The First 25 Years...

at the University of Delaware
Georgetown Substation
This publication, "The First Twenty-Five Years at the University of Delaware Georgetown Substation," is dedicated to the late Dean George L. Schuster, who was director of the Delaware Agricultural Experiment Station during the first seven years of the substation's existence, to Dean George M. Worrelow, who served as director of the experiment station from 1948 to 1962, and to the citizens of Delaware who supported the establishment of the substation and its first 25 years of operation.

The staff and research personnel of the University's Georgetown Substation look forward to continued service to consumers and the agricultural industry of the Delmarva peninsula in the years ahead as in the past quarter-century.

Prepared by:

J. Frank Gordy, Substation Director
W. T. McAllister, Extension Economist
E. M. Rahn, Associate Professor of Horticulture
Jerry L. Webb, Agricultural Editor
Agriculture In Our Society

Food, clothing and shelter, three of man's basic needs, come from farms. These needs must be satisfied before man can devote his energy and resources to producing other things--refrigerators, TV sets and automobiles--things that change life from a bleak, bare existence to the kind of affluence we experience today.

Our success in producing food is phenomenal. American farmers, backed up by research and education, have been able to supply an abundance of food and fiber for our rapidly growing population. They've shared with the less fortunate people of the world, and until recently American agriculture has been more concerned with the hazards of surplus than with shortages.

Consumers today eat more food. They enjoy better quality and a much wider selection, along with many added marketing services. Yet, their food bill takes a small share of the family's spendable income than at any time in our history.

A MIRACLE OF EFFICIENCY

Let's look at some facts and figures that dramatize our tremendous agricultural development. In 1820, settlers built their own houses, wove their own cloth, scratched the soil with a wooden plow, and put a fish in each hill of corn for fertilizer. Each farmer produced enough food to feed himself and three other people--hardly enough for his own family.

One hundred years later it was still a horse-powered agriculture of small farms, low yields and low output per worker. By 1920, a farmer produced enough food for himself and only seven others.

Then came World War II and the need for big increases in farm production. Farmers responded by adopting new methods and machines. They changed farming from a way of life to a highly competitive, dynamic and efficient industry. Today, the American farmer provides enough food for himself and 33 others.

In 1930, more than one-fifth of our national work force was used on farms. Today, farming uses less than eight per cent of the workers, but turns out food and fiber to better feed and clothe 71 million more people. Those workers released from the production of these basic needs are now producing freezers, automobiles and other needs of our affluent society.

A great deal of agricultural betterment has come about through the findings of research. Farmers have teamed up with agricultural industries and land grant universities to produce more per acre, per animal, per man hour and per dollar. The University of Delaware is proud to have made important contributions to the body of knowledge that has made this agricultural achievement a reality. The substation division of the College of Agricultural Sciences has produced many research findings that have helped to make agriculture more profitable and consumers better fed.
Pictured left to right are Preston Townsend, the late W. W. Bacon, K. J. Kadow, Harley Hastings, and the late Dean G. L. Schuster. This photo was taken in August, 1941 as they toured the John A. Tyndall farm—the site selected for the University's substation.

The effectiveness of weed control chemicals is demonstrated in this early substation research.

This system of crop harvesting was widely used in the early days of the substation's development.
Progress Through Research

This year marks the 25th anniversary of the purchase of the Georgetown Substation. In the late 30's, the need for a research center in southern Delaware became critical. Experiments conducted in Newark were often not applicable to lower Delaware because of differences in soil conditions. Efforts made by the experiment station to lease land in southern Delaware for test projects were expensive and sometimes unreliable. Individual farmers were often called on to do test plantings and much of the actual experimental work.

During the fall of 1938, efforts were made to obtain adequate financial support from the state for increased agricultural research facilities. In 1941 the General Assembly passed "An act to provide for the establishment of an agricultural substation for lower Delaware..." With this enactment, the substation became a reality.

Governor W. W. Bacon appointed a commission including Harley Hastings of Laurel, Preston Townsend of Selbyville, and Kenneth Kadow, a University of Delaware researcher. They looked at 87 possible sites in Sussex county. On August 30, 1941, the John A. Tyndall farm was purchased at public auction for $7555.00. It was described in the commission's report as consisting of 310 acres of land, 120 of which were suitable for horticultural research. The soil was in a poor state of fertility and needed extensive building improvements.

SUBSTATION DEVELOPMENT

The first research projects were started in May, 1942. Apple soil management studies, strawberry fertilization, and watermelon and peach variety trials were among the first experiments. Plans for a broiler house were also made that first year.

Since then, thousands of experiments have been conducted. This year more than 80 different research projects are underway including variety tests on field and truck crops, weed and insect control, sub-irrigation and trials on growth regulators. Soybean research alone involves almost 3000 individual test plots.

Broiler production tests are currently being conducted in six houses with a combined capacity of 32,000 chickens. A poultry diagnostic laboratory is operated at the substation where poultry growers, feed company servicemen and hatcherymen bring birds for detailed examination and diagnosis. A poultry research station will soon be built by the U. S. Department of Agriculture on 16 acres of substation land. Research should begin there in 1968 on broiler production problems of the Delmarva peninsula.
More Food For More People

Research and educational activities of the Georgetown Substation can be divided into five broad categories: evaluation of new varieties and strains, evaluation of new drugs and chemicals, development of new varieties and products, improving management practices, providing service and information.

NEW VARIETIES AND STRAINS

Substation scientists are constantly testing new crop varieties that are important to Delaware, including corn, soybeans, lima beans, potatoes, watermelons, tomatoes and peppers. Research results have helped farmers stay in business by pointing out the best varieties available with regard to yield, disease resistance and quality.

