



# Intsormil

SORGHUM BREEDING WORKSHOP

CIMMYT

APRIL 10-16, 1983

CONTRACT NO.: AID/DSAN/XII-G-0149

☆ International  
Sorghum/Millet

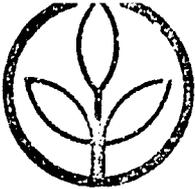
☆ Collaborative Research  
Support Program  
(CRSP)

A Research Development Program of the Agency for International Development, Participating Land-Grant Universities, Host County Research Agencies and Private Donors.



Institute of Agriculture and Natural Resources  
University of Nebraska-Lincoln





TEXAS A&M UNIVERSITY  
DEPARTMENT OF SOIL & CROP SCIENCES  
COLLEGE STATION, TEXAS 77843-2474



409/845-2151

RECEIVED  
APR 25 1983

April 18, 1983

Dr. Earl Leng  
INTSORMIL  
241 Keim Hall  
University of Nebraska  
Lincoln, NE 68583-0723

Dear Dr. Leng:

The following is a brief report of activities of the Sorghum Breeding Workshop held at CIMMYT April 10-16, 1983.

The workshop was the most successful of the three which INTSORMIL has sponsored. We had participants from 14 countries. The program is attached for your use. Perhaps the more important highlights of the meeting were:

1. A very large number of Latin American scientists participated, more than 100.
2. The 25 USA citizens, both INTSORMIL and other University scientists working with sorghum had first hand opportunities to interact with a large number of Latin American sorghum scientists both by explaining the nature of their on-going research and I believe that many of our INTSORMIL co-workers received their first real appreciation of the scope of sorghum production in the Americas and the needs for INTSORMIL assistance.
3. The interaction among USA and Latin American Sorghum researchers was excellent both during the official activities of the meeting and during off-duty hours.
4. Exchange of germplasm was freely given - in both directions.
5. Needs for future activities were recognized and the concerns of potential students discussed.
6. Several good students in most discipline areas were identified.
7. Activities at Poza Rica for educating and sharing information were good for both USA and Latin American Scientists. Many US co-workers saw for the first time the damage of diseases, the obstacles of photoperiod and temperature sensitivity, the true understanding of adaptation (tropical vs. temperate) and much more.

Page 2  
Dr. Earl Leng  
April 18, 1983

8. Next years plan of activities was recommended to consider Agronomy and Farming Systems of which sorghum is a major part.

On my behalf and on the behalf of those young scientists working on sorghum in Latin America who participated in this workshop, I thank you for assisting, for providing funds and giving your full support.

Best regards,

Sincerely yours,



Fred Miller  
Associate Professor  
Sorghum Investigation

FM:jm

cc: Dr. E.C.A. Runge  
Dr. George Teetes  
Dr. R.A. Frederiksen



## VISITORS TO CIMMYT

El Batan, April 8, 1983

### FINAL PROGRAM

#### INIA - ICRISAT - INTSORMIL SORGHUM WORKSHOP FOR LATIN AMERICA

April 11 - 16, 1983

#### I. Objectives of the meeting

1. To review the "state-of the art" in several areas of sorghum research;
2. To develop improved relationships and research awareness among cooperators and others in national programs in Central and South America;
3. To review and select improved germplasm at Poza Rica station;
4. To evaluate the cooperative potentials of international nurseries for adaptation, diseases, insects and quality.

#### II. Participating Institutions

1. ICRISAT sorghum program at CIMMYT in Mexico.  
(ICRISAT=International Crops Research Institute for the Semi-Arid Tropics.)  
  
(CIMMYT=Centro Internacional de Mejoramiento de Maíz y Trigo.)
2. INIA (Instituto Nacional de Investigaciones Agrícolas.)
3. INTSORMIL (International Sorghum and Millet Program.)
4. Central, Caribbean and South American National Sorghum Program leaders.

W O R K S H O PPlant Breeding in Sorghum

April 11-16, 1983

F. Miller, Vartan Guiragossian, and A. Betancourt V.  
Co-Chairmen

SUNDAY, APRIL 10

All day Arrival to CIMMYT of participants, registration.

MONDAY, APRIL 11 - AUDITORIUM.

6:30-8:30 Breakfast in the cafeteria

8:30 Opening Session. Vartan Guiragossian, Chairman.  
Welcoming remarks. Mr. R.D. Havener, CIMMYT.  
Logistics. Linda Ainsworth, Visitors Service.  
Introduction to Workshop. Dr. Vartan Guiragossian.  
INTSORMIL's Commitment to Sorghum Research in Mexico.  
Dr. Glen Vollmer, INTSORMIL.  
Keynote - Need for Research on Sorghum in Latin  
America, Ing. E. Calles, Deputy Director, INIA.

10:00 Coffee break (rear of auditorium). (Photograph)

SESSION II/Methodology

F.R. Miller, Chairman

10:20 Population Utilizations in Sorghum. W.M. Ross and  
C.O. Gardner.

10:40 Conventional Procedures in Plant Breeding.  
A. Betancourt V.  
Theoretical Procedures in Plant Breeding. P. Jasa.

11:10 Tissue Culture in Crop Improvement. R. Smith.

11:30 Techniques in Wide Crosses. M. Kazi, CIMMYT.

11:50 Discussion.

