

Two other new wheats are near the end of their trials and will probably be distributed to farmers within the next two years. One of them is similar to Tuscan in all respects except that its yield is 10 per cent. to 12 per cent. more; the other is equal to Tuscan in yield, but in quality is equal to Marquis, the highest-quality wheat grown in New Zealand.

LABORATORY WORK.

New season's wheat has always been a source of trouble to bakers, for each year's wheat has different characteristics and therefore needs different manipulation in the bakehouse. To guide bakers in the change of technique required the laboratory has secured the earliest possible supplies of each of the new season's wheats, milled them on the experimental mill as well as commercially, baked them by various methods, and then sent out a bulletin to all bakers indicating the directions in which changes in bakehouse method would probably be advantageous. As a result of this, bakers' trouble with new season's wheat is now a thing of the past.

The harvest of 1937 was generally good, but the latter part of it was wet, and a good deal of wheat that was out of condition was delivered to stores. Tests were carried out over long periods on the rate of drying of wheat in sacks in various kinds of stacking, and the information is available for future use.

A long series of investigations was made in the attempt to determine the quality of a wheat, not only when it was baked alone, but also its quality in blends. As a result of this work the information sent to millers on the wheats they send in for test has been considerably modified, and it is now probably a more useful guide to them in their endeavour to produce an even quality of flour all the year round.

Investigations on the quality of gluten and of the effect of various enzymes thereon have been conducted by a National Research Scholar.

WHEATGROWING PRACTICE.

Experiments on the effect of soil-moisture and of feeding-off wheat have been continued.

The number of header harvesters is now probably in excess of 400, and the average area of wheat harvested by each is almost exactly 200 acres. These would therefore account for 80,000 acres, or over 25 per cent., of the whole crop. The handling of headed wheat requires much experience if it is to be stored in good condition. Over 3,000 lines of wheat sent in by farmers were tested for moisture so that it would not be stored until it was properly dry. Investigations were made into the rate of drying under different methods of storing in the field or in sheds, so that recommendations may be made for future seasons.

CO-OPERATION WITH THE DEPARTMENT OF AGRICULTURE.

The Department of Agriculture has continued to be of the very greatest assistance to the Institute, both by making variety trials in all parts of the country and by allowing its officers to act on the Specialists' Committee which discusses the kind of experiments that should be conducted on all problems connected with the growing and utilization of wheat.

PHORMIUM RESEARCH.

REPORT ON WORK FOR THE PERIOD 1ST APRIL, 1937, TO 31ST MARCH, 1938.

By Dr. J. S. YEATES.

EASTON AREA.

There has been no extension of planting in this area since last year's report. Apart from cross-pollination, mentioned later, the only work has been cultivation to keep down weed-growth. A rotary hoe purchased for this work has proved incapable of withstanding the fairly heavy and continuous work needed on the area.

Good results in weed-control are being obtained by the use of sheep belonging to a nearby farmer. To be really effective, however, a larger number of sheep is necessary than the farmer can supply.

Growth has been good, and in some varieties excellent. The variety Paretaniwha has grown especially well. Planting of this variety was done at intervals from September to December, 1937.

The fans planted in September have multiplied so much that in eighteen months from planting many single fans have produced twenty new ones. Amongst the other varieties, S.S. is multiplying faster than any. Ngaro, of which there are 20 acres in this area, is growing well, being over 8 ft. in height in some spots. This variety, however, grows in height rather than stools out, and has not so many fans as the Paretaniwha, though the Ngaro has been planted for two years and nine months.

No floods have been experienced at the Easton Area in the past year. The stop-banks and their protective willows are now in much better condition than at any time previously. One more growing season for the willows and for the vegetation on new earthworks will make the stop-banks safe against any floods likely to be experienced.

COLLEGE AREA.

Cutting and milling tests in the past year have given interesting results. The first cutting tests were on ten bushes of a hybrid plant (13K × S.S.), of which the excellent recovery after cutting was noted in last year's report. These bushes were cut in August 1937, approximately two years after the