Several new soybean varieties have been added as a result of tests conducted during the past 15 years. Lima beans are now being grown that look better to consumers, especially in a frozen package. New tomato varieties are being grown that yield more than ever before, are disease and crack-resistant and have a deeper red color. Peppers are being grown that yield more and better fruit.

NEW DRUGS AND CHEMICALS

Great strides in the area of poultry disease control have been made at the substation. In the early 1940's, tests were conducted with sulfa drugs for the control of coccidiosis, a disease that kills young poultry. The sulfa drug treatment was accepted by the industry and has saved growers millions of dollars in chick losses. The use of ameomycin to control Infectious Synovitis in poultry was established at the substation, and is now used world-wide. This treatment is thought to be worth a million dollars annually to the poultry industry.

Hundreds of pesticides have been tested for the control of insects, diseases and weeds in crops. Many insecticides tested are now used extensively by growers for controlling corn borer and other insects on peppers, beetles on asparagus and earworm on sweet corn. Fungicides have been tested and are now being used to control blight on tomatoes and corn and downy mildew on lima beans. Many herbicides researched at the substation are being used extensively for general weed control and for troublesome grasses. A control for barnyardgrass in vegetable crops has greatly aided mechanical harvesting.

Eptam, now used on about three-fourths of our 8600 acres of potatoes for control of nutgrass, was first used in the east at the substation. Data from experiments at the substation were used to obtain USDA approval for use of the herbicide, Lorox, on carrots to control ragweed and other weeds. Without this, most of the 850 acres of carrots grown in Delaware would have been lost.

NEW VARIETIES AND NEW PRODUCTS

New varieties, among them the Bethel and Delmar soybean, Thaxter lima bean, Delsher tomato and Delaware Belle pepper, have been developed wholly.
A wide variety of chemicals are screened for use on vegetable and field crops. Hundreds of corn hybrids are tested for suitability to local conditions.

or in part at the Georgetown Substation. These varieties, developed for higher yields and disease resistance, have gained wide acceptance. In 1963, the Bethel soybean was planted on 20,000 acres in Delaware, increasing gross returns to growers by approximately $100,000.

Much of the early work on fungicide and insecticide groups has also been done at the substation. Common fungicide trade names, Manzate and Dithane M-22, are familiar to Delaware growers. And the insecticide Toxaphene, used the world over on many crops, was initially tested at the substation.

DEVELOPING MANAGEMENT PRACTICES

Poultry research conducted at the substation has helped the Delmarva peninsula maintain its position as a leader in the areas of housing and environmental control. Research with controlled environment chambers has demonstrated the best constant temperature range for optimum growth rate of broilers. Studies on insulation and mechanical ventilation have made it possible to maintain broiler house temperatures within these limits. Experiments with a procedure using an electronic computer to formulate broiler diets have helped raise the nutrition levels and lower feed costs.

It would be unfair to review substation highlights without mentioning the 1948 National Chicken-of-Tomorrow Contest—a three-year project aimed at developing better meat-type chickens. Because of extensive facilities for rearing and feeding poultry, the substation was selected to grow the 16,000 contest chickens. After a 12-week growing period, the birds were dressed and judged. National awards were presented in the Georgetown High School. Valuable information obtained from this national project included hatchability, rate of growth, feathering and feed consumption. It did much to stimulate the improvement of meat-type poultry and from a local standpoint, it marked the beginning of the Delmarva Chicken Festival and the world-famous National Chicken Cooking Contest.

Irrigation experiments conducted during the past 10 years have shown the profitability of irrigating certain crops, the best times to irrigate, and the interaction of irrigation with other cultural practices. Results have guided growers during a period of rapid increase in the use of irrigation.

A series of tests involving fertilizers, spacing and irrigation over the past 15 years have indicated how asparagus growers can increase yields by one-half ton per acre. As a result, asparagus acreage in Delaware has increased 25 per cent during the past five years and yields have increased 10 per cent.

SERVICE AND INFORMATION

The substation staff and the extension personnel at the Georgetown Substation provide a variety of services and information to farmers, agricultural businesses, homemakers and others. Poultry growers, servicemen and hatcherymen are well acquainted with the poultry diagnostic laboratory operated there. The substation also diagnoses many other plant and animal problems, serves as a pick-up point for soil tests and provides facilities for hundreds of educational meetings each year.

Through mass communications, publications, meetings and consultations, the substation provides information to the people of southern Delaware on such things as crop production methods, farm management techniques, homemaking skills and youth development.
Looking Ahead

As the College of Agricultural Sciences pauses to look back on 25 years of substation research, its staff is very much aware of the challenge that lies ahead. The millstone of surplus that has hung so heavily around agriculture's neck for the past 20 years has fallen. Millions of hungry people throughout the world are now looking to the United States for food. Over the next 15 years the world must feed an additional one billion people. Four-fifths of them will be added in the already food-short developing nations. Many of them will look to the United States for their needs. If this challenge is to be met. American farmers, the vast agricultural industry and researchers and educators must work together to make our agricultural machine even more effective.

The Georgetown Substation will continue to play an important role as University of Delaware agricultural scientists accept the challenge. The staff of the substation and the research and extension personnel of the College of Agricultural Sciences are dedicated to providing the answers for--"Making two blades of grass grow where one grew before."

Where it now takes two pounds of feed to produce a pound of broiler meat, scientists will be seeking ways to increase this marvel of efficiency. Maybe someone will discover how to convert a pound of feed into a pound of meat--a discovery that would change the eating habits of much of the world.