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Report to

AID/W AND USAID/NICARAGUA
ON SERVICES TO
RAPPACCIOLI-MCGREGOR S.A.
MANAGUA

Aug 1970 - Jan 1971

Services Rendered

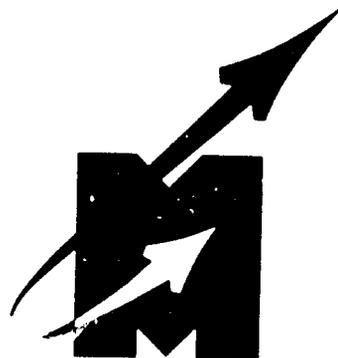
Under The Agreement

Between

AID/W and MSU

AID-W-607

SEED TECHNOLOGY LABORATORY
MISSISSIPPI STATE UNIVERSITY
STATE COLLEGE, MISSISSIPPI



REPORT SUMMARY

Title: Report to USAID/Nicaragua on consulting assignment to Rappaccioli-McGregor S.A. Managua, Nicaragua.

Author: A. H. Boyd, Jr.

Period of Report: August, 1970 through January, 1971.

Project Title: AID/W-MSU

Contract Number: AID-W-607

Contractor: Mississippi State University

Investigators: A. H. Boyd, Jr. & George Dougherty

SUMMARY

At the request of USAID/Washington and USAID/Nicaragua the Seed Technology Laboratory at MSU has accepted the assignment to make recommendations to Rappaccioli-McGregor, S.A., on construction of a seed processing plant for corn, sorghum rice, and sesame to be constructed in Managua, Nicaragua and to advise them in the development of a seed production, processing and distribution system. This is a commercial venture that will develop in stages. At present the most critical need is a seed processing plant. After this is completed and as expected expansion in production overtakes multiple use of drying facilities, receiving methods, etc., more modern equipment will be installed in the needed areas. Conditioned seed storage space will be the next most critical need.

Members of the staff from Rappaccioli-McGregor, S. A., visited the Seed Technology Laboratory at State College, Mississippi, 8 June, 1970,

REPORT TO USAID/NICARAGUA
ON
CONSULTING ASSIGNMENT
TO
RAPPACCIOLI-MCGREGOR, S. A.
MANAGUA, NICARAGUA

August, 1970 - January, 1971

A. H. Boyd, Jr.

INTRODUCTION

At the request of USAID/Nicaragua the Seed Technology Laboratory has begun consulting work with the commercial seed firm Rappaccioli-McGregor in Managua, Nicaragua. Prior to our formal request from USAID/Nicaragua through USAID/Washington Sr. Mario Rappaccioli and Sr. Lacayo, one of his employees had visited the Seed Technology Laboratory at Mississippi State University 8 June, 1970, seeking information and assistance on developing plans for a processing plant to handle corn, rice, sorghum, and sesame seeds in the amount of approximately 20,000 bushels per year for each kind of seed.

After these preliminary discussions at the laboratory they also flew to San Pedro Sula, Honduras for a brief conference with the writer on 8 July, 1970, while he was on assignment for USAID/Honduras. On both occasions we discussed the needs for equipment, storage space, and possible cost for a processing plant to do the above named job. While we are always interested in assisting anyone who needs help in the area of Seed Technology we did inform Sr. Rappaccioli that without a request from USAID/Nicaragua

and also met one of the Seed Technology Laboratory staff in San Pedro Sula, Honduras, 8 July, 1970, for a short conference. Since the preliminary plans for the processing plant were complete at Mississippi State University-Seed Technology Laboratory the author was going to Costa Rica on a consulting visit with USAID/Costa Rica an overnight stop in Managua, Nicaragua was arranged on the return from San Jose to the United States to present the drawings and discuss the proposals with the staff of Rappaccioli-McGregor and the rural development officer in Managua. Some minor modifications were agreed on to make the plant more compatible with a cottonseed plant already under construction and housed in the same building as the seed processing plant. While the cottonseed processing plant does not enter into our consulting project it was deemed advisable to make it work as smoothly with the seed processing plant as possible. Some machines will be shared by both processing operations. Modifications were suggested for the cottonseed processing line and arrangements for these changes made on the spot. Commitment was made for the Seed Technology Laboratory to revise the drawings reflecting the changes in the corn, rice, sorghum and sesame processing lines agreed on at the conference in Managua. The revised drawings and specifications are included as a part of this report.

for assistance that we could not afford the time from our contractual obligations to draw up preliminary plans and specifications or make consulting visits into Nicaragua. However, if this were requested through USAID we would be happy to do anything we could under our contract W-607. This request was forthcoming 22 August, 1970, and in response a preliminary drawing and list of equipment was prepared.

It was necessary that the writer visit Costa Rica on a consulting visit with USAID/Costa Rica and it was possible to arrange an overnight stop in Managua, Nicaragua December 16 and 17. At this time preliminary plans were presented and some details of construction discussed. A report on this visit is presented in addendum "B" of this report.

The seed facility as envisioned by Rappaccioli-McGregor is to be a complete, modern seed processing drying, storage, marketing organization. It is to be first of all a commercial venture operated in conjunction with a farm supply business offering fertilizers, chemicals, and certain custom machinery. This is patterned essentially on the order of trends in agribusinesses in the U. S. In their development, construction will proceed in the following order:

1. Processing and bag storage building.
2. Cottonseed processing facility (not a part of this consulting assignment).
3. Corn, sorghum, sesame, and rice seed processing plant.
4. Controlled environment storage for 200 tons of seed.
5. Bulk storage and drying facility.
6. Ear corn drying and shelling facility.

REQUIREMENTS AND CONSIDERATIONS**I. Climate**

Managua is in a hot and humid region with a distinct wet and dry season.

December - April (Dry)
May-December (Wet)

II. Land and power

1. Available land is 3-4 acres with good roads and fairly level topography.
2. Electric power is available (115-230 1 ph 60 cycles and 220-440 3 ph 60 cycles).
3. No. 2 diesel fuel is available for dryers.
4. LP gas is available but much too expensive for use in crop drying.

III. Crops to be handled

Crops	No. of varieties	Quantity (qq)*	Harvest Dates
Corn	5	10,000	Aug. 33% of crop Dec. 67% of crop
Rice	3	10,000	June 33% of crop Dec. - Jan. 67% of crop
Sorghum	3	10,000	Nov. - Dec.
Sesame	2	10,000	Dec.
**Cotton	3	20,000	March-July

* 1 qq = 100 lbs.

** Cotton is not a part of this consulting assignment but must be considered since the delinter and seed operation will share some equipment.

IV. Building

Minimum space reserved for the seed processing area is:

1. Floor 40' x 60' concrete floor
2. Ridge height 32' inside
3. Eave height 22' inside

Building to be of any convenient local construction as all equipment will be supported from the floor. The concrete floor should be of adequate quality and strength to support all machinery, machinery platform, bins, and seeds. Two of the smaller surge bins may be supported by the building if ceiling members of adequate strength are located so that this is convenient.

RAPPACCIOLI-MCGREGOR MANAGUA, NICARAGUA
EQUIPMENT DESCRIPTION LIST

Item 1. Air-screen Cleaner

A. T. Ferrell model Super X 298-D air-screen cleaner with 24 screens. This cleaner is to be mounted on a locally built concrete block, wood or metal frame to raise 3 feet above floor level. This cleaner is to be purchased.

