong dwarf straw into the Egyptian varieties. Mr. Talaat left in April for North Dakota

to pursue his PhD studies on a Rockefeller Foundation Fellowship. Mr. Abdul Salam Gomaa (1962) and Mr. Salah-El-Din-Ali Attia (1964) are connected with the wheat breeding program at the main station at Giza near Cairo. Mr. Mohamed Waghdy Ali Shukry (1963) is doing wheat research at the Sids station.

Jordan. Mr. Jamil Ahwad Quahiwi (1962) and Mr. Zulkifl Ghoshesh (1964) are working cooperatively in wheat breeding and seed multiplication in Jordan. This includes work at various stations both irrigated and dry land, such as Deir Alla, Beit Qad (north of Jenin), Tulkaron, Irbid, Jubeiha (near Amman) and other stations.

Travels and Visits

Dr. ROBERT F. CHANDLER, Director of the International Rice Research Institute in Los Baños, Philippines, stopped over in Mexico on May 20 enroute to Lima, Peru, where he presented a paper at the International Meeting on Problems of Agriculture in the Humid Tropics of Latin America.

Dr. HERMILO ANGELES ARRIETA returned to Mexico on May 25 after three years at the University of California, Davis, where he obtained his PhD degree in Genetics under the direction of Dr. G. L. Stebbins. His doctoral dissertation was "Ontogenetic Study of the Vegetative Shoot Apex of Corn Grass, a Mutant in Maize". Dr. Angeles has been appointed head of the Department of Maize and Sorghum in Mexico's National Institute of Agricultural Research, where he has worked for the past 10 years. His studies were financed by a Rockefeller Foundation fellowship.

Dr. E. J. WELLHAUSEN presented a paper on the incorporation of the Opaque 2 gene into tropical maize at the High Lysine Corn Conference held at Purdue University on June 21 and 22. He also participated in a panel discussion on the importance of high lysine in human nutrition.

Miss WILMA WEI-LIN-HU returned to North Carolina State University, in Raleigh, N. C., on July 8, after two months in Mexico. While in Mexico, Miss Wei-Lin-Hu worked with Ing. Angel Kato Y., leader of the CIMMYT maize chromosome morphology project being conducted by the CIMMYT. This project is designed to determine the origin and relationship among the different races of corn in Latin America through the study of their chromosomes. In North Carolina Miss Wei-Lin-Hu will be studying the chromosome morphology of *Tripsacum*, under the direction of Dr. D. H. Timothy.

Dr. THORE DENWARD, professor of genetics and researcher at the Institute of Genetics at the University of Lund, Sweden, will be in Mexico for the next nine months. Dr. Denward has worked with potatoes and red clover for several years. His interest in potatoes is related to *Phytophthora* resistance—the pathogenicity of this organism and the genetic bases for specifying its races. He is also interested in polyploids in potatoes. Dr. Denward arrived in Mexico on July 4. His work here will be in collaboration with Dr. John S. Niederhauser, plant pathologist of the CIMMYT,

Dr. Santiago Delgado, chief of the potato department of the National Institute for Agricultural Research and Dr. Jorge Galindo, chief of the plant pathology department of the Graduate College at Chapingo. His stay in Mexico has been financed by the Rockefeller Foundation and facilitated by a leave of absence from the University of Lund.

On July 15 Dr. ROBERT D. OSLER arrived in Mexico to take direction of the corn program of the CIMMYT. The experience of Dr. Osler in Mexico includes seven years—1954 to 1961—as researcher and chief of the corn program of the Office of Special Studies. In his new post Dr. Osler will work closely with Dr. E. J. Wellhausen and Dr. Elmer C. Johnson in corn and sorghum projects in Mexico and other countries.

After 10 months of training in wheat improvement methods in Mexico, three Pakistani technicians, Messrs. MOHAMMED YUSAF, B. G.

SHAIKH, and MOHAMMED KHAWAJA YOUSAF, left Mexico on July 24. A few days before their departure Dr. Norman E. Borlaug organized a special reunion where Dr. José Guevara C., Technical Deputy Director of the National Institute of Agricultural Research (INIA), presented them with diplomas issued jointly by the INIA and the CIMMYT, crediting their training period in Mexico. In their return trip, these Pakistani wheat breeders will be visiting the cereal improvement programs of several universities in the West and Mid-West of the U. S. and Canada. They will also visit experiment stations in Japan and the International Rice Research Institute in Los Baños, Philippines.

The fellowships covering living costs and travel for this group of wheat breeders were provided through an agreement between the Ford Foundation and the FAO; the agreement also includes the Rockefeller Foundation and the INIA. When at home, they

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FAO Commissions Dr. Alfredo Carballo to Egypt

On July 23 Dr. Alfredo Carballo left for Cairo, United Arab Republic, commissioned by FAO as corn geneticist to work with the Ministry of Agriculture of the UAR. His task will be to give technical assistance to the corn breeders in that country.

