



TEST DEMONSTRATION on interplanted beans and cotton. Dr. Lindbergue, soils professor, stands in fertilized plot in foreground, as Dr. Mardonio stands in unfertilized plot in background.

FERTILIZER TESTS BEGUN IN BRAZIL

By Howard E. Ray

Nearly 100 fertilizer test demonstrations were conducted in 37 Ceará municipalities (counties) in 1965. In only a few cases did crops fail to respond to the applied fertilizer. It would appear that farmers in this northeast Brazilian state should be fertilizing their crops regularly. However, the situation is not quite that simple.

Little Fertilizer Used Now

Little or no commercial fertilizer is used in Ceará at present. Why? Because there is no supply available for sale. Because there are no adequate credit facilities available to farmers for financing fertilizer purchases. And, because the benefits from ferti-

Here we start the second "go-round" of articles by members of The University of Arizona's team of agricultural scientists stationed at the University of Ceará, at Fortaleza, in northeast Brazil. Each member of the team has submitted an article to *PROGRESSIVE AGRICULTURE*. Now, after several additional months of experience, each will report again. Dr. Ray is the U of A adviser in soils and extension education on the Brazil team.

lizer usage are not clearly established or accepted.

In spite of the results quoted above, it is obvious that much must be done before the use of chemical fertilizers

will become an accepted practice here. For example, the need for fertilization must be clearly established before supplies and credit facilities can be developed. The work has started, and *how* it has started is the subject of this story.

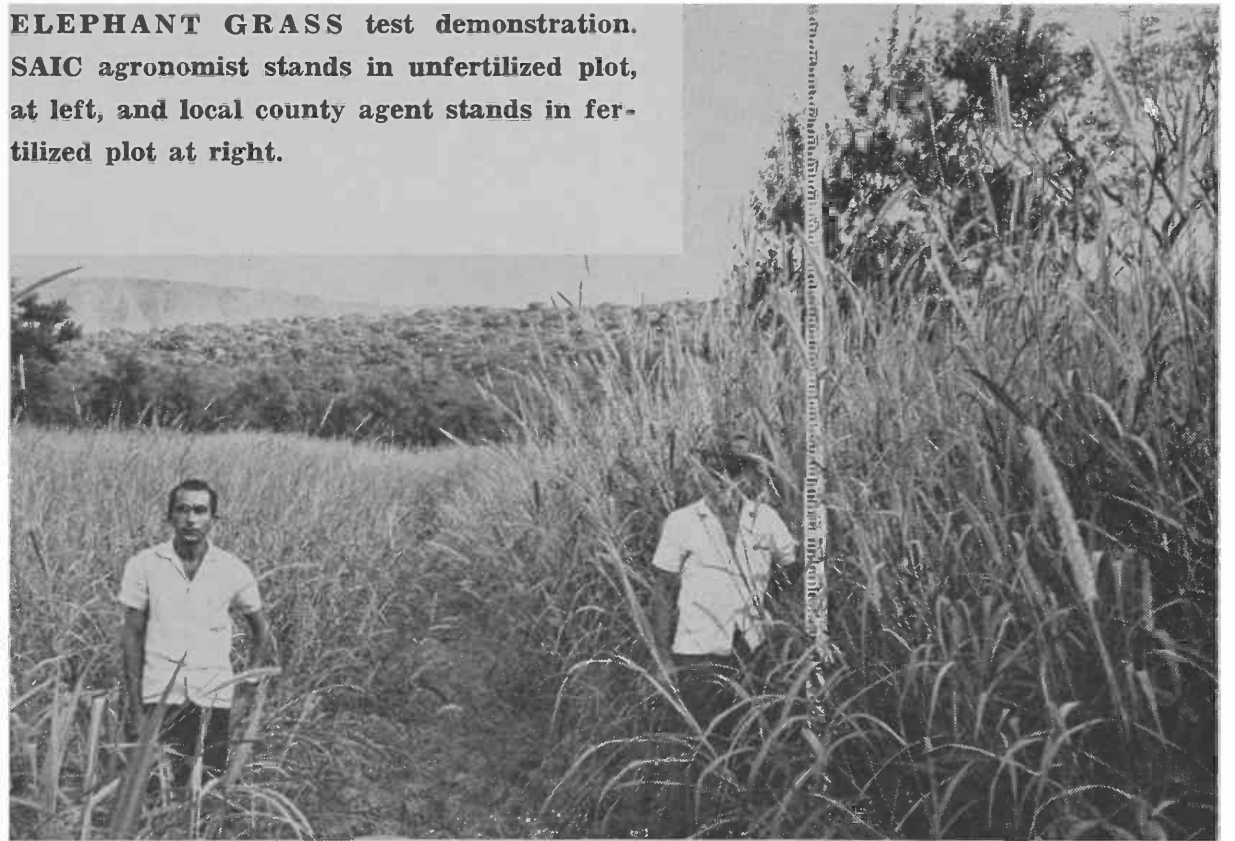
August, 1964 marked the beginning of the first organized attempt to determine fertility needs of Ceará soils. Although a few scattered tests and demonstrations had been conducted earlier by various groups, there was almost no information available on returns which could be expected from use of fertilizers.