Item 2. Vibrating Conveyor

A. T. Ferrell number 9 standard vibrating conveyor to be mounted under the air screen machine to move clean seed into elevator (Item 5). This item is to be purchased.

Item 3. Elevator

Universal C2-500 "Easy Dump" belt and bucket elevator or equivalent 22 ft. discharge height, dump hopper on the up leg complete with drive and 3/4 hp, 115-230 volt, 60 cycle TEFC motor. This elevator feeds uncleaned seed into the air-screen machine (Item 1). This item to be purchased.

Item 4. Bin

Surge bin of galvanized or painted metal. Bin to be center draw, hoppers bottom with outlet to approximate dimensions of intake feed hopper on Super X 298-D (Item 1). All seams to be welded and ground smooth inside. Approximate dimensions exclusive of hoppers bottom 4' x 5' x 3'6". This bin is supported from the floor or by machinery platform. (Note: if machinery platform is used for support it must be well reinforced.) This item to be constructed locally.

Item 5. Elevator

Universal model C-2-500 "Easy Dump" belt and bucket elevator or equivalent, 29' discharge height, dump hopper on the up leg complete with drive and 3/4 hp, 115-230 volt, 60 cycle, 1 ph TEFC motor.

Item 6. Bin

Surge bin constructed of galvanized or painted metal. Bin to be center draw hoppers bottom with approximately 6" square outlet. Approximate dimensions exclusive of hoppers bottom 3' x 3' x 3'. Welded seams ground smooth inside supported by equipment platform. This item to be locally constructed.

Item 7. Bin

Surge bin of galvanized or painted metal hopped bottom, welded seams ground smooth inside, center draw with discharge made to fit intake of Model 1827 disc separator (Item 8). Approximate dimensions exclusive of the hopped bottom 1'6" x 1'6" x 1'6". To be supported by disc separator. This item to be constructed locally.

Item 8. Length separator

Disc separator Carter-Day Model 1827 complete with drive and 3 hp 220-440 volt 3 ph. TEFC motor. Disc pockets to be recommended by Hart-Carter Americas after testing typical samples of rice from the area. This item to be purchased.

Item 9. Width and thickness grader

Precision grader, Carter-Day model No. 4 complete with 3/4 hp. 3 phase TEFC 220-440 volt electric motor and 20 shells*.

*All shell sizes will be recommended by Hart-Carter Americas after testing crops to be processed. This item to be purchased.

Item 10. Vibrating Conveyor.

Carter vibrating conveyor style ADH3 for use on Carter-Day No. 4 precision grader (Item 9). Complete with 1/3 hp, 1800 rpm, 115-230 volt, 1 ph TEFC motor. Conveyor set up to discharge at tailings end of machine. This item is to be purchased.

Item 11. Elevator

Universal C-2-175 "Easy Dump" 29 ft. discharge height elevator with dump hopper on the up leg complete with drive and 1/2 hp. 115-230 volt, 60 cycle, 1 ph. TEFC motor. This item to be purchased.

Item 12. Elevator

Universal C-2-175 "Easy Dump" 26 ft. discharge height elevator with dump hopper on the up leg complete with drive and 1/2 hp. 115-230 volt, 60 cycle, 1 ph. TEFC motor. This item to be purchased.

Item 13. Bin

Surge bin 1' 6" x 1'6" hopped bottom, center draw, constructed of galvanized or painted metal. Welded construction all seams ground smooth inside supported by equipment platform or ceiling joists if sufficient strength is designed into the building. This bin serves as a surge bin for No. 2 precision grader (item 16). This item to be locally constructed.

Item 14. Bin

Surge bin 1' 6" x 1' 6" to be used as surge bin over No. 2 precision grader (item 15) specifications same as item 13. This item locally constructed.

Item 15. Width and Thickness Grader

Precision grader, Carter-Day No. 2 with 2 shells. Complete with drive and 1/2 hp. 115-230 volt, 60 cycle, 1 ph TEFC motor. This item to be purchased. Note: All shell perforations are to be specified after typical samples of corn, rice, sorghum and sesame are presented to Hart-Carter Americas.

Item 16. Width and Thickness Grader

Precision grader, Carter-Day No. 2 with 6 shells. Complete with drive and 1/2 hp. 115-230 volt, 60 cycle, 1 ph. TEFC motor. This item to be purchased. Note: All shell perforations are to be specified as per item 15.

Item 17. Vibrator conveyor

Carter vibrating conveyor style ADH3 for use on Carter-Day No. 2 precision grader (No. 16). Complete with 1/3 hp. 1800 rpm, 115-230 volt, 1 ph. TEFC motor. Conveyor set up to discharge at feed end of machine. This item is to be purchased.

Item 18, a, b, c, Bin assembly

Holding bin assembly consisting of three 4' x 4' bins constructed as unit. Each bin with hopped bottom, center discharge made of galvanized or painted metal, all seams welded and ground smooth inside. Legs and frames of bins calculated to supply part of support to machinery platform and its supported machinery. Supported from ground floor. This item locally constructed.

Item 19 a,b,c. Bin assembly

Same as item 18 a,b,c.

Item 20 Vibrator conveyer

Same as item 17. For use with No. 2 precision grader (item 15).

Item 21. Elevator

Universal C-2-500 "Easy Dump" elevator, 20' discharge height with dump hopper on the up leg, discharge straight down complete with drive and 1/2 hp. 115-230 volt, 1 ph. TEFC motor. For conveying seed from duo-aspirator (item 24) to treater (item 26) or holding bin (item 18 c). This item to be purchased.

Item 22. Vibrator conveyer

A. T. Ferrell number 9 standard vibrating conveyor complete with 1/3 hp. 115-230 volt, 1 ph. TEFC motor to convey seeds from holding bins 18 a,b and 19 a,b to duo-aspirator (item 24). To be mounted on frame under bin assemblies 18 a,b,c and 19 a,b,c. This item to be purchased.

Item 23. Aspirator fan

Carter No. 30 fan for 36" duo-aspirator (item 24) complete with 5 hp. 220-440 volt, 3 ph. TEFC motor. This item to be purchased.

Item 24. Aspirator

Carter duo-aspirator 36" open circuit complete with 1/4 hp. 115-230 volt, 1 ph. TEFC motor. This item to be purchased.

Item 25. Width and thickness grader

1 VT Carter precision grader for mounting under No. 2 precision grader (item 15) complete with 1/3 hp. 1800 rpm, 115-230 volt, 60 cycle, 1 ph. TEFC motor and 3 shells. This item to be purchased.

Note: All shells for the processing plant to be recommended after receipt of samples as previously noted.

Item 26. Treater

Slurry type treater Gustafson model R. This item is included in cottonseed processing plant already under construction and will be used in this installation.

Item 27. Elevator

Universal C-2-500 "Easy Dump" elevator 20' discharge height, dump hopper on up leg and 6" 2 way discharge valve. This elevator conveys seed from treater to bagging bins (items 28,29) when duo-aspirator is used in the seed flow. This item is to be purchased.

Items 28 and 29. Bins

Bagging bin assembly consisting of 2, 4' x 4' hopped bottom, center draw bins of galvanized or painted metal, welded construction with all seams ground smooth inside. Supported from the ground floor. This item locally constructed.

