3685

PN-AAR-276

Report to:

AID/W
USAID/Honduras
EAP/Zamorano

TA 84-4

Report to AID/W

on

Seed Program Activities

at

Escuela Agricola Panamericana (EAP)

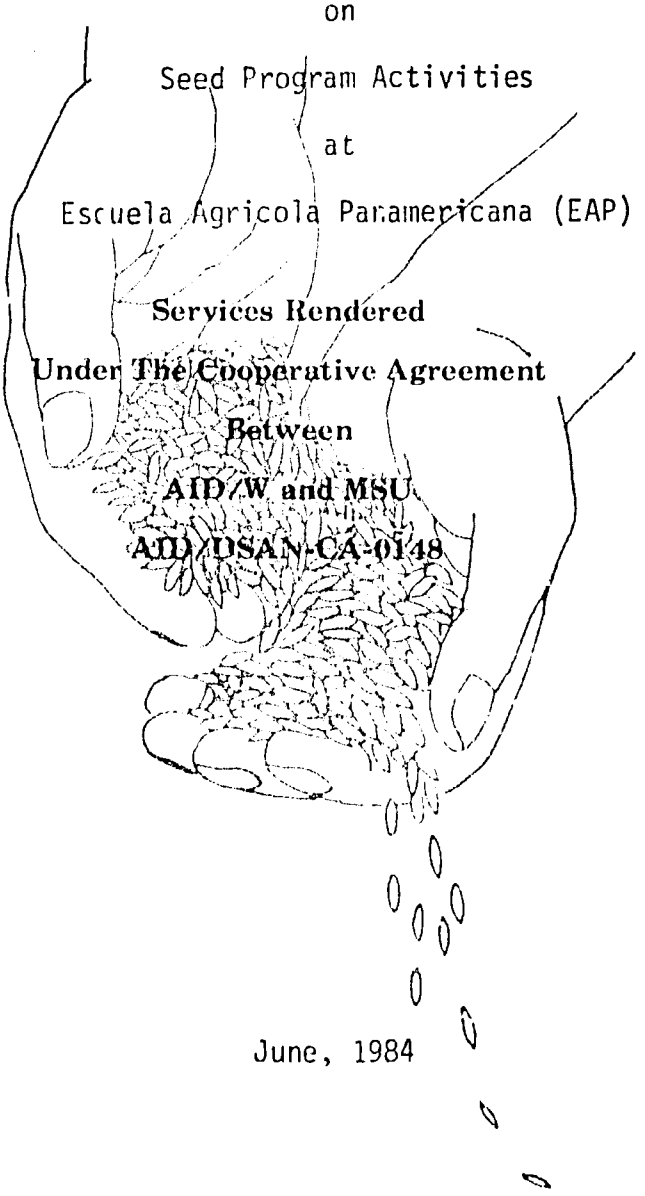
Services Rendered

Under The Cooperative Agreement

Between

AID/W and MSU

AID/DSAN-CA-0148



June, 1984

SEED TECHNOLOGY LABORATORY
MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI STATE, MISSISSIPPI

PNAAR 276

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Seed Technology Laboratory
Mississippi Agricultural and Forestry Experiment Station
Mississippi State University
Mississippi State, MS

June, 1984

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Report Summary

TITLE: Seed Program Activities at Escuela Agricola Panamericano

CONTRACT: MSU/AID/DSAN-CA-0148

CONSULTANT: Dr. C. Hunter Andrews

PERIOD OF CONSULTATION: May 14-18, 1984

Summary

An analysis of the seed section of the Agronomy Department at EAP was conducted. Considering the age of the processing unit, about 17 years, it was concluded that the EAP staff are doing an exceptional job in producing and processing the quantity of seeds now handled. Recent additions and expansions to the seed/grain program have been made through assistance of IHMA, SIATSA, GTZ and other assistance programs. To continue to function as a reliable source of high quality seeds, EAP must improve its facilities. Upgrading the existing buildings and equipment and utilizing components of the SIATSA plant can help. The best alternative, however, is to construct a second plant with equipment similar to that now on hand. This approach would increase output and allow for two processing lines to function simultaneously.

