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Trip report submitted by Jerry D. Eastin

ISN-32942

MEXICO TRIP REPORT

Place: Lincoln to Mexico City - Texcoco (CIMMYT) area to Poza Rica and return.

Time: March 30 through April 3, 1980, submitted by Jerry D. Eastin, Univ. of Nebr.

Purpose: Discuss research cooperation with Vartan Guiragossian (ICRISAT), Leopoldo Mendoza and colleagues (Chapingo University Graduate College), interact with other sorghum researchers (program attached), and help evaluate 2800 elite sorghum lines from Ethiopia which are growing in the Poza Rica nursery.

Dr. Vartan Guiragossian, ICRISAT scientist located at CIMMYT, arranged the attached program prior to travel to Poza Rica where the Ethiopian collection (2800 lines) had been planted.

Brief observations on the March 31 program:

Dr. L. Mughogho (ICRISAT) indicated agroecological zones (areas of correspondence) were being identified in Africa by ICRISAT scientists. Brief conversation with him confirmed that this might be a possible exercise of interest in the Americas for Dr. Ralph Neild. He outlined major production problems of concern and emphasized that while yield level is important, yield stability is even more important. Research emphasizes insects, diseases, food quality, water and temperature stresses. Drought-temperature problems are the most critical.

The importance of SAFGRAD as a money source for ICRISAT in relating to national programs was emphasized.

The Institute of the Sahel, composed of many countries, is headquartered in Mali. Interests are similar to ICRISAT'S interest. They are developing an integrated pest management program with US AID funds.

Dr. Mughogho called for suggestions on names of people and topics for the Sorghum in the 80's symposium.

Mr. Vega, and Dr. Carballo reported in behalf of INIA. Main problems in Mexico are weeds, insects, diseases, drought and temperature extremes. In lowland areas they are hoping to produce better hybrids than commercial companies supplying those areas. A much more critical problem lies in the cool night, dry highlands where corn may be planted on about 3,000,000 ha and only half of it is harvested due to drought. The cold problem has been delineated to the extent that less than 8C stops microsporogenesis and at 5C or less anthers do not dehisce. The highland areas have about 100 days for production. How typical that is of South and Central America high altitude areas is unknown. It is probably to our advantage to cooperate heavily with them on cool, high altitude programs.

Dr. Iruegas reported on Mexican quality work emphasizing sorghum quality adequate to mix with corn for tortillas. Pearling effectively removes tannins. Selection has been for types with low catechol oxidase which tends to polymerize phenols to tannin type structures. Also low phenol types are being selected.

Dr. Ortega has initiated a millet program in which they are attempting to find where millets fit and which species hold promise. Panicums, Setarias, Pennisetums and Eleusines are being considered.

Dr. L. Mendoza reported on behalf of the Chapingo University Graduate College where they are involved in a mix of basic and applied research. The staff has a range of expertise with two professors and 18 MSc degree people. Some are training for PhD degrees. They are willing to cooperate with anyone on mutual benefit problems. One of their biggest needs is research equipment especially in physiology and applied microclimatology which could be used for screening and teaching. This may be a legitimate Title XII concern as it relates to our potential cooperation.

Dr. R. Fredericksen review the Texas A&M program.

Drs. C. Francis and J. Eastin reviewed the Nebraska program.

Dr. J. Axtell reviewed the ICRISAT program.

Dr. Federico Poey discussed training and research strategies for developing seed production programs for DC's originating at CIAT.

Ing. Ramiro Ortiz from ICTA discussed commodity programs and support discipline effort in Guatemala. Their main problems are disease resistance, drought and improving human food sorghums.

Afternoon session topics are listed on page 2, 4a-4f. Discussion on these topics amplified what was stated in the morning.