Agree on 3-Year Tests

Following a series of preliminary conferences, state and federal agencies agreed to cooperate in a three-year fertilizer test demonstration program having the following objectives:

1. To promote interest in the value and use of chemical fertilizers for increasing production of corn, beans,

ELEPHANT GRASS test demonstration. SAIC agronomist stands in unfertilized plot, at left, and local county agent stands in fertilized plot at right.



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in the last few decades this historical balance has been drastically upset by man himself.

Thus, while the 1959-61 world population slightly exceeded three billion people, the current annual increase of 1.8 percent, compounded, will populate the world with 3.6 billion by

1970. Ironically, man's humanitarian efforts have contributed largely to this problem, as more knowledgeable nations have sought to bring better sanitation, better medical facilities, knowledge of causes of infant mortality, more clinics, nurses and hospitals, to nations which formerly had high rates of infant mortality and a limited life span of its adults.

(To be concluded in our next issue)

rice, mandioca, and forage grass.

2. To determine the fertility status of representative Ceara soils and identify specific nutrient needs.

3. To develop a program of soil and plant analysis for estimating fertilizer needs based on correlation of laboratory results with responses in the field.

Necessary fertilizer for the program was furnished by SUDENE, a developmental agency for northeast Brazil,

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using fertilizer received from the United States Agency for International Development (USAID).

Many Agencies Cooperated

Fieldwork — including planting, fertilizing, harvesting, etc — was done by the county agents of ANCAR-CEARA (the state agricultural extension service), and agronomists of SAIC (the state secretary of agriculture) and SFPAP (a division of the federal ministry of agriculture).

The Escola de Agronomia and Instituto de Zootecnia of the University of Ceará, in cooperation with The University of Arizona team, agreed to coordinate the entire program, conduct necessary training events for personnel in the field, make necessary laboratory analyses, summarize data and draw conclusions from results obtained.

Dr. Faustino, rural sociology and extension professor, served as the University of Ceará coordinator. Drs. Mardonio and Lindbergue, soils professors, and this writer were primarily responsible for supervision of work in the field, laboratory analyses, and summarization of data. Drs. Clairton (crops professor), Mauro (zootecnia professor), Kokay and Clinton (extension specialists), and Briggs and Humphrey (University of Arizona team) were also actively involved in the program.

First Tests Were Simple

Due to the almost complete lack of background information and the lack of experience of men responsible for work in the field, a very simple test was used. At each location, three plots were established — one fertilized plot with an unfertilized plot on each side. The fertilizer formula varied with the crop to be planted.

At the time of this writing, (late August) harvests of corn, beans, and

STANDING IN unfertilized rice plot, left, is Dr. T. C. "Curt" Tucker of the U of A Ag. Chem. and Soils Department. In fertilized rice plot at right is SFPAP agronomist. Note contrast in growth.

rice are nearing completion, and some forage grass plots have been cut for the first time. Mandioca will not be harvested until next year. The accompanying photos offer visual proof of responses in the field, and a few of the yield results are mentioned at the beginning of this article. Laboratory equipment has been installed, and analytical work will begin as soon as necessary reagents arrive.

Sinaloa Visitors See Sinaloa Bulletins

"Hey, they're from back home" might well be the comment of Ing. José Rochín, who teaches in the Agricultural College of the University of Sinaloa at Culiacán, Mexico.

José, who graduated from The U of A College of Agriculture, in agricultural engineering, recently returned to visit this campus, bringing his pretty young wife, Blanca.

By coincidence, previous visitors here from Sinaloa had just left several agricultural bulletins published in that rich Culiacán valley, and those bulletins had been put up for display on a bulletin board in this college.

The Rochíns found them interesting — and familiar.

This College of Agriculture has many ties with our neighbors to the south, and a constant stream of very welcome visitors from all of Mexico, but especially Sinaloa and Sonora. The rich winter vegetable region of Sinaloa, too, is subject of a current research study by our Department of Agricultural Economics.

Photo below shows José and his attractive Blanca, looking at Culiacán bulletins displayed by the U of A College of Agriculture.

