

CONTROL OF WILT IN COLD-STORED PEARS AND APPLES

Tests of waxed-paper case-linings for reduction of shrivelling of cold-stored pears have been continued on the varieties Winter Cole and Winter Nelis, and have also been extended to the variety P. Barry. It has so happened that the only wilt encountered on these three varieties this year has been of an intensity so slight as not to cause the fruit to be rejected commercially. Subject to this reservation, however, it has been evident that the waxed-paper liners have very largely checked any tendency of the fruit to shrivel, and have not caused any marked increase in loss from rots. With Winter Nelis the rots were substantially less in the waxed-paper-lined boxes than in the controls. The results, taken in conjunction with those of previous seasons, show clearly that under circumstances in which loss of cool-stored pears through shrivelling is thought likely to arise, it is practicable and economic to use a case-lining of waxed paper as a preventive measure. Increases, if any, in the amount of rots are likely to be more than offset by the absence of wilt. The weight of the paper stock does not appear to be critical so long as it is fairly close grained and possesses adequate mechanical strength. The waxing should be fairly liberal and should be applied superficially rather than as a "dry" impregnation.

In view of the fact that cold-stored Sturmer apples frequently suffer rather heavily from wilt, it was decided to try the waxed liner on some of this fruit. Here, again, only a relatively small amount of wilt developed in the control fruit, totalling 3 per cent. severe and 12 per cent. slight, but the waxed liners reduced this to a total of 3 per cent. slight. The liner did not increase the amount of rots and apparently actually reduced the incidence of ripe-spot.

ORCHARD STORAGE OF APPLES

This investigation was continued during the current season, but it has not as yet been possible to analyse the records.

FRUIT RESEARCH

Advisory Committee.—Sir Theodore Rigg (Chairman), Dr. G. H. Cunningham, Messrs. W. Benzie, T. C. Brash, F. R. Callaghan, J. Corder, W. K. Dallas, E. J. Fawcett, Hope B. Gibbons, A. Osborne, R. Paynter, A. M. Robertson, H. E. Stephens, and L. W. Tiller (Secretary).

APPLE

(a) *Long-term Manurial Investigations.*—Data obtained by the Department on its Research Orchard at Appleby continue to show the advantages of balanced manurial treatment of apple-trees on Montere loam. It is now eleven years since treatments were commenced on most of the blocks, and the yields from untreated control plots are now falling off to a marked degree. The following table shows the average increase in yield, expressed as bushels per tree per year, resulting from various treatments on various varieties, as compared with the yield from the untreated controls:—

				Treatment.				
				P.	PK.	N.	PN.	PNK.
Cox's Orange	..	..	..	..	2	1	..	1½
Dunn's Favourite	..	..	..	..	..	1½	..	3
Delicious	..	..	..	..	..	1½	..	1½
Sturmer	..	..	..	1	..	1	2½	2½

The above figures are average values covering the whole eleven-year period, and the increases attributable to manuring are even greater in the last few years.

A liming test on the variety Dunn's Favourite is now beginning to show some differences that are thought to be due to the better growth of cover-crops obtained on the limed plot. Over the past three seasons the trees that have had lime in addition to a balanced fertilizer have produced 40 per cent. more fruit than the unlimed trees.

Tests of the rate at which nitrogenous fertilizers are applied continue to suggest 2 lb. ammonium sulphate as being about the most satisfactory. With Jonathan the 2 lb. dressing continues to give a yield increase without any great lowering of the colouring of the variety, whereas 4 lb. has caused a substantial drop in colouring—this season, without any increase in yield of fruit. With Dunn's Favourite this season, also, a 2 lb. dressing has almost doubled the yield, but a 4 lb. dressing has not given any further increase.

The plots of Jonathan that received heavy potash applications in 1933 and 1934 are still carrying a heavier crop of larger-sized fruit with better overlying colour.

(b) *Rootstock Trials.*—The trials of East Malling stocks at the Plant Diseases Division have been continued. Trees on M XII—the most vigorous stock—are now rapidly overhauling, and have in some instances passed, in yield of fruit the earlier-fruiting trees on Northern Spy stock. Under similar conditions of exposure to sunlight, fruit of the varieties Jonathan and Cox's Orange on Spy stock has not been superior in colour to that of the larger trees on East Malling stocks.

Seven-year-old Sturmers on Sturmer roots are now almost as large as trees of the same variety and age on M XII stock and are carrying a heavier crop. This is conclusive evidence that the weak and stunted growth so frequently observed on this variety is not inherent, but has resulted from the use of an unsuitable stock—viz., Northern Spy.

Approximately five hundred East Malling stocks of types XII and XVI have been despatched to the nursery of the New Zealand Fruitgrowers' Federation, where they are being used to establish propagation beds for future production in quantity.

In a small block of Gravenstein planted by the Division in 1938, and consisting of three trees on Spy stock and three on Gravenstein roots, slight "gnarling" has developed in all trees of the former, whereas the latter are as yet quite free from the trouble. This suggests that gnarling of Gravenstein—a widespread phenomenon detrimental to both tree and crop—is a symptom of stock-scion incompatibility. In this experiment, trees growing on Gravenstein roots were raised in the nursery by layering, and are equivalent to cuttings, as there