Dr. Carballo has just completed four months in Mexico observing the corn breeding work at Tepalcingo, Morelos. At the Tepalcingo station he worked with Dr. E. J. Wellhausen in selecting CIMMYT materials which were sent to Egypt last Spring. These materials included nine yield trials with a series of germplasm composites of Mexican races, Egyptian material and lines from the corn belt and southern United States. The behavior of this material will be observed in the UAR and selections will be made for yield, resistance to diseases and other desirable characteristics.

Dr. Carballo is a native of Costa Rica where he graduated as an ingeniero agronomo. In 1957 he obtained the MS degree at Iowa State University and in 1961 a PhD from the Univer-

sity of North Carolina. In Mexico Dr. Carballo worked in the corn program of the Office of Special Studies during 1951 and 52. He was coordinator of the Central American Corn



Dr. Alfredo Carballo

Improvement Program in 1954-55 and again in 1957-58. He was associate geneticist of the Interamerican Institute of Agricultural Sciences at Turrialba, Costa Rica during 1962. Before his present assignment with FAO, Dr. Carballo was director of the Cooperative Corn Program sponsored by the National Fund for Agricultural and Livestock Research and the Eugenio Mendoza Foundation in the state of Portuguesa, Venezuela.



A planting of the Mexican wheat variety Sonora 64 at the Indian Agricultural Research Institute in New Delhi, is observed by Drs. B. C. Wright and Glenn Anderson, respectively Rockefeller Foundation soil scientist and wheat breeder—both of the Cooperative Wheat Program in India—, and Dr. J. P. Srivastana, research associate of the wheat program.

India Imports . . .

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of the varieties Sonora 64 and 50 tons of Lerma Rojo 64 to be multiplied and later planted commercially. That same year more than 3,000 hectares of irrigated land were planted to Mexican dwarf wheat and the yields in many small well-fertilized parcels reached between five and six tons per hectare and in some places as high as 7 1/2 tons per hectare.

The results obtained with these varieties have caused a tremendous impact among agricultural technicians and wheat producers in India, and the latest seed shipment represents one more step toward self-sufficiency for India in the production of this grain. Part of this seed will be used for commercial planting, part for multiplication lots and part for thousands of demonstration parcels which the Indian extension service is establishing with farmers throughout the country.

Dr. Borlaug believes that within a period of five to eight years it will be possible to double the production of the thirteen million hectares which are planted to wheat in India. He explains, however, that to reach this goal will require great efforts in the production of fertilizers, the lack of which is presently acting as a limiting factor. The 400,000 hectares which will be planted to Mexican wheat this year should have 32,000 tons of nitrogen—about 160,000 tons of ammonium sulphate—plus some 80,000 tons of simple super phosphate. For the 1967-68 growing season a fertilizer tonnage ten times greater will be needed if the full potential of the improved varieties is to be realized.

In addition, there are other important problems, such as determination of irrigation calendars, the control of weeds and the control of rodents, both in the field and in storage. India already has a program underway to solve this, and Dr. Borlaug thinks that the goal of doubling wheat production is perfectly feasible. Technicians and Indian government officials are enthused with the perspectives they have for realizing substantial progress in wheat production.

On the other hand, the Mexican material has served to obtain high yielding local varieties. The researchers of the Indian Institute of Agricultural Research in New Delhi have made selections of the Mexican cross 8156 (Penjamo 62 sib x Gabo 55) and formed a variety which they named PV 18 or Kalyan. On small well-irrigated and well-fertilized parcels on farmers land, this variety has produced as much as 10 metric tons per hectare, more than any other local or foreign variety. At present, plans are being made for sowing approximately 3,000 hectares of this wheat in seed multiplication lots.

Travels and Visits . . .

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will be working in three different regions: Mr. Mohammed Khawaja Yusuf at Research Institute of Tunab, in the North; Mr. G. B. Shaikh, at Tandojam Research Institute, in the South; and Mr. Mohammed Yusuf at the Punjab Research Institute, in Lyallpur, in the Central Region.

Ing. JUAN CARLOS COLAZO returned to Argentina on June 8, after a year of training in the CIMMYT Maize Program. His special interest was in the management of the germ plasm bank at Chapingo. Ing. Colazo will be working at the Agricultural Experiment Station in Pergamino, under the direction of Ing. Juan Carlos Rossi, who received training in the Maize program during 1959-60.

7th Meeting of the ALAF in Venezuela in 1967

The most recent newsletter of the Latin American Association of Plant Science (ALAF) mentions that the seventh meeting of the association will be held in Caracas Venezuela during the latter part of September 1961. At this meeting researchers working in several disciplines and with different crops will present papers and participate in round tables, conferences and discussion panels. The ALAF newsletter indicates that work sessions corresponding to two disciplines, entomology and plant pathology, as well as three crops, corn, potatoes and coffee, will be organized by the respective associations. This means that these societies will hold their interamerican meeting to coincide with that of the ALAF.



The CIMMYT newsletters appear monthly, in English and Spanish editions. Distribution is free. If you have colleagues interested in receiving the Newsletter, their requests will be welcomed at:

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