



PARTICIPANTS and instructors in the irrigation short course gather for a group photo.



EXAMINATION of soil samples for moisture determination was done in actual field session.

Irrigation Short Course at University of Ceara Farm

By W. G. Matlock and E. E. Moore

The State of Ceará in Northeast Brazil has been classified as a drought area, but actually receives more annual rainfall than much of Southern Arizona and other parts of the arid Southwest.

The rainfall in Ceará, however, is seasonal and many large dams and reservoirs have been constructed to store the runoff water. Still lacking are the people with specialized training in irrigation and drainage engineering to put the limited land and water resources to maximum beneficial use.

One of the objectives of The University of Arizona team, working at the University of Ceará on the Brazil

Dr. Matlock is water resources specialist and Mr. Moore is Agricultural Extension and Personnel Training adviser, both members of The University of Arizona team in northeast Brazil.

contract, is to increase the general level of knowledge of agricultural specialists from various governmental agencies in Ceará and nearby states, through use of in-service training seminars, short courses or other instruction methods. In past years these specialists, many of them graduates of the University of Ceará's Agricultural College, have received very limited training in irrigation practices, particularly in laboratory or field work.

Short Course is Basic

A short course in irrigation principles was developed to help meet these needs. The course provided fundamental training in the analysis of irrigation practices, with primary emphasis on field experiments and sampling procedures. Field laboratory sessions were preceded by lectures on the theoretical aspects of the problem, and demonstrations of the equipment used in making tests or analyses. All field equipment used was locally fabricated and of simple design, to permit easy

(Continued on Next Page)

(Continued from Previous Page)

and a lot would help a lot.

During years past, suggestions often have been made that these viruses and insects migrated annually from the Imperial Valley into Arizona. These studies have shown that this is not true at all. The viruses and insect vectors are present in the Yuma area all year round, and do not come from out-

side the area.

The mosaic disease situation in cantaloups is strictly man-made because all weeds and crop plants have been introduced to the area in one way or other over the years, and no native plant has ever yielded virus or has been found harboring quantities of the insect vectors.

Key to Prevention

The use of epidemiological informa-

tion in control of plant viruses, then, is primarily important in the development of preventative measures. Such measures are aimed at breaking the disease cycle at some critical point and preventing or reducing the survival of the pathogen from year to year. In summary, these measures would be most useful in cantaloup virus disease control in Arizona by controlling or avoiding disease-carrying and aphid-breeding plants.



MEASUREMENT of furrow flow with orifice plate.

(Continued from Previous Page)

duplication by the participants for their later use.

The four-part course was conducted by personnel from the Agricultural Chemistry and Agricultural Engineering Departments of the University of Ceará, together with their counterparts from The University of Arizona. Each student received about 50 pages of mimeographed hand-out material and a copy of a USDA irrigation bulletin translated into Portuguese.

A session on soil-water relationships stressed the importance of the soil as a reservoir for applied irrigation water, the physical constants which determine soil water storage, and the sampling methods used for field determination of moisture content. Simple tests of moisture penetration were also made.

Make Actual Field Tests

The basic factors influencing infiltration and infiltration rates were discussed, followed by field tests using infiltration cylinders. The field tests were made on the soil surface and also at a depth of 30 centimeters to show the effect of a subsurface compacted layer.

Different methods of irrigation were discussed, and the procedure to use in selecting an irrigation method for a particular field was outlined. Advantages and disadvantages of each method were shown.

A system for evaluating the efficiency of an irrigation was demonstrated. Field measurements were made and later analyzed to determine the field efficiency and required changes in the irrigation procedure or field dimensions to increase efficiency to the maximum.

Responses are Most Favorable

An evaluation of the course was made by the participants following its completion. Their comments were almost entirely favorable as to the nature and content of the course. Close contact between instructors and students during the entire four-day period was highly rated, as was the liberal use of actual field practice for the students. Some disappointment was expressed with the failure to provide a more complete irrigation course, but

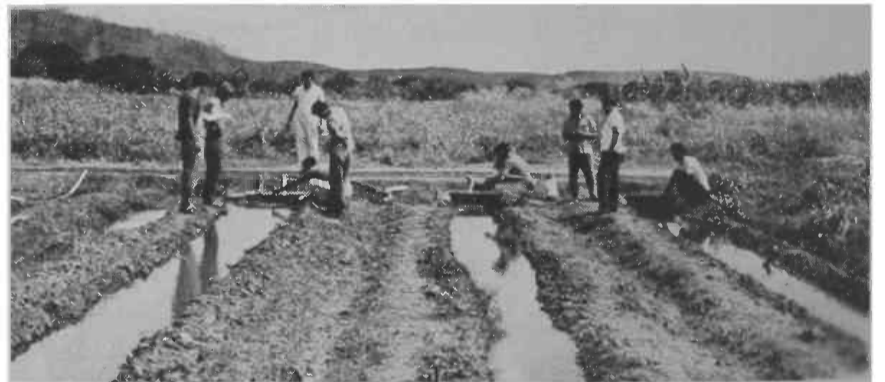
The Experimental Farm, or Fazenda as it is called in Brazil, was described by Barton C. Reynolds in *Progressive Agriculture*, May-June, 1966.

other planned short courses in irrigation should erase this deficit.

The course, held last December, was the first at the College of Agriculture Experimental Farm located in the Curu River Valley some 65 miles from the Campus. Thirteen students were transported by bus to the farm and housed and fed in the Pistor-Hilton Hotel (one of the original farm buildings, expanded and converted to accommodate personnel and named for Dr. William J. Pistor, former Chief of Party for the Brazil contract).



INFILTRATION test, using cylinder infiltrometer.



MAKING AN evaluation of furrow irrigation.



WELCOME TO the Pistor-Hilton Hotel!