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I. INTRODUCTION

BIBLIOTECA
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① The International Rice Testing Program for Latin America established since mid 1976 as a cooperative project between IRRI and CIAT, is being functioning as one of the main bridges for transferring the new technology to national programs and served to IRRI and CIAT scientists through its conferences and monitoring tours to become acquainted with rice scientists and constraints limiting rice production in Latin America.

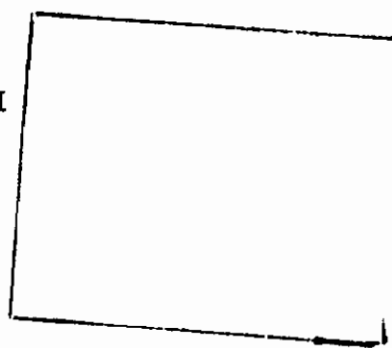
② In 1980 the IRTP activities for Latin America were concentrated mainly on 1) evaluation, multiplication and distribution to national programs basic germplasm from IRRI and CIAT; 2) identification of problems limiting the production and their needs for research in various countries of the region; 3) assembling and organizing data of nurseries distributed in 1979, and 4) evaluating the germplasm of nurseries distributed in 1980.

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2. RESULTS OF NURSERIES DISTRIBUTED IN 1979

In 1979 the number of nurseries for Latin America was increased up to 13 upon request of national programs. 258 sets including 497 entries in the various nurseries were sent to 23 countries of the region.

^{1/} Presented at the 1981 IRRC April Conference at IRRI

^{2/} IRRI Liaison Scientist for Latin America



Data returned of each nursery is indicated in Table 1.

③ The data of various nurseries was analyzed and final reports were published and distributed to cooperators in March 1981.

④ Table 2 indicates the best performing entries of the yield nurseries VIRAL-P, VIRAL-T, VIRAL-S and VIAVAL.

⑤ The germplasm of the specific yield nursery (VERAL) was of great importance for the region. This nursery included 11 promising lines combining multiple blast resistance from Tetep, Colombia 1, Dissi Hatiff, C 46-15 and Carreon, selected by the CIAT-ICA cooperative rice project. The nursery was planted in 15 locations under irrigated and favored upland (good rain distribution) cultures. Results of grain yield and blast leaf and neck infections are presented in Table 3. From this germplasm 4 lines combining high yield and resistance to blast with good grain quality (long grain, clear endosperm and intermediate to high in amylose content) were selected and included for further yield tests in the VERAL distributed in 1980.

Results of the Observational nurseries for irrigated (VIOAL) and upland (VIOAL-S) conditions, planted in 10 and 14 locations, respectively, indicated that 57 entries of the VIOAL and 13 of the VIOAL-S had tolerance to blast with early and medium duration and good yielding ability. These entries were included in the appropriate yield nurseries for the region distributed in 1981.

⑥ The Second International Blast Nursery for Latin America (VIPAL-79), was planted in 16 locations and evaluated for leaf blast infection at seedling stage. Neck infection was recorded in 6 of the

Table 1. Data returned from 1979 IRTP nurseries for Latin America

NURSERY ^{1/}	Number of sets		% of returned data
	Dispatched	Returned	
VIRAL-P	40	20	50.0
VIRAL-T	28	13	46.4
VIRAL-Tar	9	3	33.3
VIRAL-S	30	16	53.3
VERAL	23	15	65.2
VIOAL	14	9	64.3
VIOAL-S	25	14	56.0
VIPAL	32	16	50.0
VIOAL-Es	18	9	50.0
VIAVAL	13	7	53.8
VIOSAL	8	-	-
VITBAL	10	3	30.0
VIRAL-F	8	1	12.5
TOTAL	258	126	48.8

- ^{1/}
- VIRAL-P = International Rice Yield Nursery-Early Maturing
 - VIRAL-T = International Rice Yield Nursery-Medium Maturing
 - VIRAL-Tar = International Rice Yield Nursery-Late Maturing
 - VIRAL-S = International Rice Yield Nursery-Upland
 - VERAL = International Specific Rice Yield Nursery
 - VIOAL = International Rice Observational Nursery
 - VIOAL-S = International Rice Observational Nursery-Upland
 - VIPAL = International Rice Blast Nursery
 - VIOAL-Es = International Rice Observational Nursery-Leaf Scald
 - VIAVAL = International Rice Sheath Blight Nursery
 - VIOSAL = International Rice Salinity and Alkalinity Observational Nursery
 - VITBAL = International Rice Low Temperature Nursery
 - VIRAL-F = International Rice Yield Nursery Deep Water

Table 2. Average yield and days to flowering of the best five entries of Yield Nurseries for Latin America distributed in 1979.