Acknowledgements

I wish to express my sincere appreciation to the administrative personnel at Escuela Agricola Panamericana (EAP) for the friendly reception and comfortable accommodations. Ing. Rafael Diaz-Donaire provided excellent guidance and served as a reliable source of information for evaluating the seed program at EAP. Professor Victor Munoz also provided details essential for formulating projections and recommendations.

Appreciation is extended to Dr. Simon Malo, Director of EAP, for the time he utilized from his busy schedule to discuss the programs. Also, Dr. Jorge Chang, Department Head of Agronomy, provided valuable ideas concerning possible programs and cooperation.

Sincere thanks are extended to each of these individuals who contributed in making this brief consultant visit productive and successful.

Respectfully,

Dr. C. H. Andrews

Background

The Seed Technology Laboratory, through its MSU/AID contract, has maintained cooperation with Escuela Agricola Panamericana (EAP) at Zamorano since 1967. Initially, the MSU/AID contract provided technical assistance by designing the seed processing facility at EAP and later by assisting with training courses and in other aspects of the seed program.

During these early years, assistance was rather limited due to the relatively minor role which EAP assumed in the overall national seed program in Honduras. More recently, however, EAP has begun producing more seed and expanding their facilities to accommodate a larger share of the national seed program. EAP has developed a reputation for producing good seed, thus a greater demand has been created for their high quality seed. As a private enterprise, EAP has the flexibility to respond quickly and effectively to the needs of the seed program. Consumers (farmers) are well aware of the EAP seed program, and they expect the program to expand and contribute more significantly to the national seed requirements in Honduras in the future.

If EAP is to assume a more prominent role in the Honduran seed industry, then it is advisable to improve and expand the seed facilities. The Agronomy staff, supported by the Director of EAP, have made some significant commitments to the seed section. Bulk grain drying and storage facilities have been expanded, a seed plant at La Lima was donated to EAP by United Brands Company, and the staff at EAP has been increased to allow more emphasis on seed production and technology programs in Honduras and the Caribbean Region.

The staff at EAP, with the encouragement from Director Simon Malo, are committed to expanding their research programs and assuming leadership in seed production to improve and increase quantity of planting seed in Honduras.

Implementation

The Agronomy Department at EAP has produced and sold seed annually in varying amounts beginning in the early 1950s. As the school's facilities for irrigated farming, seed drying, processing and storage and laboratory analysis improved, more emphasis was placed upon seed production. With added well qualified staff members and recent expansions in equipment and facilities, the EAP seed section has been able to increase its production of high quality planting seeds of basic grain crops. However, the demand for the high quality seed produced at EAP far exceeds their present production and handling capabilities.

Table 1 shows the actual production of seed by the Agronomy Department over the past six years. Rice and corn have received major emphasis, while sorghum, soybeans and beans were produced in smaller quantities. The seed facilities at EAP have been fairly adequate in past years to accommodate these quantities of seed; however, recent emphasis in increased seed production has created the necessity to improve and expand the seed facilities.

Table 2 projects the annual seed production potential at EAP. From Table 1 it is evident that the total seed production for all crops averaged about 3800 qq per year from 1978 to 1983; however, Table 2 projects that EAP has the capability to increase the total seed production of all crops to about 21,500 qq. Even this production can be increased, since additional land is available and double cropping can be used since irrigation is available.

There is currently a demand for seed in Honduras substantially greater than the actual production. Therefore, the farmers (consumers) are importing seed from neighboring countries to satisfy their needs.