Item 30. Packaging unit

Howe-Richardson Uni-Pak bagging-conveying-closing system. This unit is to be used at 3 possible locations in the plant. 1. Bagging seed corn and other seeds after aspirating and treating at 28 & 29. 2. Bagging rice, and other seeds not processed on the aspirator but treated and conveyed to item 32. 3. Bagging untreated seed and/or food crop after processing through air-screen cleaner and aspirator and conveying to bin 19c. This item to be purchased. Note: Proper electrical connections must be planned for all three locations and the unit mounted on casters or skids for convenient movement.

Item 31. Elevator

Universal C-2-500 "Easy Dump" elevator, discharge at 60°, dump hopper on up leg, complete with drive and 1/2 hp, 115-230 volt, 60 cycle, TEFC motor.

Item 32. Bin

Holding bin for bagging assembly (item 30) 4' x 4' hopped bottom, painted or galvanized metal, welded construction, all seams ground smooth inside, supported from the ground floor. This item to be constructed locally.

Miscellaneous items.

Flexible pipes - 6 pieces, 4' long, 6" dia. flanged both ends.

Rigid spouting - 5 pieces, 10' long, 6" dia. flanged both ends

6" loose flanges for make up of short spouting from scrap pieces - 6

6" clamp rings for quick connection of spouting - 10

Note: While not essential for operation of the processing plant it is highly desirable to have the following items .

- A. Industrial type vacuum cleaner
- B. Portable blower

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 RAPPACCIOLI-MCGREGOR
 SEED PROCESSING FACILITY
 SUMMARY AND SPECIFICATIONS OF
 ITEMS TO BE PURCHASED

Description of Item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
Item 1 Air-screen cleaner A. T. Ferrell Model Super X 298-D Clipper air-screen cleaner with 25 screens (already on order for cottonseed delinting plant, will be shared with corn & other seed cleaning facility)	1	-	-
(1) TRADE NAME INDEX			
Item 2 & 22 Vibrating conveyor A. T. Ferrell No. 9 standard vibrating conveyor complete with 1/3 hp 115/230 volt 1 ph TEFC motor			
Total items 2 & 22	2	250.00	<u>500.00</u>
(1) TRADE NAME INDEX			
Item 3 Elevator Universal C2-500 Easy dump elevator, 1 22 ft discharge height		621.00	621.00
Dump hopper for <u>up leg</u> in place of standard spout hopper	1	13.50	13.50
Bottom Boot cleanout	1	15.50	15.50
Electric motor 3/4 hp 115/230 volt 1 ph 60 cy TEFC	1	84.00	<u>84.00</u>
Total item 3			<u>738.00</u>
(1, 2, 6) TRADE NAME INDEX			

Description of Item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
Item 5 Elevator			
Universal C2-500 Easy dump elevator 29 ft. discharge height	1	729.50	729.50
Dump Hopper in place of standard spout hopper on <u>up leg</u>	1	13.50	13.50
Bottom boot cleanout	1	15.50	15.50
Electric motor 3/4 hp 115/230 volt 1 ph 60 cy TEFC	1	84.00	<u>84.00</u>
Total item 5			842.50
(1, 2, 6) TRADE NAME INDEX			
Item 8 Length Separator			
Carter Disc Separator model 1827 with drive	1	1690.00	1690.00
Electric motor, 1 hp 220/440 volt 3 ph 60 cy TEFC 1200 RPM frame no. 184	1	81.00	<u>81.00</u>
Total item 8			1771.00
(3) TRADE NAME INDEX			
Item 9 Width and thickness grader			
Carter No. 4 precision grader with gravity feeder excluding shell assemblies style ACL5	1	1940.00	1940.00
Shell assemblies (sizes as determined from samples)	20	180.00	3600.00
Electric motor 1 hp 220/440 volt 3 ph 60 cy 1800 RPM TEFC frame 182	1	72.00	<u>72.00</u>
			5612.00
(3) TRADE NAME INDEX			

Description of Item(s)	No. Req.	Unit Price	Approx. Price \$ U. S.
Item 10 Vibrating conveyor Carter vibrating conveyor for No. 4 precision grader complete with sheaves and belt set up for discharge at tailings end of machine	1	265.00	265.00
Electric motor 1/3 hp 115/230 volt 1 ph 60 cy TEFC 1800 RPM frame no. 56	1	42.00	<u>42.00</u>
Total item 10			307.00

(3) TRADE NAME INDEX

Item 11 Elevator Universal C2-175 Easy dump elevator 29' discharge height	1	744.50	744.50
Dump hopper on <u>up leg</u> in place of standard spout hopper	1	13.50	13.50
Bottom Boot cleanout		15.50	15.50
Electric motor 1/2 hp 115/230 volt 1 ph 60 cy TEFC		41.00	41.00
Total item 11			<u>819.50</u>

(1,2,6) TRADE NAME INDEX

Item 12 Elevator Universal C2-175 Easy dump 26' discharge height elevator	1	698.00	698.00
Dump hopper in place of standard spout hopper on <u>up leg</u>	1	13.50	13.50
Bottom boot cleanout	1	15.50	15.50
Electric motor 1/2 hp 115/230 volt 1 ph 60 cy TEFC	1	42.00	<u>42.00</u>
Total item 12			769.00

(1,2,6) TRADE NAME INDEX

Description of item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
Item 15 & 16 Width and thickness grader Carter No. 2 precision grader with gravity feeder excluding shell assemblies	2	1395.00	2790.00
Shells for precision graders (sizes to be determined from seed samples)	8	180.00	1440.00
Electric motor 1/2 hp 115/230 volt 1 ph 60 cy TEFC 1800 RPM frame no. 56	2	42.00	<u>84.00</u>
Total item 15 & 16			4314.00

(3) TRADE NAME INDEX

Item 17 and 20 Vibrating conveyors Carter vibrator conveyor for No. 2 precision grader set up for discharge at feed end of machine	2	265.00	530.00
Electric motor 1/3 hp 115/230 volt 1 ph 60 cy TEFC	2	41.00	<u>82.00</u>
Total Item 17 & 20			612.00

(3) TRADE NAME INDEX

Item 20 (see above)

Item 21 Elevator Universal C2-500 Easy dump 20' discharge height elevator	1	590.00	590.00
Dump hopper on <u>up leg</u> in place of standard spout hopper	1	13.50	13.50
Bottom boot cleanout	1	15.50	15.50
Electric motor 1/2 hp 115/230 volt 1 ph 60 cy TEFC	1	41.00	<u>41.00</u>
Total item 21			660.00

(6) TRADE NAME INDEX

Description of Item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
Item 22 Vibrating conveyor (See item 2)	-	-	-
Item 23 Aspirator Fan Carter aspirator fan No. 30 for 36" Duo Aspirator 3375 CFM @ 5" static pressure	1	430.00	430.00
Electric motor 5 hp 220/440 volt 3 ph 60 cy TEFC	1	129.00	<u>129.00</u>
Total item 23			559.00
(3) TRADE NAME INDEX			
Item 24 Aspirator Carter 36" open circuit duo- aspirator style YP4	1	1435.00	1435.00
Electric motor 1/4 hp 115/230 volt 1 ph 60 cy TEFC 1750 RPM, C flange, frame 56C	1	41.00	<u>41.00</u>
Total item 24			1476.00
(3) TRADE NAME INDEX			
Item 25 Width and thickness grader Carter 1 VT precision grader style ACA5	1	935.00	935.00
Shell assemblies (sizes to be specified from seed samples tested)	3	180.00	540.00
Electric motor 1/3 hp 115/230 volt 1 ph 60 cy TEFC 1800 RPM frame no. 48	1	41.00	<u>41.00</u>
Total item 25			1516.00
(3) TRADE NAME INDEX			