Designation	Origin	Yield (t/ha)			Days to flowering
		Average	Range	Rank	
✓ International Rice Yield Nursery-Early Maturing (VIRAL-P) 1/					
IET 4094	India	5.1	1.8-8.1	1	94
IET 6507	India	4.9	2.1-7.0	2	92
B 541b-Pn-58-5-3-1	Indonesia	4.8	1.4-8.1	3	96
MRC 603/303	Philippines	4.7	2.0-7.3	4	96
BR 51-46-1-C1	Bangladesh	4.4	1.4-8.0	5	104
International Rice Yield Nursery-Medium Maturing (VIRAL-T), 2/					
IR 3273-339-2-5	IRRI	5.8	3.3-7.9	1	107
CICA 8	Colombia	5.5	2.9-7.8	2	106
IR 4568-225-3-2	IRRI	5.1	1.8-7.5	3	102
IR 2058-78-1-3-2-3	IRRI	5.0	1.7-7.9	4	102
B 542 b-Pn-68-9-2-2	Indonesia	5.0	2.3-7.1	5	105
✓ International Rice Yield Nursery-Upland (VIRAL-S), 3/					
CICA 8	Colombia	4.4	0.5-7.5	1	114
IR 43	IRRI	4.0	0.2-7.2	2	108
B 2360-11-3-2-9	Indonesia	3.8	0.1-7.3	3	111
IR 9671-01141-5	IRRI	3.6	0.2-6.8	4	108
IR 9679-9-2-3-9	IRRI	3.6	0.2-5.7	5	108
✓ International Rice Sheath Blight Nursery (VIAVAL), 4/					
B 189 D-KN-45-1-3	Indonesia	5.9	3.6-7.3	1	105
IR 4422-98-3-6	IRRI	5.7	1.7-7.8	2	115
CICA 8	Colombia	5.5	1.9-7.4	3	113
Chianung Sen Yu 19	Taiwan	5.4	2.5-7.1	4	109
IR 2796-44-2	IRRI	5.1	1.7-7.1	5	117

1/ Planted in 18 locations, ten irrigated and 8 upland

2/ Planted in 11 locations, six irrigated and 5 upland

3/ Planted in 13 locations, three ^{unfavored} irrigated and 10 ^{favored} upland

4/ Planted in 7 locations, five irrigated and 2 upland.

All lines were resistant to sheath blight.

→ Pan Kay (R. C.)

IR 1487-199-
-3-2 (S. ch)

Table 3. Average yield and blast incidence of the germplasm of VERA L, 1979 planted in 15 locations of Latin America.

Designation	CIAT-ICA Origin	Yield (t/ha)		Blast	
		Irrigated ^{1/}	Upland ^{2/}	Leaf reaction ^{3/}	Neck infection ^{4/}
P 1369-4-16M-1-2M-4	5709	6.2	4.7	R	2.5
P 1264-6-11M-1-3M-4	5852	6.0	4.1	R	3.2
P 1404-1-1M-1-1M-1	5734	5.5	3.4	R	2.2
P 1397-4-9M-3-3M-3	5732	6.0	4.1	R	2.7
*P 1377-1-15M-4-1M-1	5715	5.7	4.3	MR	2.9
*P 1274-6-8M-1-3M-1	5685	6.2	4.3	R	2.0
P 1386-6-8M-1-3M-1	5728	5.3	4.0	MR	2.0
*P 1429-8-9M-2-1M-5	5738	5.4	3.9	MR	2.0
P 1270-1-4M-3-1M-5	5684	5.0	3.6	MR	3.2
P 1342-6-6M-1-2M-3	5698	5.6	3.5	MS	2.2
*P 1377-1-15M-1-2M-3	5854	5.7	4.3	R	2.5
CICA 7 (check)	Colombia	4.3	3.7	MS	2.6
CICA 8 (check)	Colombia	6.4	4.2	MR	2.2
CICA 4 (check)	Colombia	5.6	3.6	S	4.5

^{1/} Average of 8 locations

^{2/} Average of 7 favored upland locations (good rain distribution)

^{3/} Based on 15 locations; R= Resistant; MR= Moderately resistant; MS= Moderately susceptible; S= Susceptible

^{4/} Average of 6 locations under scale 1-9; 1 = less than 1% of panicles infected, 9= 50-100% of panicles infected

* Selected for VERA L, 1980

16 locations. Results of leaf and neck blast infection of 126 entries included the nursery in comparison with resistant and susceptible checks are presented in Table 4.

