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SEED MULTIPLICATION - GHANA

Contract AID/afr-C-1306

January 1, 1979

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FIRST ANNUAL TECHNICAL REPORT
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I. INTRODUCTION AND SUMMARY

The contract of Experience, Incorporated with the Agency for International Development calls for collaboration with the Ghana Ministry of Agriculture to expand and improve the Seed Multiplication Unit (SMU), to produce foundation seed, to contract with private growers to produce certified seed, to establish a seed certification program, to process seed, and to assist in establishing a comprehensive seed distribution program.

Four processing centers will be established around the country, located at Winneba, Kumasi, Tamale, and Ho. Sites for the Winneba and Kumasi plants have been determined and surveys and topographical maps were finished in May. Construction at Winneba is scheduled to start in March 1979.

The various seed processing centers are located to serve the entire country. The Winneba center will serve the Western and Central regions. The Kumasi center will serve the central portions of Ghana. The Tamale center is located in the Northern Region and will also serve the Upper Region. The Ho center will provide seed services to the Volta Region and southwest Ghana. Seed can be moved from or to any location as seed needs develop.

The original plan called for separate processing-storage plants for foundation and certified seed. The redesigned units call for two processing lines in each structure. In some cases one piece of equipment can serve both lines. There will be conditioned storage rooms for foundation seed.

The conditioned storage has been designed to maintain seed quality from harvest and processing time until seed distribution time some 10 months later, as farmers do not have adequate seed storage facilities. Insect damage should be minimal at the storage temperature.

Seed production on the foundation seed farms has suffered from drought the past three years. SMJ has only 30 acres of irrigated land. Negotiations have started for securing land on Volta Lake that can be irrigated. US/AID has tentatively approved funds for equipment to irrigate 200 acres.

Some farm equipment, purchased with grant funds, has arrived and documents have been prepared for ordering more machinery needed on the foundation seed farms.

Plans for the organization of Ghana Seed Company were submitted to the Government of Ghana and approved in March 1978, but actual formation of the company has been delayed by legal complications.

Experience, Incorporated is represented on the project by Thomas Webb, team leader, and Orris H. Shulstad, seed processing and certification specialist. Hugo J. Zimmerman, fertilizer demonstration and trials specialist, left the project in November. Clarence D. Burgett, Jr., was nominated to replace him, but official approval was not received by the end of 1978.

Duane A. Eriksmoen, manager of foreign projects for Experience, Incorporated, visited Ghana in September. His report is included here.

II. PROCESSING PLANT AND MACHINERY

Locations for the Winneba and Kumasi plant sites have been determined and site surveys and topographical maps were completed in May.

The contract for engineering and architectural work was given to the Architectural and Engineering Service Corporation of Accra. A working relationship has been developed for technicians assigned to the project.

Layout plans for the Winneba center were completed and approved in September. The approved plan includes the following structures:

1. Two four-wagon drying units for small lots of foundation seed and overflow certified seed.

2. One column dryer with six holding bins, corn sheller and appropriate conveying equipment.

3. One seed processing building with attached new-bag storage.

4. One five-sectioned conditioned storage building with capacity of 55,000 bushels with controlled temperature of 52°F and relative humidity of 55 percent.

5. One two-storied regional headquarters building with offices, quality control seed laboratory, and a seed store.

6. One workshop and spare parts building.

7. One workers' welfare building with canteen, showers, and lavatory facilities.

8. Two bungalows, three-bedroom size.

9. One rest house.

10. One field plot building.

11. One guard house at entrance gate.

12. One water tank, 20,000-gallon capacity.

Design drawings have been completed for the Winneba center. The structural engineer, electrical engineer, and quantity surveyor are working on the needed material and cost estimates.

Tender documents for all seed processing, condition storage, seed drying, and seed testing equipment have been submitted, along with tenders for vegetable seed and mechanics' tools. Documents have been prepared by the US/AID supply management officer.

Building plans were prepared for the workshop and spare parts rooms at the Winneba Seed Processing Center. Recruiting of mechanics from SMU ranks and from outside SMU has started. A training program for mechanics and shop supervisory personnel is under consideration.

III. FOUNDATION SEED FARMS AND SEEDS

The Seed Multiplication Unit acquired three additional farms in the first quarter which will be used to produce both foundation and certified seed classes. Farm machinery needs for these farms were submitted to US/AID at the request of the SMU. Four established SMU farms now produce foundation seed. These farms have recently been provided with US/AID-funded farm machinery.

Yields on the foundation seed farms were low in 1978. Drought conditions were common in all localities. Even the irrigated areas did poorly.

The Ghana Irrigation Authority has tentatively allotted 500 acres to SMU for development. US/AID has budgeted $300,000 for irrigation equipment in 1979. A short term irrigation engineer has been added to the Experience, Incorporated contract.

US/AID also has budgeted about $200,000 for the purchase of vegetable seeds. Delivery is expected in 1979.

IV. CONTRACT GROWERS

Visits were made to contract grower farms for inspection and advice. Some growers made excellent yields because rain fell at regular intervals; others made little or no seed. The weather was perfect for harvesting: bright sunshine, hot and dry most of the season. Drying has not been a problem in 1978.

Training courses are planned for contract growers prior to spring planting in 1979.

V. CERTIFICATION AND SEED TESTING

Seed certification activities conducted by SMU personnel include field inspections and seed testing of seed sold with certification tag attached. The Ghana Seeds Act of 1972 places this service with the SMU.

With establishment of the Ghana Seed Inspection Service at some future time, seed certification activities will be undertaken by that organization.