Table 1. Seed Production by EAP for the Past Six Years[1]

Crop	1978	1979	1980	1981	1982	1983	Avg.	Current Processing Capability (qq/8 hrs)	Total Hours (days) to Process Current Production
	qq								
Corn	2085	1019	587	3108	500	900	1366.5	100	109 (14 - 8 hr. days)
Beans	80	40	296	112	109	-	127.4	75	10 (11.3 - 8 hr. days)
Sorghum	624	1126	878	225	68	18	489.8	100	39 (5 - 8 hr. days)
Rice	80	-	1704	4296	2423	2000	2100.6	75	168 (21 - 8 hr. days)
Soybean	129	200	-	-	91	200	255.0	100	12 (1.5 - 8 hr. days)
Totals	2998	2385	3465	7741	3191	3118	3816		338 (42.25 - 8 hr. days)

[1]Source - Agronomy Department EAP

Table 2. Potential Yearly Seed Production at EAP[1], [2]

Crop	Production Area (ha)	Yield (qq/ha)	Total Production (qq)	Current Processing Capability (qq processed per 8 hrs)	Total Hours (days) Required to Process Total Production
Corn:					
Hybrid	20	50	1000	100	80 (10 - 8 hr. days)
Varieties	100	70	7000	100	560 (70 - 8 hr. days)
Rice	60	100	6000	75	640 (80 - 8 hr. days)
Sorghum	100	50	5000	100	400 (50 - 8 hr. days)
Beans	50	20	1000	75	107 (13 - 8 hr. days)
Soybean	50	30	1500	100	120 (15 - 8 hr. days)
			21,500		1907 (238 - 8 hr. days)

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[1]Source - Agronomist Rafael Daiz, Agronomy Department EAP

[2]To increase seed production, additional area could be used for seed production or area could be double cropped

Figures available from the National Basic Grain Program (P.N.G.B.) show that significant quantities of corn, rice and sorghum seed are imported due to shortages of in-country seed supplies. Table 3 shows quantities of seed produced by S.R.N. and also the quantities of seed imported. It is quite evident,therefore, that significant quantities of both corn and rice are imported by Honduran farmers, and frequently large quantities of sorghum are imported also. For example, in 1983 S.R.N. produced 9,520 qq of corn, and 9,520 qq were imported.

To further support the fact that the demand for seed will increase in 1984, BANADESA (Banco Nacional de Desarrallo, SA) released loan figures for 1982 and 1983 and projections for 1984. Table 4 shows the data concerning these loans by farmers to produce corn, rice, sorghum and beans. According to these figures, loans by BANADESA for corn production will increase by approximately $14,000,000 Limperas (53%) in 1984. Likewise, loans for rice, sorghum, and bean production will increase by 14.7%, 78% and 77.6%, respectively. Therefore, Honduran farmers are planting increasingly more acreage to the basic food grains, and consequently significant quantities of high quality planting seed will be in demand. Thus, EAP can play a vital role in providing adequate quantities of high quality seed for the national seed program in Honduras to meet these increasing demands.

In a recent study by Dr. Federico Poey, "Promotion of the Honduran Private Seed Industry" (PIO/T 522-9103-3-30176) conducted in March-April 1984, it is strongly recommended that EAP be designated as the Basic Seed Unit in Honduras. The infrastructure, reputation and expertise in seeds make EAP a logical setting for basic seed production; however, relationships among research agencies (plant breeders) and other national policies will need to be addressed.

Table 3. Quantities of Seed Produced by S.R.N. and Seed Imported According to the National Basic Grain Program[1]

Year		Seed Produced by S.R.N.	Seed Imported	Total
		----------qq----------		
1981	Corn	2,040	3,000	5,040
	Rice	12,770	460	13,230
	Sorghum	-	900	900
1982	Corn	7,854	4,190	12,044
	Rice	6,545	3,978	10,523
	Sorghum	227	1,325	1,552
1983	Corn	9,520	9,520	19,040
	Rice	10,019	1,218	11,237
	Sorghum	388	309	697

Table 4. Loans (000's Lps.) by BANADESA for production of corn, rice, sorghum and beans.