Description of item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
Item 26 Treater Treater ordered as part of cottonseed delinting plant to be used for other seeds -	-	-	-
Item 27 Elevator Universal C2-500 Easy dump 20' discharge height elevator,	1	590.00	590.00
Dump hopper on <u>up leg</u> in place of standard spout hopper	1	13.50	13.50
Bottom boot cleanout	1	15.50	15.50
Electric motor 1/2 hp 115/230 volt 1 ph 60 cy TEFC	1	41.00	41.00
6" 2 way valve adapter and transitions included	1	42.00	<u>42.00</u>
Total item 27			702.00
(1,2,6) TRADE NAME INDEX			
Item 30 Weigher-Bagger Howe-Richardson Uni-Pak weigher-bagger - bag closer with scale, belt, sewing head and controls	1	2000.00	<u>2000.00</u>
Total item 30			2000.00
(4) TRADE NAME INDEX			
Item 31 Elevator Universal C2-500 Easy dump 14' discharge height elevator	1	497.00	497.00
Dumphopper in place of standard spout hopper on <u>up leg</u>	1	13.50	13.50
Bottom boot cleanout	1	15.50	15.50
Electric motor 1/2 hp 115/230 volt 1 ph 60 cy TEFC	1	41.00	<u>41.00</u>
Total item 31			567.00
(1,2,6) TRADE NAME INDEX			

Description of item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
Miscellaneous Items			
Flexible spouting 6" dia x 4' long flanged both ends	6	18.10	108.60
Rigid spouting 6" dia x 10' long flanged both ends	5	26.50	132.50
Loose flanges 6" inside dia.	6	2.00	12.00
Clamp rings 6"	10	1.75	17.50
Total Miscellaneous (for Universal elevators specified)			<u>270.60</u>

(2,6) TRADE NAME INDEX

Miscellaneous items not essential but
recommended

A. Tornado Model 420 vacuum cleaner with caster (Type B base)	1	289.00	289.00
10' heavy duty 1 1/2 " dia. neaprene hose with swivel sleeve	1	30.00	30.00
10' heavy duty 1 1/2 " dia hose neaprene hose w/o swivel sleeve	1	28.00	28.00
Nipple for connecting two lengths of 1 1/2" dia. hose	1	1.00	1.00
Double curved aluminum extension handle for floor tools	1	12.00	12.00
9" flat fiber crevice tool	1	1.70	1.70
Floor gulper nozzle w/cast iron shoe	1	20.00	<u>20.00</u>
Total miscellaneous A			<u>381.70</u>

(5) TRADE NAME INDEX

Description of item(s)	No. Req.	Unit Price	Approx. Price \$ U.S.
B. Tornado heavy duty portable blower model 860	1	128.00	<u>128.00</u>
Total B			128.00

(5) TRADE NAME INDEX

*Total for item imported 24,545.30

Prices are best available F.O.B. suppliers
January 1971. Export boxing and freight not included.
Switch boxes and starters for motors not included.

Electrical wiring considered a part of building and not included.

ADDENDUM "A"

TRADE NAME INDEX

1. A. T. Ferrell Company
Saginaw, Michigan

2. Burrows Equipment Company
1316 Sherman Avenue
Evanston, Illinois 60204

3. Hart-Carter Americas, Inc.
655 Nineteenth Avenue, N. E.
Minneapolis, Minnesota 55418

4. Howe-Richardson Scale Company
Clifton, New Jersey 07015

5. Seedburo Equipment Company
618-628 West Jackson Boulevard
Chicago, Illinois 60606

6. Universal Industries
516 Grand Boulevard
Cedar Falls, Iowa 50613

ADDENDUM "B"
MEETING WITH
RAPPACCIOLI-MCGREGOR
MANAGUA, NICARAGUA

December 16 & 17, 1970

A meeting was held in the offices of Rappaccioli-McGregor immediately upon arrival in Managua to discuss the preliminary drawing and equipment list proposed for the seed processing plant to handle corn, rice, sorghum, sesame and possibly beans. Rappaccioli-McGregor is also in the process of constructing a cottonseed delinting plant which will be housed in the same building as the other processing plant and will possibly share some equipment. The proforma invoices and plans for the cottonseed plant were reviewed. With some minor changes in the processing plant the air-screen machine and the cottonseed treater can be used in processing other seeds. The principal recommendation in this case was to change model 29-D air-screen machine proposed by the Continental Gin Company to a Super X 298-D which is basically the same machine with a higher capacity. The 298-D can be operated at a lower capacity when operated in conjunction with the cottonseed delinting plant and then will have adequate capacity to process the desired amount of seed in the allotted time. The seed treater that had been ordered was not the same model that was originally on our equipment list but will operate satisfactorily on other kinds of seed. Therefore, the Mistamatic M-100 treater on our list was deleted by mutual agreement. To make the two processing plants compatible it was necessary to change the height and the rating of one belt and bucket elevator that was

already ordered and to change a conveyor located under the Super X 298-D. To prevent construction and cleanup problems the corn seed processing plant was designed without elevator pits in the floor, therefore, it was necessary to elevate the air-screen approximately one meter. For this reason it was necessary to specify the minimum discharge height of the elevator feeding the air-screen machine from the cottonseed processing plant.

The local representative of the Continental Gin Company was called in by Rappaccioli-McGregor and readily agreed to make the proposed changes in his proforma invoice.

Even though the cottonseed processing plant is not a part of our consulting job with Rappaccioli-McGregor I am confident that the two plants will be compatible in these small areas of mutual operation.

The proposed specifications and flow plan of the processing plant were reviewed with Rappaccioli-McGregor personnel and particularly Sr. Lacayo to sure that they adequately understood the purposes and capabilities of the processing plant. We also discussed the changes previously mentioned and the bagging-bag closing arrangement. The original drawing showed a portable bagging bin attached to a bagging scale with its own elevator all on wheels as a unit. However, since this is to be a commercial plant it will be important that there is as little lost motion as possible. We agreed that bagging bins at two or more points in the processing line would be more practical. The specification was changed to a Howe-Richardson Uni-Pak bagger and bag closing unit to be mounted on caster wheels with adequate electrical connections so that it can be used where needed. This will

necessitate purchase of one more elevator than was previously specified but again this was deemed an acceptable alternative to gain flexibility. With this arrangement there will be two elevators which will handle corrosive or poisoned materials. There are other places in the processing plant notably items 18c and 19c where the Uni-Pak bagger could be set up to handle food products so that they would not contact poison contaminated equipment.

There is a 20 hp dust fan included in the design of the cottonseed processing plant. We discussed the possibility of using this dust fan as the suction fan on the duo-aspirator since it will be used only when the cottonseed delinter is in operation. While on the surface this looks like an economical alternative to purchasing a suction fan for the aspirator there is a strong possibility that the small amount of money saved will be lost in inefficient operation unless specific characteristics of the above dust collection fan could be obtained and proper engineering data used to design the duct work and ascertain if the fan will develop sufficient static pressure to operate the duo-aspirator efficiently. It would be much better to go ahead and purchase the fan designed to match the job.