A plan for organization of this agency and building plans for the agency's headquarters and central seed testing laboratory were prepared. Three branch inspection service offices and laboratories have been planned, for which the necessary seed testing equipment will be purchased soon. The branches will be located at Kumasi, Tamale, and Ho. Central headquarters of the service in Accra will provide inspection services to the Winneba area.

Quality control work, including both field inspection and seed testing, will also be carried out by the Ghana Seed Company when it is established. Each regional headquarters of the company will have its own seed laboratory and quality control personnel. A central seed laboratory is planned at company headquarters.

VI. TRAINING

A week-long special training course was conducted April 10-14 at Ho, in the Volta Region, for technical officers and third-year learners of the Seed Multiplication Unit. Thirty-three individuals from the SMU br hes and regional headquarters attended the course. Nine lecturers covered subjects in plant breeding, variety evolution, seed production, seed processing, seed storage, seed testing, certification, law enforcement, seed distribution, fertilizers, and MIDAS project developments.

Two participants from the SMU staff were accepted at Mississippi State University for a two-year master degree program in seed technology. Three other participants were to have taken the three-month seed short course last summer but their papers were not cleared in time to attend.

Nine participants are scheduled for training in the United States. Management and mechanical training is being included along with seed technology next year.

Preliminary discussions were held with the director of the United States-sponsored O.I.C. Vocational Training School in Accra in regard to training mechanics for SMU. US/AID has tentatively approved this type of training, subject to a completed proposal.

VII. EXTENSION AND FERTILIZER DEMONSTRATION

Visits to farms and villages to advise on crop and vegetable production continued during the year. Farmers visiting the office are furnished with the latest recommendation on varieties, fertilizers, and plant protection chemicals. Literature on home gardening is passed out to interested persons.

Orris Shulstad served as chairman of the five-member Irish Potato Technical Team at the request of the Ministry of Agriculture. The Ministry initiated plans for developing a national potato program, which includes seed potato production. Various technical materials were prepared and submitted for guidance. Visits were made by the technical team to four village cooperative farmer groups in the Volta Region to learn first-hand the problems and potentials for Irish potato production.

US/AID has assigned a project leader to assist in establishing and operating the Ghana Fertilizer Company, which will handle the importation and distribution of fertilizer. In the meantime fertilizer activities have been directed by the Fertilizer Unit of the Ministry of Agriculture. The Experience, Incorporated specialist assisted in off-loading fertilizer and traveled to Tema, Kukurantumi, Koforida, and Agona-Swedru.

The expected arrival of the new extension specialist should accelerate extension activities of the project.

VIII. REPORT OF EXPERIENCE, INCORPORATED FOREIGN PROJECTS MANAGER

Duane Eriksmoen visited the Ghana seeds project from September 14 - 27 and submitted the following report:

A generally optimistic outlook prevails despite a very slow beginning of project activities. An excellent feeling of cooperation exists among personnel of the Experience, Incorporated team, US/AID, and the Ghana Ministry of Agriculture.

A. Processing Plant Plans and Drawings

The plant drawings were reviewed with Mr. Webb, Mr. Shulstad, Mr. Blay, and Mr. C. S. Banfro, senior architect. When they are approved and accepted by the SMU, the working drawings will be prepared, whereupon quantity surveyors can prepare material estimates so tenders can be let to contractors.

The sites for construction of the new plants were reviewed at Kumasi, Winneba, and Ho. The site at Winneba seems adequate; the site at Kumasi is on a ridge which dictates the building arrangement; the site at Ho is in a new developing, industrial area. Two lots have been selected but appear too small for the buildings required at Ho. A decision will be needed to either enlarge the site or reduce the size of the buildings. The proposed site at Tamale was not visited. Machinery and equipment specifications for the processing plants have been prepared and await loan approval before being ordered by AAPC.

B. Foundation Seed Farms

The foundation seed farms at Kumasi, Winneba, and Ho were reviewed. All three were harvesting and processing maize seed. Very little was seen at Kumasi because the officer in charge had gone to Accra. The facilities and machinery at the Winneba and Ho units were meager. Maize ears were picked from the fields unhusked and brought in to the compound for husking; piled on a drying floor unsorted, and sorted before shelling. Both

units have small, unheated dryers. Neither were in use during the visit. Farm machinery was generally poor. Several old tractors were seen. Tires were generally poor. One new 4-wheel trailer was seen on blocks without wheels or tires.

All fields appeared weedy. Yields were low because of drought and weed competition. The maize variety is a composite. The variety at Ho was in the sixth generation, which is all right if management is excellent, providing adequate isolation, expert selection, and meticulous roguing. The condition of the fields, however, left the impression that management was lacking. It appears that the foundation seed farms can use a lot of assistance in all phases of their operation.

An area near Kpandu, east of the lake, has been proposed for an irrigated seed farm. The site was visited but was difficult to view because of the heavy bush. A topographic map and soil map have been prepared. Data on rainfall, consumptive use rates by crops, water holding capacity of each soil type and basic intake rate of each soil should be accumulated before an irrigation system can be designed. MIDAS has budgeted $150,000 for irrigation development. An irrigation engineer and agronomist may be needed at some future date to assist in the development.

No contract growers were visited.

C. Ghana Seed Company

This agency is being formed as a corporation to replace the function of the Seed Multiplication Unit. It has been approved and financed. The articles of incorporation are being prepared by the office of the attorney general.

D. Inspection and Certification

Plans to organize an independent body for inspection and certification will be made as a part of the seed company development. All inspection and certification is now done by the SMU.