

During the coming season it is intended to reduce the number of co-operative trials from seventy-five to twenty-one, and the results achieved are being carefully tabulated and examined with a view to making such recommendations to orchardists as appear justified and to defining the policy of future experimental work. It is proposed to concentrate the manurial experiments in two or three central areas where precise methods of measuring yields and other relevant data may be employed and the fundamental problems of orchard-manuring investigated.

*Donations of Fertilizers.*—The potash and sulphate of ammonia were donated by Pacific Potash, Ltd., and Imperial Chemical Industries, Ltd., respectively, during the past season. These donations have materially assisted in the carrying-out of the programme of work which had been undertaken.

#### 8. CITRUS RESEARCH.

A comprehensive economic survey of all aspects of the citrus industry is in course of preparation for publication in bulletin form. This is a continuation of the survey conducted by Hamilton in 1935, and work during the present year has consisted in adding a further season's data regarding costs of production, prices, &c., and making the necessary alterations to the text. The survey should prove valuable as a summary of the present position of the industry and an indication of the future lines along which research and development of the industry should proceed.

In conjunction with the Horticulture Division of the Department of Agriculture and the Soil Survey Division a report has been prepared for the Bureau of Industries on the suitability of the various soil-types in the Kerikeri-Kaikohe district for the growing of citrus fruits.

At the request of the Horticulture Division of the Department of Agriculture a preliminary report has been made on the causes of wastage in Tauranga lemons. Wastage due to *Penicillium* rots is a serious source of loss to the industry, and further research is required into methods of curing and processing lemons for marketing in order to improve the keeping-quality of locally grown fruit. The major cause of wastage at the present time, however, is mechanical injury to the fruit in the orchard or during the curing process.

Mr. Hyatt, of the Dominion Laboratory, has been conducting tests on seasonal changes in the composition of New Zealand grapefruit, and a paper dealing with the results of the tests will be published shortly in the *Journal of Science and Technology*.

A small grant for maintenance of the Mount Albert Citrus Test Area has been continued.

#### FRUIT COLD STORAGE RESEARCH.

Advisory Committee: Messrs. J. A. Campbell (Chairman), R. Sutherland, W. Benzie, F. W. Grainger, T. Rigg, H. G. Apsey, L. W. Tiller, A. M. Robertson, J. T. Cross, H. C. Heays, and W. M. Hamilton (Secretary).

The programme of fruit cold storage has been continued during the last year, the work being done in cool stores in Wellington, Nelson, and aboard selected transporting-vessels. The co-operation of the Horticulture Division, shipping companies, the Cambridge Low Temperature Research Station, and the New Zealand Fruit Control Board has played a very important part in the conduct of the investigations. The assistance of the New Zealand Dairy Produce Board in granting the loan of its distance-recording thermometer was much appreciated.

#### TRANSPORT TRIALS.

*Influence of Fertilizer Treatment on Keeping-quality.*—Cox's from trees receiving 4 lb. of muriate of potash per tree developed more bitter-pit in storage, and for all three varieties tested (Cox's, Jonathans, and Sturmers) a heavy application (4 lb. per tree) of sulphate of ammonia appeared to have an adverse effect on keeping-quality of the apples.

*Wraps and Scald on Sturmers.*—Oiled wrapper gave slightly better control of superficial scald than standard wraps, but the nature of the scald was so slight as to be of very little commercial significance.

*Wraps and Botrytis Rot in Pears.*—Further trials were conducted on Winter Cole pears wrapped in plain and copper-sulphate-treated wraps. These indicate that the spread of the fungus may be reduced considerably by the use of treated wraps, and confirm the 1934 season's results.

*Cox's: Transport Temperatures.*—Further trials were conducted during the 1935 season at 34° F. and 37° F. These showed that wastage from rotting and breakdown was slight at both temperatures, while bitter-pit was slightly more extensive in the sample from the higher temperatures. The total wastage figures indicate that the lower temperature was slightly better than the higher temperature.

This confirms previous results—viz., that the optimum temperature for transport will vary according as to whether the bulk of the cargo is more susceptible to bitter-pit, breakdown, or rotting. A temperature of 34° F. is preferable for fruit liable to bitter-pit or rotting, but 38° F. for fruit liable to breakdown.

*No-dunnage Trial on "Rangitane."*—A trial shipment of apples was sent to England without dunnage in a 'tween deck with vertical air-flow. While a small lag in cooling occurred in certain parts of the hold, this was not pronounced, and the fruit opened out in excellent condition. The final report on this trial is not yet to hand.

*Tower-dunnage Trial on "Port Fairy."*—This shipment opened up in good condition, but the final report by the examining officers has not yet been received.

*Cox's: Effect of Position on Tree.*—No definite conclusions could be drawn as to the effect of the position on the tree on the development of bitter-pit, but the results suggest that it has no marked influence.