

All the trees concerned in these trials were grown in the nursery of the Plant Research Station and were planted out as "year-olds" in the winter of 1934. Records are being kept of the growth, &c., of each tree.

With a view to adding to the number of stock trials already laid down, approximately 600 apple-stocks, comprising Northern Spy and five East Malling types, have this summer been budded to Cox's Orange, Delicious, and Jonathan.

Plum Stocks.—A total of 150 plum-stocks, representing the five types received from East Malling, have been budded to Monarch, Grand Duke, Kirke's, and Yellow Magnum Bonum varieties.

NORTHERN SPY STOCK: ROOT-CUTTINGS V. LAYERS.

In previous reports reference has been made to the influence of different methods of propagation on the vigour and root-type of stocks of this variety. To discover whether this influence will be reflected in the scion when worked thereon a number of stocks raised from root-cuttings and by layering have been "budded" to Jonathan, the budwood being obtained from a single tree. These trees will be planted out in due course in a trial plot.

"STRAINS" OF APPLE AND STONE-FRUIT VARIETIES.

The investigation of strains of apple varieties has been extended this year to include Cox's Orange and Sturmer in addition to the Delicious variety, upon which a start was made last year. Orchard Instructors in each district were requested to secure budwood of any strains of these three varieties that had come under their notice, and, as a result, much material has been received. This has all been worked on a single stock type—viz., No. IX—to ensure uniformity and early bearing. As soon as fruit becomes available for comparison a selection will be made of the most desirable strains. In view of the probability in the near future of extensive reworking of apple orchards, this work is of the utmost importance.

With regard to stone-fruit, two apricot and three peach varieties are under observation in the Plant Research Station orchard. It will be some time before a study of the fruit of the several strains becomes possible, as the trees are only in their first and second year's growth.

PROPAGATION OF STOCKS.

Special Stocks.—The work of building up "clone" races of apple-stocks which have produced trees of outstanding merit in commercial orchards is proceeding. "Stools" have been established, and the number of these is continually being added to as further material is secured by propagation. In due course uniform material vegetatively reproduced from selected seedling stocks will be available for distribution.

East Malling Stocks.—The "stool beds" of the East Malling apple, pear, cherry, and plum stocks established some years ago are producing an increasing number of layers each season, and a surplus is now available each winter after the Station's requirements for experimental purposes have been met.

FILBERTS.

A further supply of trees of the species *Corylus maxima*, propagated from those originally received from Messrs. Cadburys, Ltd., was distributed for trial last winter. Trial plots have been established in five districts—viz., Auckland, Tauranga, Gisborne, Nelson—and a total of 114 trees has been planted.

SEED-TESTING SECTION.

N. R. Fox, Seed Analyst.

TESTING SERVICES, ETC.

For the calendar year ending December, 1934, a total of 14,996 samples was tested at the Station, this number representing a decrease of 197 on the total for the previous year. This work necessitated the making of 8,104 purity analyses, 13,306 germination tests, and 1,361 ultra-violet light examinations. Of the total, 11,618 samples were submitted by the seed trade, 252 by farmers, 528 in respect of State seed-purchasing, and the balance (2,598) in respect of various departmental activities, certification, investigational work, &c.

Of the total of 1,361 ultra-violet light examinations made, 1,112 represented official samples, of which 1,036 were of certified seed. The balance of 242 samples was submitted by the seed trade for classification in respect of perenniality.

One thousand three hundred and forty-three samples representing machine-dressed lines of certified seed were examined for purity, and of these forty-three, or 3 per cent., were rejected as having failed to comply with the purity standards for certified seed.

For the financial year 1934-35 selections from quotations based on unit-value were made in respect of 753 lines, representing a total purchase of 221 tons of seed, and valued at approximately £19,778. The 528 check tests made on samples drawn from bulk deliveries showed, in general, a high degree of conformation of delivery to sample specification.

For the financial year ended March, 1935, the total revenue received for the various testing services amounted to £1,457 16s.

INVESTIGATIONAL.

The work on deterioration of seed during shipment has been completed, and the results and relative discussion have been published. A large number of copies of this paper have been forwarded on request to the United States of America and to England, the principal buying countries of *Chewings fescue*, the seed with which this investigation was mainly concerned. As a result of the findings and recommendations published, a full-sized commercial drying plant is being established at Invercargill for the conditioning of seed for export. The Department is co-operating in an advisory capacity, in which connection certain laboratory drying experiments have been undertaken.

Picric-acid test in strain diagnosis of white clover (seed samples): This study is practically concluded, and on the results obtained a very close correlation has been found to exist between the chemical test and classification by plot trial.