1983		1984 (Projected)
	Value (000 Lps.)	Value (000 Lps.)
32,221	29,177.1	44,654.4
10,013	16,306.8	13,904.5
1,979	2,753.0	4,911.4
10,387	3,511.9	6,235.7

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[1]Source - Provided by EAP

To increase seed production at EAP according to projected goals and to establish a Basic Seed Unit at EAP, considerable attention and assistance will be needed in improving, upgrading and expanding their physical facilities. Table 1 shows that at present operational capacity, the processing plant requires approximately 338 hours (42.25 - 8 hour days) to handle the current level. On the other hand, to process the anticipated potential production as shown in Table 2, the processing plant would have to operate for 1907 hours (238 - 8 hour days). Even though more than one 8-hour labor shift could be utilized to reduce total operating time, frequently two (or more) kinds of seed are harvested simultaneously which places the seed unit under extreme stress.

To accommodate increased levels of seed production as dictated by the increased demand from Honduran farmers and to adequately assume a responsible role as a Basic Seed Unit for the National Seed Program, it is advisable to improve, expand and, if possible, add to the existing seed facilities at EAP. To accomplish these goals, possible alternatives are considered.

1. Seed Processing

Under the present set-up, the processing plant can handle seed at the following capacities:

Seed Kind	qq/8 hours
Corn	100
Rice	75
Beans	75
Soybean	100
Sorghum	100

At these capacities, the processing season extends over a considerable time interval. However, processing is often accomplished by two or more labor shifts working 16 or 24 hours. Even considering this option, however, a major problem arises when two seed kins, i.e., corn, sorghum, rice, are harvested at the same time. Thus, processing capacity is a serious limitation if increased seed production is contemplated.

2. Seed Drying

Currently, seed drying is accomplished in stationary metal bins (Butler-type) and in a "wagon" or "batch" type drier. The combined capacity of these facilities is 400 qq of seed each day. During peak harvest, these facilities are barely adequate; however, some relief can be made by using the modified column - type coffee drier. The capacity of this dryer is 200 qq every 6 hours and drying problems can be minimized.

3. Seed Storage

Seed storage facilities are being utilized to their maximum. There are two storage units with relative humidity control, one of 2000 qq capacity and one with 1500 qq capacity. Thus, this 3500 qq total storage is being fully utilized by the 3800 qq of seed now being produced.

The new grain warehouse (IHMA prgram) has a capacity of 14,000 qq. This facility can be utilized for short-term seed storage (less than one year), or with some modification (dehumidification/air conditioning) this warehouse could be used ideally for longer term seed storage.

4. Alternatives

(a) Up-date the existing processing unit. The equipment is approximately 17 years old. The air-screen machine is small and the feed hopper requires manual assistance to obtain optimum seed flow.

Recommendations

- replace hopper on air-screen machine
- add another grader to second floor
- replace gravity table to increase capacity
- remodel existing building where needed

(b) United Brands (SIATSA) donated a completely new processing facility to EAP. Its distance from Zamorano (La Lima) makes it difficult to operate on-site. However, some of the equipment might feasibly be incorporated in the EAP plant.

Recommendations

- Explore possibility of contracting the SIATSA plant to private growers.
- Utilize the SIATSA plant in the newly formulated National Research Program.
- As a last resort, move those pieces of equipment which can effectively improve the EAP plant to Zamorano.

(c) The ideal approach will be to construct a second small processing unit. The land area is ideally situated just adjacent to the existing facility and readily accessible to the new grain storage unit. With a minimum investment, a small processing unit similar to the existing plant would solve the problem of increased seed production and also handling two seed kinds at the same time. If EAP is designated as the Basic Seed Unit, a second processing unit will be highly desirable.

Recommendations

- A basic seed plant design will be provided by the Seed Technology Laboratory
- Equipment specification and recommendations will be formulated with approximate costs.