The resistant and moderately resistant entries to either leaf and neck blast infection or both were selected and included for further testing in the 4th blast nursery; some of these entries which had good grain quality and resistance to Sogatodes were entered into appropriate yield nurseries distributed in 1981.

7 The First Observational Nursery for Leaf Scald (VIOAL-Es), was planted in 10 locations but evaluated for leaf scald reaction in 7 locations, 5 in Central America and 2 in Northern South America, where the presence of this disease is more severe. Among 61 entries included in this nursery, 12 were rated as resistant in all locations with infection types between 1-4, 22 were resistant in 6 locations but susceptible in one location, and 27 entries were classified as susceptible with infection type greater than 5 in more than one location.

S. check → Sirandag Sinydash - Nepal

3. UTILIZATION OF GERMPLASM

8 National rice programs of some countries selected several lines for further yield trials and regional tests under farm conditions. (Table 5).

4. NURSERIES DISTRIBUTED IN 1980

9 In 1980, a total of 298 sets of 14 nurseries with 623 entries were dispatched to 24 countries of Latin America (Table 6 and Figure 1). The germplasm included in these nurseries originated: a) 282 entries from

TABLE 4. INCIDENCE OF BLAST IN THE GERMPLASM OF VIPAL, 1979 IN 16 LOCATIONS OF LATIN AMERICA.

Number of entries	Blast leaf reaction <u>1/</u>	Blast neck reaction <u>2/</u>		
		R	MR	S
36	R (1-3)	11	3	22
37	MR (4)	8	3	26
53	S (5-9)	9	3	41
Resistant checks				
Colombia 1	R (1-3)	1.7		
Tetep	R (1-4)	1.5		5.0*
Carreon	R (1-4)	1.4		6.2**
Susceptible checks				
Fanny + CICA 4	S (4-9)	2.8*		7.1
B 40	S (3-9)	2.1**		6.6

1/ Recorded in 16 locations, R= resistant; MR= Moderately resistant; S= susceptible. In parenthesis scale ratings.

2/ Recorded in 6 of the 16 locations. For checks average neck scale ratings R= 1-4; S= 5-9. * = One locations, ** 2 locations.

Table 5. Number of entries selected by national programs from nurseries distributed in 1979.

Country	Nursery	Entry number
Argentina	VIRAL-P	1, 5, 6, 18, 19
	VIOAL	27, 43, 58, 59, 60, 85
Brasil (IRGA)	VIRAL-T	5, 11
	VERAL	2, 5, 7
	VITBAL	3, 4, 18, 22
	VIOAL	15, 18
Brasil (IAC)	VIRAL-P	1, 2, 5, 6, 21
	VIRAL-S	10
	VIOAL	69
	VIOAL-S	2
	VIPAL	39, 46, 52, 96, 103
Costa Rica	VIRAL-P	18, 19, 20
	VIRAL-T	2, 12
	VIRAL-S	10
	VERAL	1, 2, 4, 5, 6, 7, 8, 9
	VIOAL-S	12, 16, 31, 44, 18, 49
	VIAVAL	2, 13, 14
	VIRAL-F	9
Guatemala	VIRAL-S	10
	VERAL	5, 7, 8, 11
Haiti	VIRAL-P	6, 9, 14, 16, 23
	VIRAL-T	11, 14, 15
	VERAL	6, 13
Panama	VERAL	2, 5, 6

^{1/} See name of nursery in footnote of Table 1.

Table 6. IRTP nurseries for Latin America distributed in 1980

Nursery ^{1/}	Number of entries	Number of sets	Yield range ^{2/} (t/ha)
Yield Nurseries			
VIRAL-P	15	39	4.2-6.7
VIRAL-T	24	29	3.7-7.8
VIRAL-Tar	15	14	5.1-8.4
VIRAL-S	24	36	4.9-7.0
VERAL	11	26	5.4-7.2
VIRAL-F	13	7	3.5-7.5
VITBAL	25	7	2.7-6.1
VIAVAL	10	13	3.6-6.5
Observational Nurseries			
VIOAL	83	18	3.6-8.9
VIOAL-S	63	24	2.5-9.0
VIOAL-Es	64	16	3.4-7.9
VIPAL	152	47	2.7-9.0
VIOAL-SA	105	14	2.7-9.1
VIOSAL	19	10	1.8-7.5
TOTAL	623	298	

^{1/} See name of nurseries in footnote on Table 1.