Rappaccioli-McGregor proposes to have their cottonseed processing plant in operation in March of this year and the other seed processing plant in operation in July of this year. In view of this it was agreed that the Seed Technology Lab/Mississippi State University would prepare a new drawing indicating the agreed on changes in the seed processing area and return these plans to Rappaccioli-McGregor and USAID/Nicaragua as soon

as possible. These plans and specifications are included as a part of this report. A copy of the original plans was left with Rappaccioli-McGregor and the USAID/Nicaragua office. The original drawings are also included. It is important to understand at this point that drawings presented by the Seed Technology Laboratory are to be used as a guide in the arrangement of the processing plant and the purchase and installation of equipment. We do not present them as working drawings or shop drawings. A competent engineer will of necessity be consulted on construction of the surge bins, the building, and the equipment platform.

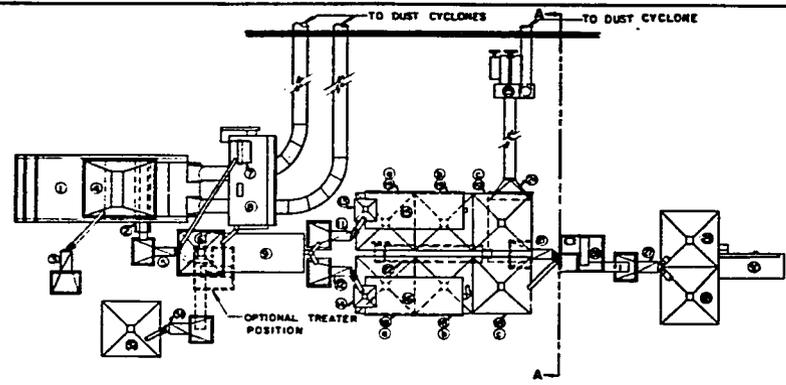
No electrical drawings are presented in this report. Proposals from a competent electrical contractor should be obtained to determine the specifications equipment and also the aid of a competent electrician will be necessary in wiring in the proposed equipment.

RECOMMENDATIONS

1. We recommend that Rappaccioli-McGregor proceed as now planned on construction and development of the seed processing plant.
2. Since Managua is in the hot and humid area it will be important for them in their proposed development of a good seed company to immediately begin planning a storage warehouse for the handling of seed separately from fertilizers, chemicals and so forth. In addition it would be to their advantage to plan some dehumidified and temperature controlled storage for long term storage for the handling of carry over seed.

3. Definite plans should be developed for the contraction of adequate drying facilities either in Managua or on the production farms.

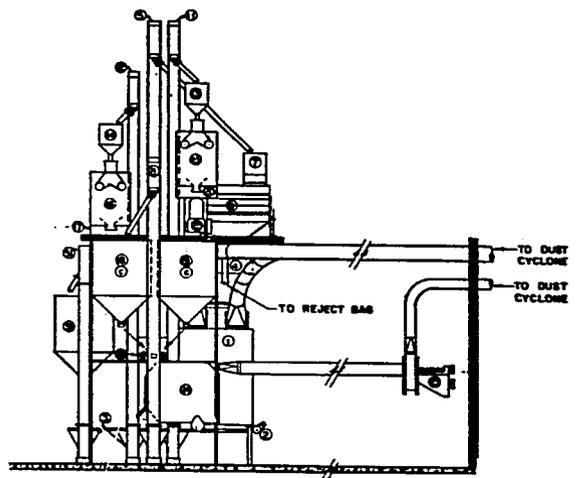
4. Since this will be the most modern processing plant in Nicaragua on its completion it would be of mutual benefit if some arrangement could be worked out between Rappaccioli-McGregor and the Ministry of Agriculture whereby Foundation Seed Stocks and other research material could be processed on this processing plant.



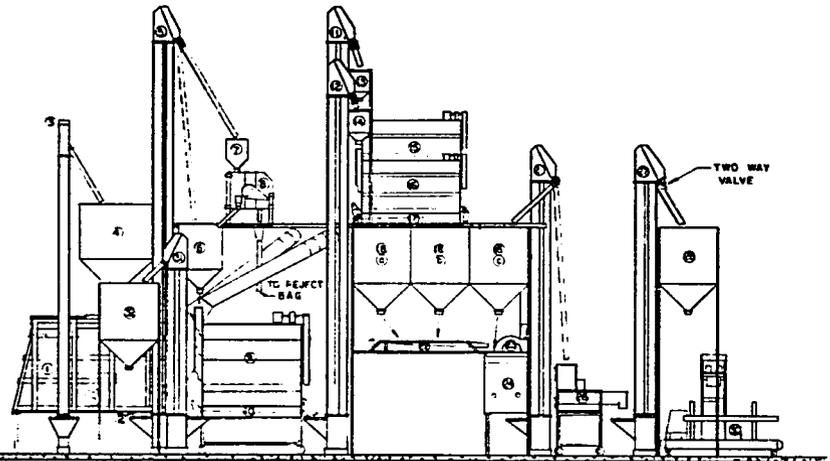
PLAN VIEW
SCALE: 1/4" = 1'-0"

LEGEND

- 1 CLEANER, A.T. FERRELL MODEL SUPER X 298-D
- 2 A.T. FERRELL NO.9 STANDARD VIBRATING CONVEYOR
- 3 ELEVATOR, UNIVERSAL C-2, 22 FT. DISCHARGE HEIGHT
- 4 HOLDING BIN, 5'x4'
- 5 ELEVATOR, UNIVERSAL C-2, 29 FT. DISCHARGE
- 6 HOLDING BIN, 3'x3'
- 7 HOPPER, 18"x18"
- 8 DISC SEPARATOR, CARTER DAY MODEL 1827
- 9 PRECISION GRADER, CARTER DAY MODEL NO.4
- 10 VIBRATION CONVEYOR
- 11 ELEVATOR, UNIVERSAL C-2, 29' FT. DISCHARGE
- 12 ELEVATOR, UNIVERSAL C-2, 26' FT. DISCHARGE
- 13 HOPPER, 18"x18"
- 14 HOPPER, 18"x18"
- 15 PRECISION GRADER, CARTER DAY MODEL NO.2
- 16 PRECISION GRADER, CARTER DAY MODEL NO.2
- 17 VIBRATION CONVEYOR
- 18 H.C.C. HOLDING BIN UNIT, 4'x4' BINS
- 19 H.C.C. HOLDING BIN UNIT, 4'x4' BINS
- 20 VIBRATION CONVEYOR
- 21 ELEVATOR, UNIVERSAL C-2, 20 FT. DISCHARGE
- 22 VIBRATION CONVEYOR
- 23 ASPIRATOR FAN
- 24 ASPIRATOR
- 25 PRECISION GRADER, CARTER DAY MODEL NO.1VT
- 26 TREATER
- 27 ELEVATOR, UNIVERSAL C-2, 20 FT. DISCHARGE
- 28 HOLDING BIN, 4'x4'
- 29 HOLDING BIN, 4'x4'
- 30 UNI-PAK, HOWE-RICHARDSON
- 31 ELEVATOR, UNIVERSAL C-2, 14 FT. DISCHARGE
- 32 HOLDING BIN, 4'x4'



SECTION A-A
SCALE: 1/4" = 1'-0"

