are being tested. One of the Department's officers in London is carrying out practical tests on the refining of low-grade kauri-gum chips in the works of a large manufacturer of plant for such purposes.

DAIRY RESEARCH.

A large proportion of the primary produce exported from New Zealand consists of dairy-products. It is essential that the quality of our produce should not only be maintained, but also improved, in order to meet overseas competition more efficiently. To do this requires scientific control of all stages of production, manufacture, and transport. This important work is the function of the Dairy Research Institute, which was the first organization to be established under the Department of Scientific and Industrial Research. Certain major problems in the manufacture of butter and cheese have been attacked with considerable success. For example, strains of starter bacteria which will produce the best type of cheddar cheese have been isolated, and are now constantly available to factories. A great deal of information has also been obtained on the action of bacteria in the ripening of cheese and in the production of faults such as openness and discoloration. Such fundamental research clears the way for a direct attack on the problem of overcoming these defects. A more equitable method of payment for milk for cheese-making based on its cheese yielding capacity has been developed as the result of research at the Dairy Research Institute. Trial on a commercial scale has proved its value and practicability.

WHEAT RESEARCH.

It is the aim of the Wheat Research Institute to improve the quality of New Zealand wheats so that the importation of strong wheats for blending purposes may be avoided. The first step was to breed new wheats with the desired strength by hybridization. The outstanding result of this work is "Cross 7," a hybrid made by crossing Solid Straw Tuscan, a variety which provides the greater part of the wheat grown in New Zealand, with White Fife, an imported variety. This new wheat has been exhaustively tested in the laboratory, and recent commercial trials have justified the claims made in regard to its quality and ability to produce of itself an excellent loaf.

The use of mineral improvers in breadmaking, with the exception of calcium phosphate, is forbidden in New Zealand, but the application by the Wheat Research Institute of fundamental research carried out overseas has shown that lemon-juice has remarkable qualities as a bread-improver. This is but another example of the value of pure research to industry.

The past season has been marked by widespread damage to wheat by sprouting. Excessive sprouting of wheat causes considerable damage to the flour, and in extreme cases the interior of the loaf after baking is a doughy, unpalatable mass. The urgent problem of devising methods of estimating the degree of damage to the flour, in order to be able to advise bakers as to the best methods of treatment, was very successfully overcome.

In addition to its pure research work the Institute is called upon to perform a large amount of routine testing of wheats and flours for millers and bakers, and is thus playing a very important part in maintaining the quality of one of our most important foodstuffs—our daily bread.

FRUIT RESEARCH.

An outstanding feature of the fruit-research work during the past year has been the proving of the successful method of controlling corky-pit disease of apples by the application of boron compounds either to the orchard soil or to the trees themselves. It now can be quite definitely stated that by application of as little as 50 lb. of borax per acre this serious disease can be controlled.

In transport overseas of fruit new methods of storage used in conjunction with improvements in ventilation and refrigeration have shown much promise as a means of landing fruit in better condition in Great Britain. It is interesting also to report that the first trial using gas storage of Cox's Orange Pippin apples in an overseas vessel turned out a complete success.