^{2/} Average range yield of two plantings at CIAT, under irrigated - transplanted conditions.

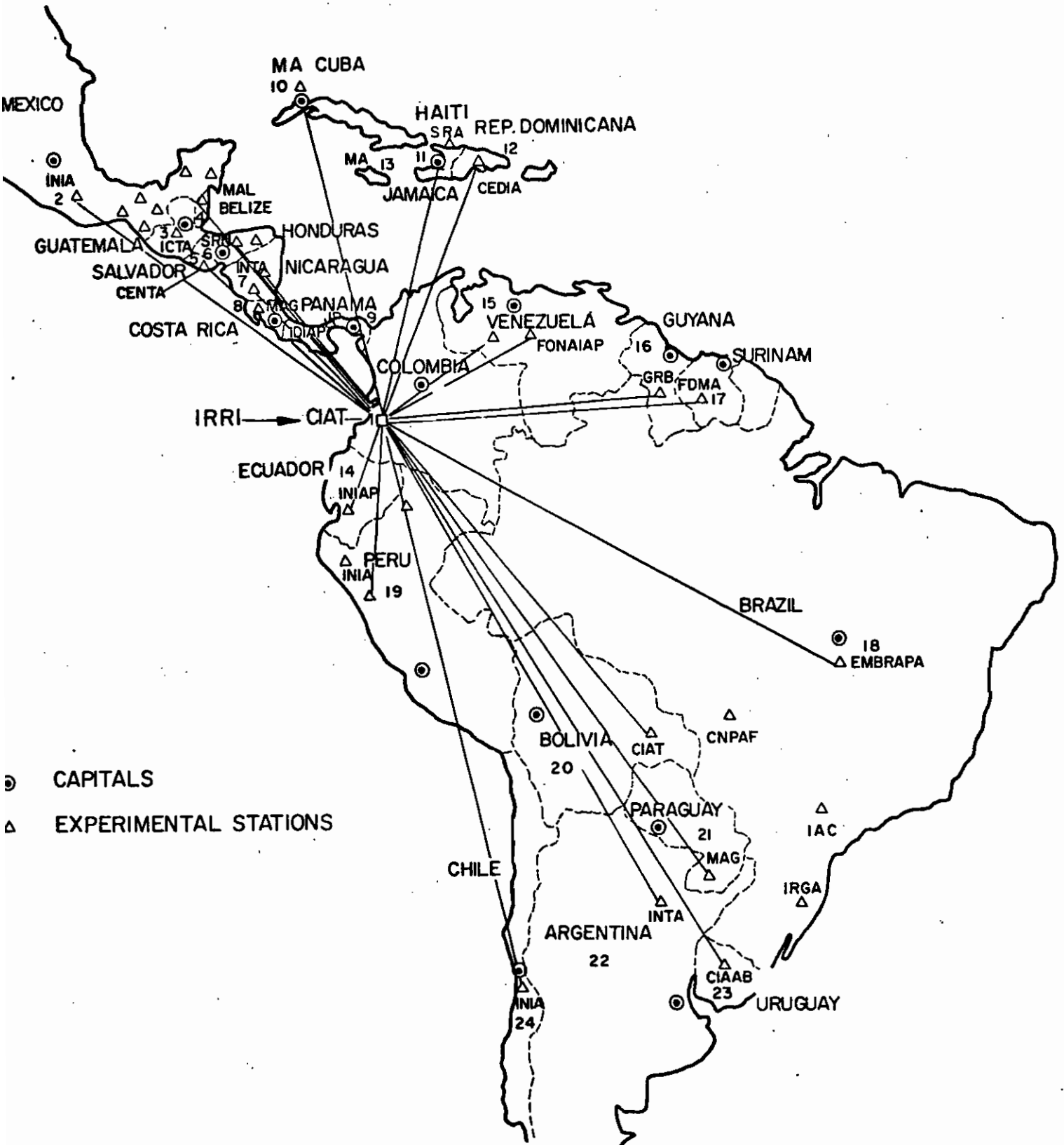


FIGURE 1. NETWORK OF THE INTERNATIONAL RICE TESTING PROGRAM IN LATIN AMERICA.

