

The National Fruit Trials

J. M. S. POTTER*

Faversham, England

Soon after the first world war, with a reviving interest in fruit growing, the need for disinterested trials to evaluate new varieties of hardy fruits became apparent in Great Britain. Trials of cereals and other short-lived crops had been in existence many years, although a farmer wishing to try a new wheat or a new cabbage had little to lose if the variety failed. On the other hand, a fruit grower who planted a new variety would probably have to wait about ten years before he found whether or not it came up to commercial standards and failure would be costly. The originator of a new variety is quite naturally going to advertise his article and emphasize its merits rather than its faults, in an endeavour to persuade growers to plant his variety. It was therefore felt that trials of hardy fruits should be established to provide growers with a yardstick. To this end, the National Fruit Trials were established in 1922 through the joint efforts of the Royal Horticultural Society and the Ministry of Agriculture.

The Trials were conducted at the Society's gardens at Wisley in Surrey, the Society providing the labour, and the Ministry contributing an annual grant. From very small beginnings the Trials began to grow, and by the early 1930's as many as a hundred varieties of apple had been accepted for trial. Soon it became obvious that the scheme was developing into something much bigger than at first anticipated. The site at Wisley was too small, and was subject to spring frost.

Because trials had become of much greater importance to the commercial grower than to the amateur, in whom the Royal Horticultural Society was primarily interested, the Ministry of Agriculture agreed, in 1946, to take over full responsibility and find another site. However, land was difficult to find, and the present station was not acquired until 1952. The transfer from Wisley was initiated at that time, but was not completed until 1960.

The station at Brogdale, in Kent, consists of approximately 180 acres. Only 120 are suitable for growing fruit, and one hundred acres have already been planted. One of the lessons learned from the Wisley trials was that at least 95 percent of the varieties received for trial were no better than, and often inferior to existing commercial varieties. It was therefore decided that all new varieties received at Brogdale should be put through a short preliminary or screening trial, so that only those that justified further trial need be considered for extensive testing. As soon as sufficient new varieties are received, a fresh trial is planted. For instance, the first apple trial was started in 1953-54, and since then five more have been planted, so that there are now six at various stages of development.

In the early days of the trials, most of the new varieties received came from fruit nurserymen or amateurs. The number of nurserymen developing new varieties in Great Britain now

*Director, The National Fruit Trials, Ministry of Agriculture.

is very small, and the amateur breeders are not nearly as numerous as they were thirty years ago. The bulk of the material now being received consists of unnamed seedlings from the research stations where breeding programs are in progress, such as East Malling Research Station, Long Ashton Research Station, the John Innes Institute, and the Scottish Horticultural Research Institute. The initial selections from the seedlings raised at these centers are sent to the National Fruit Trials where they are given an unbiased test. Material is also received from overseas; and this year a number of the new apple seedlings selected by the late Dr. Klein will be planted out. We also have varieties from Europe, New Zealand, Japan and Canada; so the trials are quite cosmopolitan.

The trials are planned by statisticians on a randomized basis, and each variety is tested against a control variety of known commercial performance. For example, all second-early apples are compared with Worcester Pearmain, and all late dessert apples with Cox's Orange Pippin. The new seedling is compared with the control for growth, susceptibility to pests and diseases, regularity of cropping, size, color, and other fruit characters, and, of course, for general marketing qualities. After a suitable period of years the results are compared and a factual report issued. This kind of trial covers not only apples, but pears, plums (European), cherries (sweet and sour), black currants, red currants, strawberries, raspberries, and gooseberries.

Promising new varieties of soft fruits are sent to the various research establishments for canning, jamming and quick freezing tests, while apples are sent for storage and cooking tests.

All material for trial is propagated at Brogdale, and must be as uniform

as possible. The rootstocks for tree fruits consist of the latest virus-tested clones. Plant material of soft fruits for trial is sent to the research stations for virus test and "cleaning up" if necessary. Thus we do our best to ensure that results are not vitiated by differences in rootstocks and health.

All varieties received for trial remain the property of the originator or introducer, and the National Fruit Trials has no financial interest in the variety whatever. As we do not breed any new varieties ourselves, we are not tempted to regard our own geese as swans. Our only interest is to put varieties through an exact and unbiased trial, and to present the results to the originator, and all other interested people. Incidental work includes self- and cross-compatibility tests of new varieties of apple, pear and plum, while morphological records of all kinds of hardy fruit are being built up for purposes of classification.

There are now over 2,000 varieties of apple, about 450 varieties of pear and plum, and about 240 sweet cherries in the trials. In addition, there are collections of black currants, red currants and gooseberries, while small collections of such kinds as peaches, nectarines and vines are maintained in order to demonstrate to the grower that this type of fruit is not really suited to growing in this country. These collections are of inestimable value as a living reference library, for taxonomy and registration, and as a bank of breeding material from which our research stations can draw at any time. Most of the varieties in the collections are of little commercial merit, but many are of great interest to the amateur and connoisseur.

From this brief outline it will be seen that the trials act not only as a screening ground for new varieties, but also as a source of breeding material, a center where synonymy and

identification can be verified, and where varieties of high quality are maintained which, not being commercial propositions, might otherwise go out of existence.

George M. Darrow is Honored by North Carolina State College

To the many honors already bestowed upon him, Dr. George M. Darrow, there was added still another, when he was awarded an Honorary Degree of Doctor of Science by the North Carolina State College of Agriculture and Engineering. The award appeared in the program for the Exercises of Graduation, dated June 1, 1963, as follows:

"GEORGE McMILLAN DARROW

We greet you as one who has turned the methods and resources of science to the benefit of mankind. Your dedication of your life to the improvement of the breeding of small fruits is a part of the larger effort in modern agriculture to increase the quantity

of food available to the human race, while improving its quality in nutrients and variety. Efforts such as yours and your co-workers are reflected directly in the development and introduction of new strains of small fruits, which not only support an important industry, but relate directly to the improvement of the lives of all of us. Not only is the nation in your debt, but particularly are we, in North Carolina, for your inauguration of scientific work in the improvement of strawberry and blueberry strains in our own state. Perhaps more important than any of these, however, is the wealth of testimony to the inspiration you have given, and still give, to your colleagues, and the encouragement of the younger men who will follow you.

In recognition of your many services, North Carolina State is proud to add to the many honors you have already received, by conferring upon you the degree of Doctor of Science, *honoris causa*."



Fig. 1. Recipients of honorary degrees during 1963 commencement exercises of North Carolina State College. From left to right they are George M. Darrow, horticulturist; Bertram W. Wells, botanist; Eli Sternberg, physicist; and Terry Sanford, Governor of North Carolina.

Redtop Peach

Redtop, a peach variety of Fairhaven season, introduced by the U.S.D.A. Field Station in Fresno, Calif., is being recommended for trial in British Columbia by the Summerland Station.

The Mio apple from Sweden, according to William Luce, bears small, white-fleshed fruit which should be better than Jonathan for caramel apples.