

Manpower and Acreage Grow To Meet Community's Needs

Frank Pritchard

Yuma Experiment Stations

OUR COVER PICTURE was taken at the Yuma Valley Station, during construction of the new laboratory-office quarters where U. S. Department of Agriculture research scientists and those from the University of Arizona work side by side in serving the expanding agriculture of the Yuma area.

Since 1953 a phenomenal growth has taken place in the physical facilities and resident staff of the Yuma Substations of the University of Arizona Agricultural Experiment Station system. These Yuma facilities have grown from 125 acres under cultivation and a staff of two research persons in 1953 to 340 acres in cultivation and a staff of 16 research people in 1958. This expansion has kept pace with the expanded agricultural acreage in Yuma County, and the problems that arise in a large agricultural area.

In 1953 the Yuma Station facilities consisted of 65 net acres on the "Old" Yuma Valley Farm that had limited research use due to a high water table, and 60 acres being cropped of a 240 acre Yuma Mesa Station, 50 acres of which were planted to citrus. At that time the staff consisted of one horticulturist shouldering the responsibility of all citrus and vegetable research and one entomologist attempting to keep up with insect research on all crops grown in the area. The Yuma branch now boasts of 6400 square feet of new office-laboratory space being utilized by a staff of 16 professional research personnel.

Area Farmers Keenly Interested

This rapid expansion in research facilities and staff can be attributed mainly to a strong interest in agricultural research by farmers of the Yuma area and a University administration that was quick to recognize need for additional research facilities. In March 1954, the "old" Valley Farm was sold and in its place a new 160 acre farm purchased in upper Yuma Valley. In October 1954, farmers in Yuma County led by the Yuma County Agricultural Research Council, brought 46 land leveling rigs to the new station

and in two days completely leveled the east 80 acres of the new farm. This made it possible for the university to plant that part of the farm to alfalfa and prepare the land for research at least one year sooner than could have been done without that help.

The year 1954 also marked the beginning of an extensive animal research program. In the fall, 100 head of bred Rambouillet ewes were obtained, the start of a farm flock sheep breeding program. In addition to the sheep, 45 head of yearling steers were purchased and a feeding experiment started. To provide feed and facilities for this livestock program, 120 acres of the Yuma Mesa Station were leveled and planted to alfalfa. Cattle feed pens were constructed adjacent to the feed area for both pen feeding and pasture research.

Legislature Gives Funds

The State Legislature appropriated funds in 1955, 1956, 1957 and 1958 for physical improvements on both the Yuma Valley and Yuma Mesa Stations. The new buildings and facilities are:

1. An office-laboratory building completed in May 1956, containing seven offices, an entomology laboratory, a plant pathology laboratory and a horticulture laboratory on the new Yuma Valley Farm.
2. A superintendent's residence on the new Yuma Valley Farm.
3. A machine shop and storage building on the Yuma Valley Station and another on the Yuma Mesa Station.
4. An office-laboratory addition, completed May 1958, on the Yuma Valley Station. It contains six offices, a soils labora-

tory, plant laboratory, three storage rooms and a research library.

5. From 1955 through 1958, the remaining earth ditch irrigation system, totaling more than four miles, was converted to concrete-lined ditches.
6. Now under construction is an office-laboratory building on the Yuma Mesa Station which will be utilized by the departments of horticulture, plant pathology and animal science.
7. Both the Yuma Valley and Yuma Mesa Station were completely fenced.

Good Federal-State Cooperation

A united front on agricultural research is now presented in the Yuma area. Development of facilities at the Yuma stations has made possible close cooperation between University of Arizona and U. S. Department of Agriculture research agencies. With completion of the new office-laboratory facilities on the Yuma Valley Station came a USDA entomologist to work on the spotted alfalfa aphid and the USDA soil and crop laboratory was moved from Vincent Air Force Base to the new facilities on the University farm, bringing an outstanding research group to work beside the state personnel.