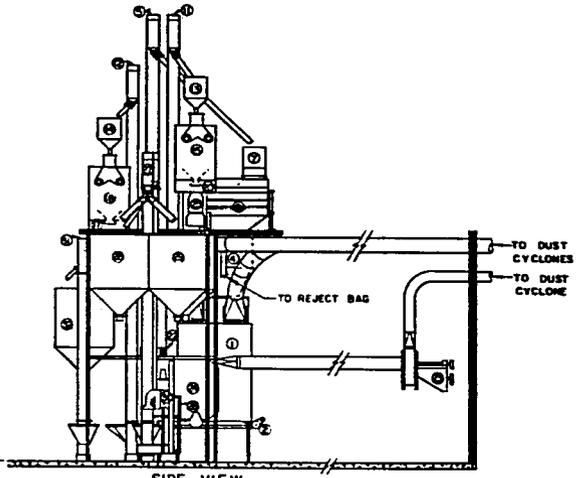


FRONT VIEW
SCALE: 1/4" = 1'-0"

ELEVATION (FEET)

- 32 —
- 30 —
- 28 —
- 26 —
- 24 —
- 22 —
- 20 —
- 18 —
- 16 —
- 14 —
- 12 —
- 10 —
- 8 —
- 6 —
- 4 —
- 2 —
- 0 —

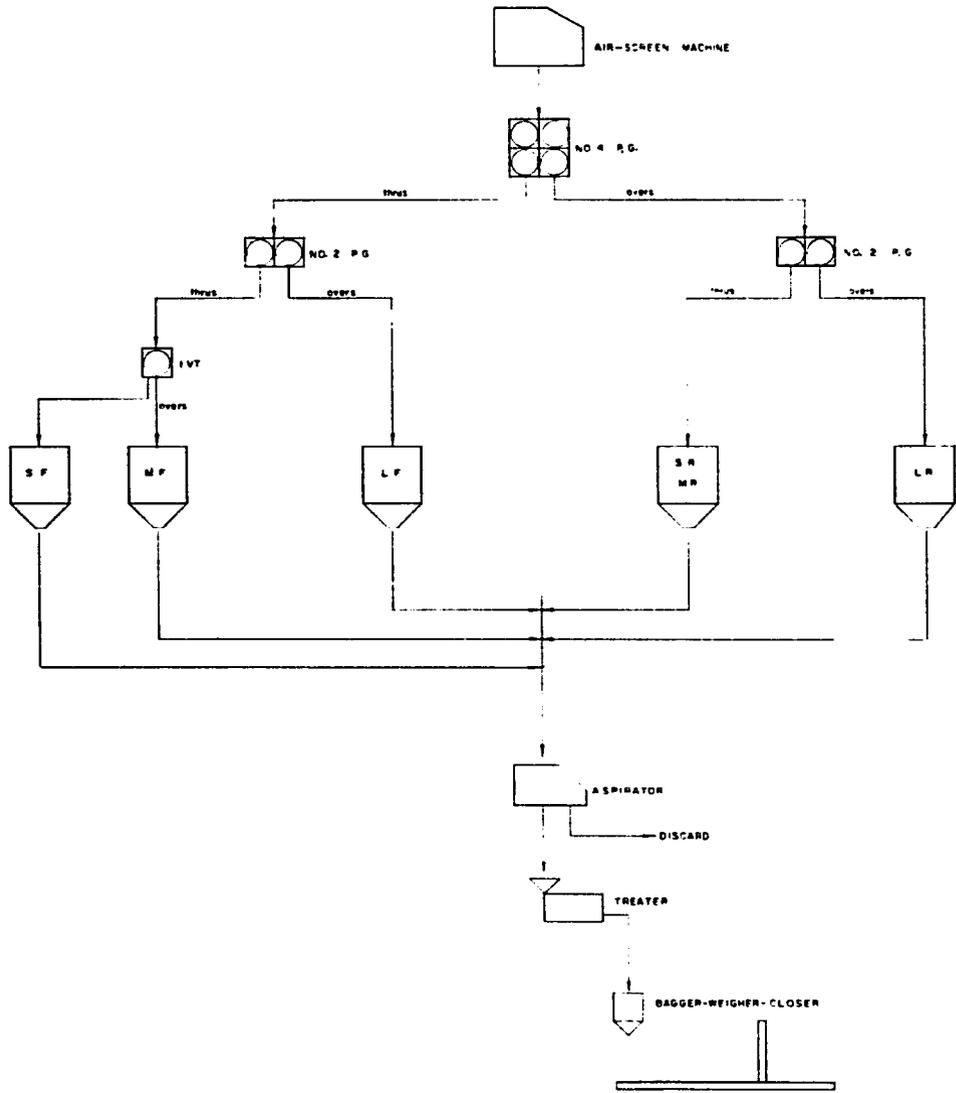
FLOOR LEVEL



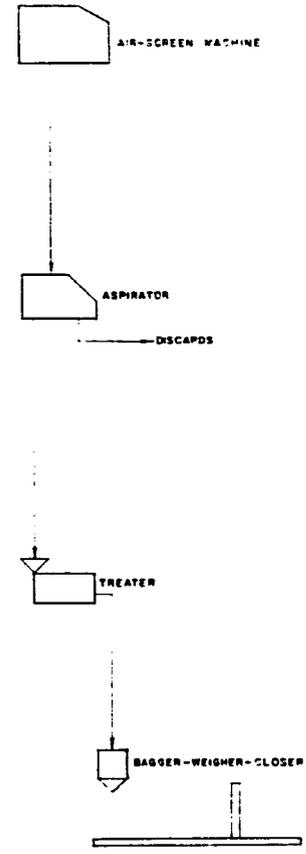
SIDE VIEW
SCALE: 1/4" = 1'-0"

MISSISSIPPI STATE UNIVERSITY MISSISSIPPI AGRICULTURAL EXPERIMENT STATION— SEED TECHNOLOGY LABORATORY <small>STATE COLL. OF MISSISSIPPI</small> SEED PROCESSING FACILITY—REVISED by RAPPACCIOLI-MEGREGOR S.A. MANAGUA NICARAGUA, C.A.		
DESIGNED BY: A.M.E.	DATE: JAN. 1971	SHEET 1 OF 4
DRAWN BY: C.E.H.	FILE NO.	
APPROVED BY: J.C.D.		

