

of the century are being replaced by relatively strong wheats capable of again competing in quality with the imported varieties (2). In Australia the quality of wheats has been advantageously affected by the work of Farrer. It should be possible, then, to adopt in every wheat-growing locality in New Zealand, each with environmental conditions peculiar to itself, some variety which will yield well without at the same time unduly sacrificing quality to quantity. That this is so is apparent from the results tabulated in this and an article which will follow.

The miller has constantly to watch the quality of the flour which he is marketing. His is not the straightforward task of simply milling each wheat as it arrives, but rather must he consider the price which his flour will fetch in relation to the first cost of the wheat and to the cost of manufacture. A flour is judged largely by (a) colour, (b) strength, and (c) weight of flour per bushel of wheat.

No one wheat may satisfy all these requirements; moreover, reliable wheats may vary even from season to season. The miller, therefore, by a system of blending, mixes, say, a strong wheat with one of good colour, and in this way endeavours to maintain a sufficiently high standard wherein the best qualities of each are effectively represented.

EXPERIMENTAL WORK BY THE CHEMISTRY SECTION.

Work has been recently carried out by the Chemistry Section of the Department of Agriculture with the object of ascertaining the milling-yields of varieties of wheats from different localities in New Zealand and the strengths of the resulting flours. Samples were obtained through the various Instructors in Agriculture.

The milling tests have been carried out by means of the Allis Reduction Machine installed in this Laboratory two years ago (see *Journal*, November, 1920, page 249). This is the type of machine used largely in the United States by the different State Agricultural Departments, and also in some of the larger private laboratories. The process as actually carried out on a commercial scale is followed here as closely as possible. Duplicate results to within 0.2 per cent. are obtained; and, though for obvious reasons the actual milling figures may differ slightly from those obtained commercially, it is considered that the ratios of milling tests obtained are strictly comparable. It may be noted in passing that the results obtained in this Laboratory compare closely with those of the experimental mills of both the New South Wales and Queensland Departments of Agriculture (7).

These wheats have been classified as "good" and "very good" only when the amounts of flour obtained on milling have equalled those of a similar classification adopted in New South Wales.

Reviewing the tabulated statement (page 4), it will be seen that four samples of Pearl from various localities are given. The first three may be classified as very good with yields of over 75 per cent., while the remaining sample is a good milling-wheat. The wheats yielding good percentages of flour come from widely separated districts. Although the number of samples of the varieties milled in 1922 was rather small, there is a fair indication that Pearl yields as a rule a large amount of flour.