- (g) International trials. Several emphasized the need for care in overloading national programs with limited resources.
- (h) Sorghum information and documentation. Emphasis was placed on getting information from both leaflets and publications to the Sorghum and millet information center (SMIC). Don't assume they have informative leaflets especially. Request SMIC's quarterly news letter if you do not have it.
- (i) Title XII organization strengths and weakness were discussed briefly. Interested cooperators were urged to contact any of the scientists involved in the effort.
- (j) Cooperation and collaboration among institutions

Dr. L. Mendoza emphasized the desire to cooperate in terms of

- (1) selecting lines for drought emphasizing yield components.
- (2) developing physiological selection parameter.
- (3) growth stage analyses in relation to yield.
- (4) familial selection in random mating populations using harvest index.
- (5) developing instrumentation packages to be used in Mexico.
- (6) utilizing microclimatology instrumentation particularly to characterize highland and lowland climates.

Nebraska scientists have interest in cooperating on items 1, 2, 3, 5 and 6. Nebraska would also be particularly interested in assisting Mexican breeders in conversion of photosensitive cool temperature sorghum to insensitive types which might be useful for high or moderate elevations such as those in Honduras.

April 1, 1980 Poza Rica nursery site.

Dr. Vartan Guiragossian expanded the explanation of his program over the preceding day's discussion. He was testing for several stalk borers, midge, and other insects with apparent success. The nurseries were impressive as was the scope of the program.

Axtell, Rooney and Eastin spent the first afternoon selecting genotypes in the 2800 lines of the Ethiopian connection. Actually about 600 lines did not germinate. Attached is a list of lines selected (about 200). Numbers followed by a C were marked for possible conversion from photosensitive to photoinsensitive types. An effort will be made to partially evaluate temperature response of selections from the Ethiopian and other collections.

The second day Drs. Guiragossian, Rooney, Axtell and Iruegas spent a good deal of time selecting food type sorghums from Dr. Guiragossian's nursery. Eastin selected high quality grain types from early sorghums which may have cool tolerance.

Drs. Frederiksen and Mughughho recorded notes on disease susceptibilities and resistances in the Ethiopian collection.

Eastin selected 22 genotypes developed by ICRISAT scientists from the ISPYT-2 population and 1 selection from the ISPYT-1 population for testing in the US.

Participants concluded that the nursery visit should be an annual event stressing temperature, drought, disease, insect and food quality problems. A list of specific suggestions arising from the annual visit proposal will be added later when made available.

Dr. Vartan Guiragossian was commended on his excellent program and thanked for his kind hospitality. He is doing an outstanding job.

JOINT MEETING ON SORGHUM IMPROVEMENT IN
LATIN AMERICA

March 30 - April 3, 1980

PARTICIPATING INSTITUTIONS

Instituto Nacional de Investigaciones Agrícolas (INIA)	Mexico
Colegio de Postgraduados (CP)	Mexico
Purdue University	U.S.A.
Texas A&M University	U.S.A.
Nebraska University	U.S.A.
Centro Internacional de Agricultura Tropical (CIAT)	Colombia
International Crop Research Institute for the Semi-Arid Tropics (ICRISAT)	India
Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT)	Mexico

AGENDA

Monday, March 31 - (Opening 8:30 a.m. - CIMMYT Headquarters - Board Room)

1. Opening Statement. Robert Havener, Director-General, CIMMYT
2. Scope and objectives of the meeting: Vartan Guiragossian, Sorghum Breeder, ICRISAT/CIMMYT
3. Outline of current research and improvement activities by representatives of participant institutions.
 - (a) ICRISAT/CIMMYT: Lewis Mughogho, Sorghum Pathologist, ICRISAT
 - (b) INIA: Uriel Maldonado
 - (c) Chapingo Colegio de Postgraduados: Leopoldo Mendoza
 - (d) Texas A&M University: Fred Miller
 - (e) Purdue University: J.D. Axtell
 - (f) Nebraska University: Jerry Eastin
 - (g) CIAT: Federico Pocy

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4. Items for discussion.

- (a) Sorghum germplasm and breeding material
- (b) Basic research for highlands and lowlands
- (c) Sorghum diseases
- (d) Sorghum pests
- (e) Grain quality
- (f) Training
- (g) International Trials and Nurseries
- (h) Sorghum information and documentation
- (i) U.S. Universities and Title XII
- (j) Cooperation and collaboration among institutions
- (k) Any other item(s).