12:00 Lunch in the cafeteria

SESSION III/Genetic Resources  
A. Betancourt, Chairman

- 13:30 Origins and Distribution of Sorghum. J. Mann and F.R. Miller.
- 13:50 Availability of Diverse Sorghum Landraces for Sorghum Improvement. M. Melak, ICRISAT.
- 14:10 Sorghum Conversion. F.R. Miller.
- 14:30 Improved Stocks - Resource Pools. D.T. Rosenow.
- 14:50 Cytoplasms and Reductions of Genetic Vulnerability. K.F. Schertz.
- 15:15 Coffee break (rear of auditorium).
- 15:40 Hybrid Seed Production Technology (solutions to problems) with Emphasis on Tropical Areas. Glen Robison, Dekalb.
- 16:00 Breeding, Selection and Evaluation of Sorghum at the International Level. S.Z. Mukuru, ICRISAT.
- 16:20 Physiological Characteristics of Adaptation in Sorghum. J. Eastin and P. Morgan.
- 16:40 Components of Yield and their Interactions. O.J. Webster.
- 16:55 Components of Yield and their Interaction in Sorghum Bicolor (L.) Moench. J. Casas.
- 17:10 Agronomic Components of Adaptation in Sorghum. C. Francis.
- 17:30 Esquema de Investigación en Sistemas de Cultivo con Sorgo. Propuesta para CLAIS. A. Aries and M. Smith.
- 17:50 Breeding for Intercropping Capabilities. R. Clara.
- 18:10 Discussion.
- 18:30 Adjourn.
- 19:00 Dinner in the cafeteria.

TUESDAY, APRIL 12 - AUDITORIUMSESSION IV/Breeding for Pest Resistances  
F.R. Miller, Chairman

- 8:00 Technology of Breeding for Disease Resistance. R. Frederiksen and D. Rosenow.
- 8:30 Technology of Breeding for Insect Resistance. G. Teetes and G. Peterson.
- 9:00 Evaluation of Progress in Disease Resistance. G. Wall and R. Frederiksen.
- 9:20 Evaluation of Progress in Insect Resistance. V. Guiragossian and H. Petre.
- 9:40 Coffee break (rear of auditorium).
- 10:00 Procedures of Breeding Resistance to Soil Toxicities. L. Gourley, R. Duncan and R. Clark.
- 10:40 Breeding Methodology (s) Used to Transfer Resistance to Heat, Drought and Temperature Stress. L.E. Clark and P. Nordquist.
- 11:10 Procedures Utilized to Transfer Cold Tolerance. E. Romo and V. Guiragossian.
- 11:30 Physiological Systems Associated with Drought Resistance. W. Jordan and C. Sullivan.
- 11:50 Discussion
- 12:00 Lunch in the cafeteria.

SESSION V/Physiological Stress and Utilization  
Breeding. L. House, Chairman.

- 13:30 Drought Resistance in Central America. J. Avila and V. Guiragossian.
- 13:50 Drought Resistance Breeding Procedures. D. Rosenow.
- 14:10 Survey of Food Uses and Identification of Quality Characteristics of Sorghum. L.W. Kooney.
- 14:30 Characteristics of Sorghum with Good Milling Properties. S. Bedolla.
- 14:50 Nutritional Characteristics of Sorghums. J. Axtell.
- 15:10 Criteria for Selecting Sorghum for Tortilla Production H. Cejudo.
- 15:30 Coffee break (rear of auditorium).

- 15:50           Selecting for Reduced Polyphenol Concentrations in Food Sorghums. Beatriz Hurtado.
- 16:10           Breeding Procedures Used to Transfer Factors Associated with Food Quality. L. House (ICRISAT).
- 16:40           Breeding Sorghums for Forage Quality. A. Sotomayor.
- 17:00           Total Plant Utilization. R. Monk and R. Creelman.
- 17:50           Discussions.
- 18:00           Adjourn.
- 19:30           Dinner in the Rincón Mexicano (next to the cafeteria). Certificate presentations.

WEDNESDAY, APRIL 13 (Vartan Guiragossian in charge.)

- 9:30-12:30      Free time. Tours to Pyramids or Chiconcuac. Transportation will depart from housing area at 9:30.
- 12:30-13:30     Lunch in the cafeteria.
- 14:00           Departure from dormitories housing area for Poza Rica. Overnight in the Hotel Poza Rica.

THURSDAY, APRIL 14 (V. Guiragossian, F. Miller and A. Betancourt, Co-Chairmen.)

- 8:00            Depart hotel for field plots.
- 8:20            Field tours and demonstrations of lecture objectives.
- 14:00           Depart Poza Rica for El Batán housing facilities.
- 19:00-20:30     Dinner in the cafeteria.

FRIDAY, APRIL 15 (V. Guiragossian, Chairman) AUDITORIUM.

- 8:30            Conclusions and Recommendations for Workshop.
- 10:30-10:45     Coffee break (rear of auditorium).
- 12:00           Adjournment
- 12:00-13:00     Lunch in the cafeteria.
- 14:00           Tour of CIMMYT, V. Guiragossian. AUDITORIUM.
- 19:00-20:30     Dinner in the cafeteria.

SATURDAY, APRIL 16 DEPARTURES.

FIELD DEMONSTRATIONS

(Poza Rica)

1. Genetics of pericarp and related plant characteristics - Miller
2. Cytoplasm types and their usefulness - Schertz
3. Demonstration of simple physiological equipment and parameters - Eastin
4. Discussion and demonstration of sorghum disease identification - Frederiksen/Rosenow
5. Discussion and demonstration of sorghum insect identification - Teetes/Peterson
6. Demonstration of simple technology to identify forage quality - Sotomayor
7. Demonstration of procedures to handle population technology in the field - Ross
8. Demonstrate types of sorghum with ranges of food traits useful in tortillas or other foods in Latin America - Rooney