At present the Yuma Station professional staff consists of two entomologists, three plant pathologists, two soil scientists, an agricultural engineer, three horticulturists, three agronomists, an animal science staff man, and a station superintendent.

With the fine new facilities, plus adequate good land for research plots and a capable and growing research staff, the Yuma Experiment Stations of the University of Arizona College of Agriculture, cooperating with the USDA Agricultural Research Service, will meet this important area's agricultural problems more effectively than ever before.

AT RIGHT is a picture taken in the new laboratory at the Yuma Valley Station. Stanley Mitchell, at left, a USDA laboratory chemist, is shown working on a soil analysis with Dr. Henry Schreiber, USDA, in charge of the Yuma Station's USDA soils work.

nding at Yuma

Many Citrus Problems

Get Aid of Science

Leland Burkhart

Horticulture Department

R. B. Streets

Plant Pathology Department

Citrus expansion on the Yuma Mesa is proceeding rapidly. Half of the present acreage is in lemons and the remainder in oranges, grapefruit, tangerines, limes, and tangelos. New plantings are chiefly Valencia oranges.

Young Lemon Orchards

Most of the lemon acreage in the area is made up of young trees. Experiments are currently in progress at the University's Yuma Mesa Experiment Station involving young bearing lemon trees using different rates of nitrogen applications, phosphate and manure. Pruning has reduced lemon yields; however, picking and cultivation will be increasingly difficult in the unpruned blocks. A recently started young lemon planting, established in cooperation with the University's Agri-

cultural Engineering Department, will test irrigation differentials, mulching, and different tree spacings.

Plots of young bearing Valencia orange trees were treated with, respectively, four levels (one, two, three, and four pounds) of nitrogen per tree per year. Last year yields from trees receiving two pounds were definitely greater than from those trees receiving one pound. Higher rates did not give greater yields. Irrigation differentials have recently been initiated.

Older Grapefruit Orchards

Older grapefruit orchards on the Yuma Mesa (30 to 40 years of age) have been showing evidence of decreasing yields and smaller size fruits. Research was started on fertilization of mature (trees 30 years old) grapefruit trees in early 1957. Treatments include three levels of nitrogen, phosphate, manure applications and combinations of all three fertilizers. Differentials in timing of applications are also being tested. Hedging of mature grapefruit trees (30 years old) was done in the spring of 1955. Some were hedged

on two sides and others on all four sides.

Citrus nematode control treatments in older grapefruit orchards are being made in cooperation with USDA nematologists. A practical and effective control of the nematode, using a chemical applied in the irrigation water, has been devised. Studies will continue to refine and perfect methods of application to groves of various ages.

Control of citrus dry root rot and other rots has been under study at Yuma and in the Salt River Valley for a number of years and will continue. Recently the project was broadened to include virus diseases. With USDA cooperation, surveys and identifications of virus diseases have been made.

New Strains of Budwood

Superior strains and varieties of budwood, free from the Tristeza virus, have been introduced into Arizona under quarantine regulations through our budwood improvement program. The first distribution of budwood under this program was made in 1957. A rootstock testing program has been started, utilizing new strains of budwood.

An annual survey of some 3,500 citrus trees on the Yuma Mesa was begun in 1950 to determine the relative prevalence and severity of citrus diseases in the older plantings. A disease characterized by a copious exudation of gum at intervals from areas of necrotic wood deep in the trunk and branches was found in some older groves. Preliminary studies have been made and a thorough investigation of this disease as a factor in the decline of older grapefruit trees is planned.

A severe attack of brown rot gummosis on a year-old 10-acre block of young Valencias and on rough lemon shows the importance of developing a dependable control method for this disease in the field, since most of the new Yuma Mesa plantings are on the susceptible rough lemon rootstock.

In addition to the beneficial effects of cross pollination, we have learned that trunk girdling has recently increased fruit set on Algerian tangerines.



TURN TO next page to see views of current citrus research work now in progress at the Yuma Stations.