1979 IRRI nurseries planted and evaluated at CIAT for Sogatodes resistance, grain quality, maturity and yield; b) 286 promising lines selected from previous nurseries distributed to Latin America in 1979, and c) 55 lines from national programs.

This year, a new observational nursery for acid soils (VIOAL-SA), was formed with germplasm which was tolerant to yellowing or orangeing of leaves, a problem of acid soils observed in 1979 in the germplasm of various nurseries planted in Belize, Colombia (La Libertad-ICA Station), and El Salvador. It is interesting to mention that the blast resistant checks Colombia 1, Carreon and Tetep were also highly resistant to the yellowing problem in "La Libertad" ICA Station. These varieties were included as resistant checks in the nursery for acid soils.

5. EVALUATION OF 1980 IRRI NURSERIES

In May and June 1980, 14 nurseries with a total of 1647 entries were received from IRRI and planted at CIAT-Palmira in June and July. The germplasm was evaluated under field conditions for plant type, maturity, lodging and grain yield. The promising materials were harvested and evaluated in January and February 1981 for Sogatodes resistance and grain quality. The number of lines selected from the various nurseries is indicated in Table 7. The selected germplasm was included in the 1981 IRTP nurseries for Latin America that are being distributed to cooperators.

Table 7. 1980 nurseries from IRRI evaluated at CIAT in the second semester of 1980.

Nursery ^{1/}	Number of entries		Yield range t/ha
	Tested	Selected	
IRYN-VE	19	8	4.4 - 5.3
IRYN-E	27	8	4.2 - 7.8
IRYN-M	27	2	5.0 - 7.2
IRYN-L	19	3	6.2 - 8.4
IURYN	27	3	5.9 - 6.9
IURON	93	19	3.7 - 8.4
IRON	330	116	3.5 - 9.8
IRDWON	53	13	1.7 - 5.4
IRLRON	227	60	3.9 - 8.8
IRARON	198	20	4.3 - 8.2
IRCTN	215	22	4.3 - 7.7
IRSATON	102	17	3.6 - 9.4
IRBN	270	67	
IRSBN	40		
TOTAL	1647	358	

- ^{1/}
- IRYN-VE = International Rice Yield Nursery-Very Early
 - IRYN-E = International Rice Yield Nursery-Early
 - IRYN-M = International Rice Yield Nursery-Medium
 - IRYN-L = International Rice Yield Nursery-Late
 - IURYN = International Upland Rice Yield Nursery
 - IURON = International Upland Rice Observational Nursery
 - IRON = International Rice Observational Nursery
 - IRDWON = International Rice Deep Water Observational Nursery
 - IRLRON = International Rice Low Rainfed Observational Nursery
 - IRARON = International Rice Arid Regions Observational Nursery
 - IRCTN = International Rice Cold Tolerance Nursery
 - IRSATON = International Rice Salinity and Alkalinity Tolerance Observational Nursery
 - IRBN = International Rice Blast Nursery
 - IRSBN = International Rice Stem-borer Nursery

6. MONITORING TOURS AND INDIVIDUAL VISITS

These activities were focused to know the research status, to identify problems affecting rice production and training needs of national program's personnel and to evaluate the germplasm of nurseries being distributed to cooperators.

6.1 Monitoring Tour

A monitoring tour to Central America was held from September 8-23, 1980. In this visit were observed the research activities of programs, the germplasm of 1980 IRTP nurseries and commercial rice crops in Guatemala, Honduras, Nicaragua, Costa Rica and Panama (Figure 2). Participated one scientist from each Guatemala, Honduras, Nicaragua and Ecuador; two scientists from each Costa Rica and Panama; one scientist from CIAT, one pathologist of the Louisiana State University, U.S.A.; one scientist from Sudan, and two scientists from IRRI including the coordinator for Latin America.

Rice research programs in Central America are small but well organized and oriented to solve the main constraints of the crop. Panama has a small hybridization project and the others are evaluating materials coming primarily from the breeding project and IRTP nurseries from CIAT.