CORN FLOW

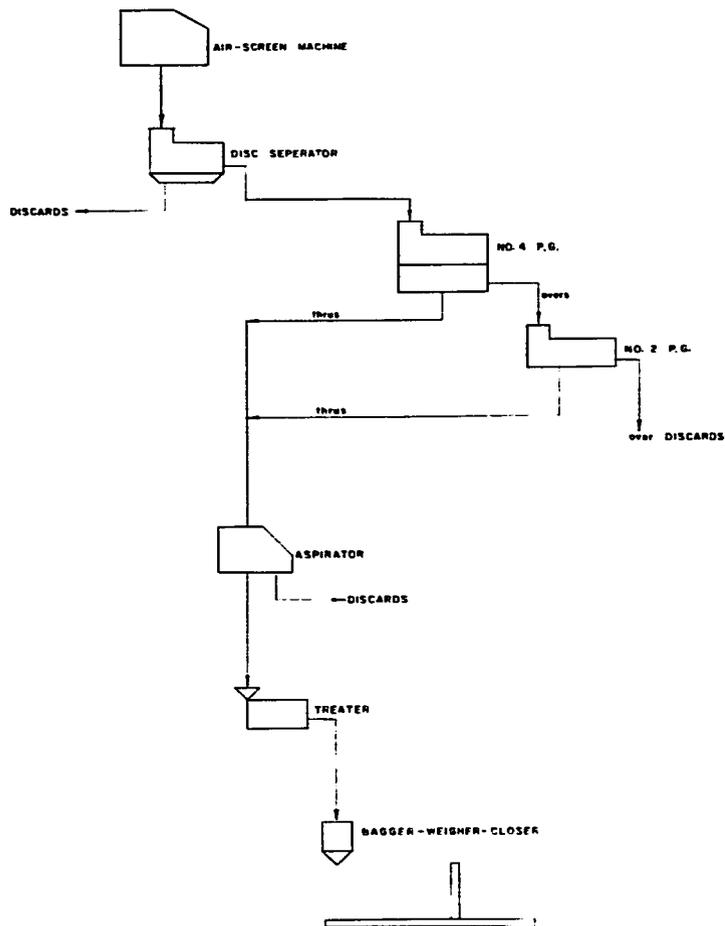


BEAN FLOW

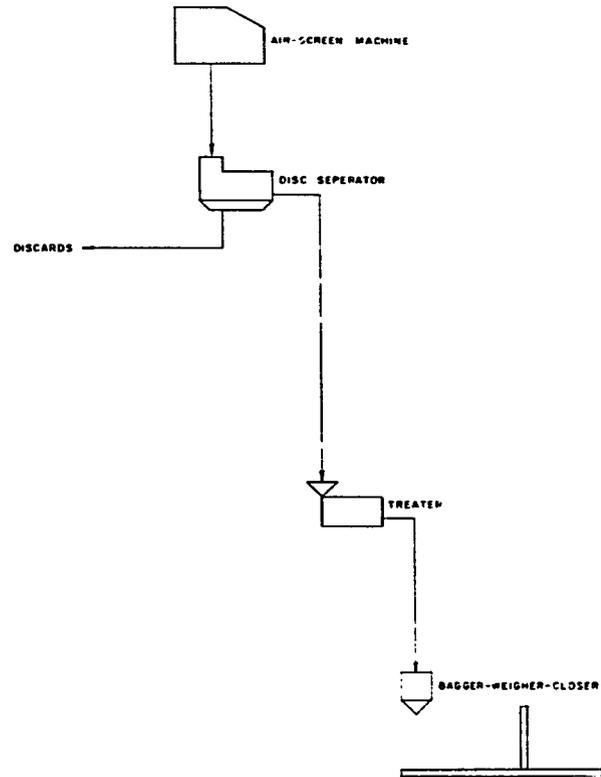


MISSISSIPPI STATE UNIVERSITY MISSISSIPPI AGRICULTURAL EXPERIMENT STATION SEED TECHNOLOGY LABORATORY <small>STATE COLLEGE, MISSISSIPPI</small>		
FLOW DIAGRAM - FOR RAPPACCIOLI-MCGREGOR, S.A. MANAGUA NICARAGUA, C.A.		
DESIGNED BY: RHP GMD	DATE: JAN 1971	SHEET 2 OF 4
DRAWN BY: C E M	FILE NO.	
APPROVED BY: J C C		

RICE FLOW - PROBLEM LOTS

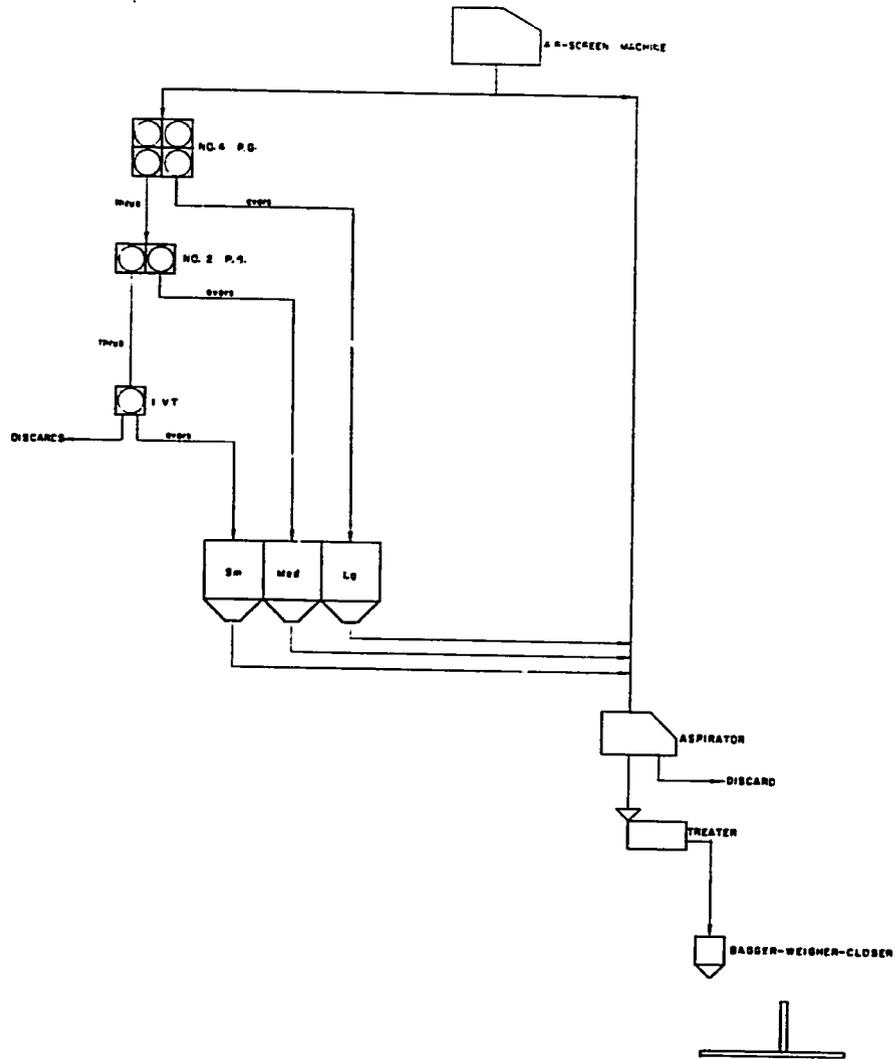


RICE FLOW

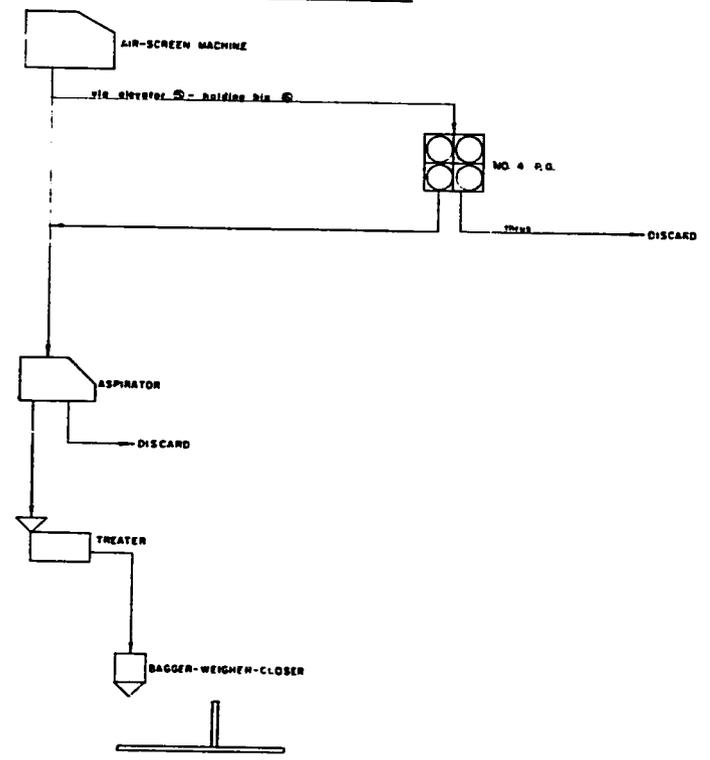


MISSISSIPPI STATE UNIVERSITY MISSISSIPPI AGRICULTURAL EXPERIMENT STATION SOED TECHNOLOGY LABORATORY <small>STATE COLLEGE, MISSISSIPPI</small>		
FLOW DIAGRAM - FOR RAPPACCIOLI-MCGREGOR, S.A. MANAGUA, NICARAGUA, C.A.		
DESIGNED BY: AMF, JMD	DATE: JAN. 1971	SHEET 3 OF 4
DRAWN BY: C. E. H.	FILE NO.	
APPROVED BY: J. C. D.		

