

South
Manchuria

Research
RECOGNITION

Raspberries For Dixie

New Varieties Are On The Way

IF RASPBERRY PLANTS could speak the language of their native land, the raspberry breeding plot at the McCullers Branch Experiment Station near Raleigh, would be a veritable Tower of Babel. Indeed the average visitor would stoutly deny that many of the plants are even raspberries.

One tropical species that produces canes twenty feet high makes quite a contrast alongside some of the low-growing trailing species. Two types from Manchuria bloom in mid-summer and fruit in late summer, two to three months after the common Latham variety is gone and forgotten about.

Some Taste Like Grapes

The taste of the fruit from the different plants is just as varied. Depending on the person eating them, some are said to taste like grapes. Some are exceedingly sweet, others sour almost to the point of bitterness.

But there's one thing that all these species have in common. Each has some characteristic, such as size of fruit, vigor of cane or disease resistance, that we would all like to see in the ideal raspberry.

The man who knows his way best around this "labyrinth of thornes" is C. F. Williams, research associate professor of horticulture. As the plant breeder in charge, he tries to bring unity or system out of this "Babel" of differences. In crossing the species, one to the other, he attempts to get a maximum number of the ideal characteristics into a single plant.

In Twentieth Year

Mr. Williams makes no point of the fact that this is his twentieth year of raspberry work at the Station. He is accustomed to thinking of his job in terms of five or ten years where other professions use one year as a measure. Like all plant breeders, he is conditioned by the long waits for "just one more growing season" when new crosses can be made and old crosses tested out under a new set of weather conditions.

It was in 1920 when the young Penn State graduate came to North Carolina. He started his collection of breeding stock in 1928 with a single species brought in from Manchuria. The

collection has grown to include selections from all over the world, since the raspberry is a world-wide genus. At present, one of his best sources of new breeding stock is South Africa. (?)

The problem which Mr. Williams and his associates faced in 1928 was a tough one. The red raspberry was virtually unknown in the lower piedmont and eastern North Carolina and throughout the South. Latham, the variety grown in western North Carolina and in the North, simply will not survive hot southern summers.

"Latham is alright until mid-July," the plant breeder explains. "If it could just go into dormancy at that time, it would survive. But it dies out in a year or two. A variety of diseases hastens its death."

Since they had to create an entirely new berry with very little to start from, the breeders decided to settle for nothing short of all-around quality. They listed all of the character-



C. F. Williams examines one of the hardy Manchurian varieties used in the raspberry breeding program. This warm climate variety must be kept in the greenhouse the year around. ? is R. elliptical Manchuria

istics which they would like to see in a raspberry variety. The main things on their list were: size of fruit; size of plant; size of cluster; thorniness; resistance to heat; firm fruit; fine flavor; disease resistance; drought resistance; and ease of propagation. Then they began collecting new types that had one or more of these desired characteristics.

Release Dixie Variety

The crossing and selfing (when the flower is fertilized with its own pollen) began at once. From one of these first 1928 crosses involving the Manchurian selection came the only new variety which Mr. Williams has so far released for public use. In 1938, just ten years later, the Dixie red raspberry was released to nurseries and the public.

The small fruit specialist tells you quite frankly that Dixie is not what he was after. It is too small and too tart for fresh eating. But it has definite advantages over Latham. It is better for freezing or canning, and its yield is almost double that of Latham. But Mr. Williams considers Dixie a stop-gap. He released it because it has no real competitor in the South.

Ten Years About Average

"Ten years is just about average for developing and testing a new variety," he explains. "Today we have in the testing stage several varieties more promising than Dixie. Some will no doubt prove themselves and be released in the years ahead. Others will be discarded, either because they fail to produce or because they are outstripped by later developments."

One thing that slows down the breeding and testing work is the difficulty in propagating or increasing the number of a desired species. Raspberries increase either by sending out new roots which develop added canes; or by tip-layering (when the tip of a cane touches the ground and sends down new roots). Breeding this ability into a new variety is one of the horticulturist's main headaches.

"There is a great future for a red raspberry industry in North Carolina," Mr. Williams concludes. "You don't find the fruit on the market generally today because it is too perishable to be shipped in. Time and time again consumers have demonstrated their willingness to pay a good price for this fruit."

For farmers who might be interested in helping to build this industry, Mr. Williams has a further word. "Raspberries, like tobacco, are a specialty crop," he declares. "We'll have no trouble selling them in North Carolina if we can learn to grow them in areas where they are not now adapted."

Resumes Flower Research

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will germinate and grow. Indications are that 2,4-D may be successfully used as a pre-emergence treatment with Dutch iris and daffodils.

Experiments With Daffodils

Nine different fertilizer combinations and different methods of applying the fertilizer were tested with three varieties of daffodils in 1948. When the yields of flowers and of mature bulbs were compiled it was found that there were no significant differences among any of the treatments. The bulbs from the different treatments are to be kept separate and will be planted again, using the same treatment. This will determine whether differences in yields may be expected from the different treatments over a period of several years.

Bulb Treatments

Six fungicides were tested for the control of basal rot in daffodils. It was found that less injury to the flowers and better yields of flowers and bulbs resulted where Mersolite-8 or Arasan was used as a preplanting treatment. The Mersolite was applied in the form of a dip, using it at the rate of one pound to 800 gallons of water, and immersing the bulbs for five minutes. The Arasan was applied in dust form.

Rapid Drying of Bulbs is Important

Where daffodils, gladioli or Dutch iris bulbs were dried quickly, there was 15 per cent to 30 per cent less loss from rot in storage. The bulbs were dried by placing them in shallow trays and moving fast currents of dry air through them. Rot losses are often high when the bulbs are stored in partly closed buildings and are not dried immediately after digging.

Bulbs stored in shallow trays showed less rot than those stored in bushel baskets. Also, gladioli corms treated with Arasan before storing showed less rot than those that were not treated.

Variety Tests

New varieties of gladioli and daffodils from various sources are being tested each season in comparison with standard varieties to determine which are best adapted to coastal North Carolina. Records are taken of yields of flowers and bulbs, disease resistance, heat, or cold tolerance, flower quality, and other characters that are of importance to growers.

These tests may be visited by anyone who is interested in seeing how the various varieties perform.