Rice production in Central America belongs to the favored upland culture (good rain distribution), except in Nicaragua, where the main production is direct seeded and irrigated. The main constraints on production are diseases (blast, leaf scald, sheath rot, brown spot,

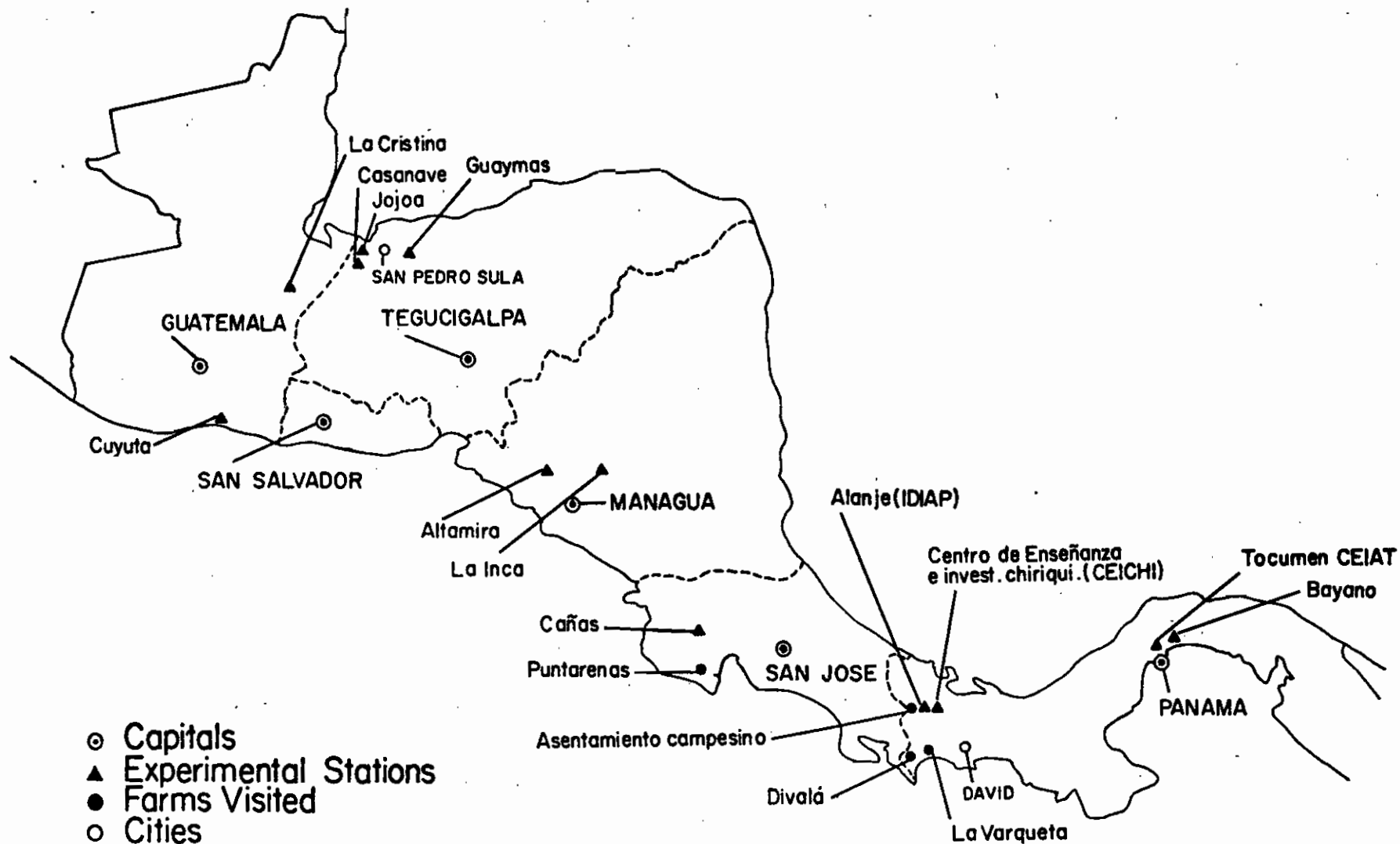


FIGURE 2. INSTITUTIONS AND LOCATIONS VISITED IN THE MONITORING TOUR TO CENTRAL AMERICA IN 1980.

sheath blight, stem rot and narrow leaf spot), insects (Armyworms, borers, stink bugs and the Sogatodes planthopper) and weeds (narrow and broad leaves and red rice). Lack of certified seed and trained personnel especially in the area of pathology are very important constraints of the region.

6.2 Individual visits

Individual visits to Chile, Cuba, Dominican Republic, Ecuador, Haiti, Jamaica, Mexico, Panama and Peru were made especially to know the rice culture and their problems in countries not visited before (Chile, Haiti and Jamaica) or to evaluate the germplasm of IRTP nurseries distributed in 1980.