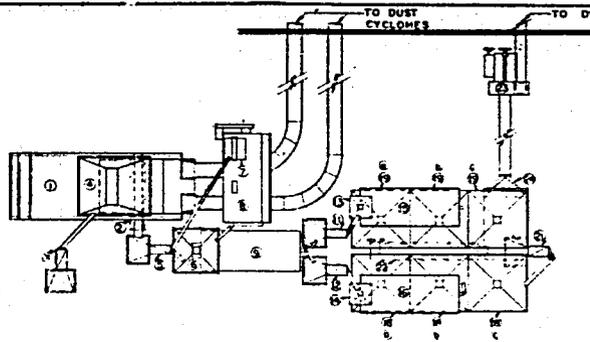
SESAME FLOW



SORGHUM FLOW



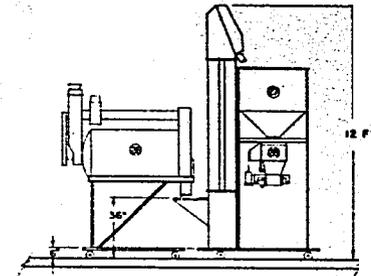
MISSISSIPPI STATE UNIVERSITY MISSISSIPPI AGRICULTURAL EXPERIMENT STATION SEED TECHNOLOGY LABORATORY STATE COLLEGE, MISSISSIPPI		
FLOW DIAGRAM - FOR RAPPACCIOLI - MCGREOR, S. A. MANAGUA NICARAGUA, C. A.		
DESIGNED BY: A.M.E. SAO	DATE: JAN. 1971	SHEET
DRAWN BY: C. E. H.	FILE NO.	4
APPROVED BY: J. C. D.		OF
		4



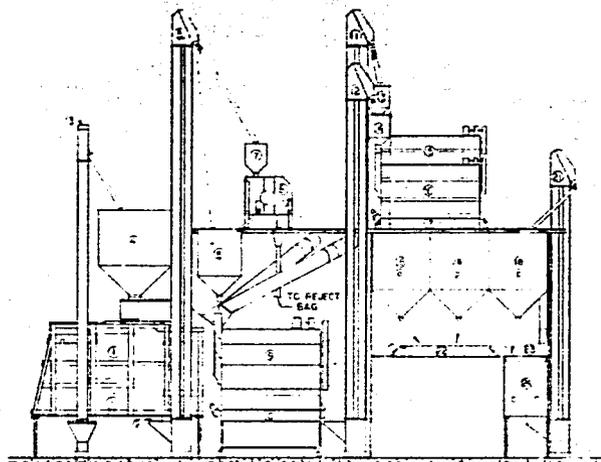
PLAN VIEW
SCALE: 1/4" = 1'-0"

LEGEND

- 1 CLEANER, A. T. FERRELL MODEL SUPER X 250-D
- 2 A. T. FERRELL NO. 9 STANDARD VIBRATING CONVEYOR
- 3 ELEVATOR, UNIVERSAL C-2, 28 FT. DISCHARGE
- 4 HOLDING BIN, 2' x 4'
- 5 ELEVATOR, UNIVERSAL C-2, 25'-6" DISCHARGE HEIGHT
- 6 HOLDING BIN, 3' x 3'
- 7 HOPPER, 18" x 18"
- 8 DISC SEPARATOR, CARTER-DAY MODEL 1827
- 9 PRECISION GRADER, CARTER DAY MODEL NO. 4
- 10 VIBRATION CONVEYOR
- 11 ELEVATOR, UNIVERSAL C-2, 28 FT. DISCHARGE
- 12 ELEVATOR, UNIVERSAL C-2, 28 FT. DISCHARGE
- 13 HOPPER, 18" x 18"
- 14 HOPPER, 18" x 18"
- 15 PRECISION GRADER, CARTER DAY MODEL NO. 2
- 16 PRECISION GRADER, CARTER DAY MODEL NO. 2
- 17 VIBRATION CONVEYOR
- 18A&C HOLDING BIN UNIT, 4' x 4' BINS
- 18B&D HOLDING BIN UNIT, 4' x 4' BINS
- 20 VIBRATION CONVEYOR
- 21 ELEVATOR, UNIVERSAL C-2, 20 DISCHARGE HEIGHT
- 22 VIBRATION CONVEYOR
- 23 ASPIRATOR FAN
- 24 ASPIRATOR
- 25 PRECISION GRADER, CARTER DAY MODEL NO. 1VT
- 26 TREATER
- 27 HOLDING BIN, 3' x 3'
- 28 SCALES, HOWE-RICHARDSON G-17A

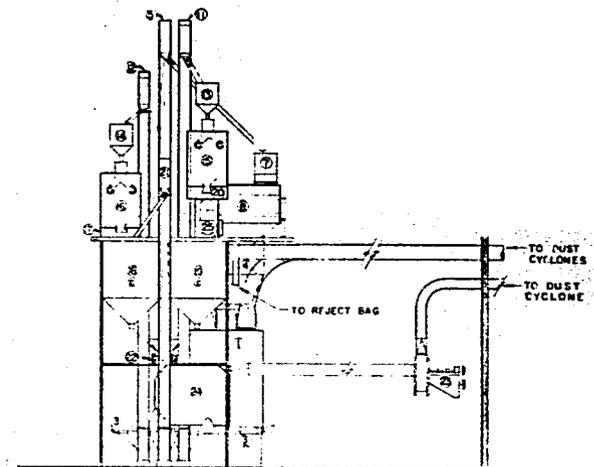


DETAIL "A"
TREATER-BAGGING UNIT
SCALE: 3/8" = 1'-0"



FRONT VIEW
SCALE: 1/4" = 1'-0"

ELEVATION (FEET)



SIDE VIEW
SCALE: 1/4" = 1'-0"

MISSISSIPPI STATE UNIVERSITY
MISSISSIPPI AGRICULTURAL EXPERIMENT STATION
SEED TECHNOLOGY LABORATORY
STATE COLLEGE, MISSISSIPPI
SEED PROCESSING FACILITY
for
RAFFAELI-MCGREGOR, S. A.
MANAGUA, NICARAGUA, C.A.

DESIGNED BY: A. H. B.	DATE: DEC. 1970	SHEET 1 OF
DRAWN BY: C. F. H.	FILE NO.	
APPROVED BY: J. C. D.		