5. Recommendations

6. Visit to quality improvement laboratory and entomology laboratory at CIMMYT.

April 1 (7:00 a.m. - Bus departure; Cafeteria at CIMMYT; El Batan)

Visit to Poza Rica, Sorghum plots at CIMMYT Experimental Station, Poza Rica.

(Overnight accommodation at Poza Rica Hotel, Poza Rica)

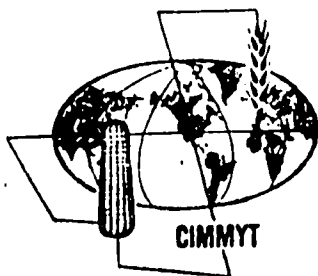
April 2 (Bus departure 7:00 a.m.; Hotel Poza Rica to CIMMYT Poza Rica Station)

(Return to El Batan at 1:00 p.m., accommodation at CIMMYT)

April 3

Participants depart

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SORGHUM JOINT MEETING

AMONG

INIA/CHAPINGO - ICRISAT/CIMMYT - U.S. UNIVERSITIES

1. March 30, Sunday - Arrival of participants to EL BATAN
Open Bar 6-7:30 p.m.
2. March 31, Monday - Opening statement (Mr. Havener). General meeting
to strengthen and discuss basis for cooperation
among these institutes (Board Room).
3. April 1, Tuesday - Visit Poza Rica Station.
(Dr. Viočić's bus)
4. April 2, Wednesday- Visit Tlaltizapan Station or final discussion at El
Batan (Maize Conference Room or Auditorium).
(Dr. Viočić's bus)
5. April 3, Thursday - Departures

PARTICIPANTS

INIA/CHAPINGO:

Dr. U. Maldonado, Dr. A. Iruegas, Ing. Vega,
Ing. Romo, Ing. José Avila, Ing. Héctor Williams,
Dr. Francisco Cárdenas R., Dr. Aquiles Carballo.

COLEGIO DE POSTGRADUADOS: Dr. L. Mendoza, Mr. Manuel Ribera, Mr.
Arturo Estrada.

ICRISAT/CIMMYT:

Dr. A. Amaya, Dr. V. Guiragossian, Dr. L.
Mughughho, Dr. W. Villena, Dr. E. Johnson,
Dr. R.L. Paliwal, Dr. E. Villegas

U.S. UNIVERSITIES:

Dr. R.A. Frederiksen	(Texas A&M)
Dr. F. Miller	(Texas A&M)
Dr. L.W. Rooney	(Texas A&M)
Dr. M.N. Kahan	(Texas A&M)
Dr. J. Eastin	(Lincoln Nebraska)
Dr. C. Francis	(Lincoln Nebraska)
Dr. J.D. Axtell	(Purdue)

ETHIOPIAN COLLECTION

63	960	2368
10	953 h1	2495 C ?
21	911 h1	2480
95	944 h1	2475
246	938 h1	2451
232	933 h1	2428
211	934 h1	2572
206	932 h1	2603
163	930 h1	2666
175	1056	
181	1160 C	1SPYT -2 selections
354	1158 C	
352	1152 C	1059
349	1133	1058
335	1112	1057
327	1093	1054
329	1091	1053
321 C	1221 h1	1052
314 C	1213	1051
294	1195	1047
2797	1339	1045
448 C	1336 C	1040
441 C	1308	1036
438	1280	1035
423 C	1277	1032
409	1397	1026
406 C	1373	1024
387 A	1355	1017
491	1513	1016
467	1512 h1	1011
462 C	1501 C	1010
612	1599	1009
601	1572 C?	1007
609 A	1543 h1	
602	1665	1SPYT-1
536 C	1640	
563	1628	1017
700	1721	
686	1833	
649	1980 C	
808	1973	
798	2833 C ?	
777	2005	
721	1931	
842	2159	
815	2142	
2803	2237 C	
980	2208	
978	2196	
977	2182	
968 C	2309	
966 h1	2296	
962 h1	2274 C ?	