

number has been increased until, in addition to these there is an Experimental Station at Charlottetown, P.E.I., another at Rosthern, one at Scott in Saskatchewan, one at Lethbridge and one at Lacombe in Alberta, besides two smaller Experimental Stations in more remote sections of the country which are as yet unsettled, where information is being gathered for the time when the lands in these districts will be taken up. These Stations are at Fort Vermilion in the Peace River District and at Whitefish River near Lake Abitibi. In addition there is also a Station at Kamloops, B.C., for the study of problems relating to what is termed "dry-farming," or the production of good crops in regions where the rainfall is below the normal. This total of ten Experimental Farms and three Stations will be still further increased in the near future.

Problems relating to the preservation of the fertility of the soil and the continued production of good crops, to the study of the different breeds of beef and dairy cattle, to horses, sheep and swine, to the production of fruits and the originating of new varieties, have occupied the attention of those in charge of the Experimental work from the inauguration of the Farms and, in addition to these questions, with the rapid settlement of the North-West provinces, there have arisen a host of problems which are peculiar to that new country with climatic conditions differing in so many respects from that which prevail in the older settled districts. Some of these relate to the breaking up and cultivating of the virgin prairie, the conservation of soil moisture in those parts where the average rainfall is light and the study of irrigation where that system can be pursued. One of the chief subjects of study and experiment has also been the originating of early ripening varieties of cereals. The need for earliness of ripening is not so acutely felt in the eastern provinces, but in the west, with the early frosts which sometimes occur, earliness of maturing is one of the most necessary characteristics of a variety. By crossing early Indian and Russian varieties with high-class Canadian sorts, several early-ripening varieties of wheat have been produced which mature two and even three weeks earlier than Red Fife, and some of them are fully equal in quality and productiveness to that variety. One very promising cross-bred sort named Marquis, which is equal in quality to, and from a week to ten days earlier than, Red Fife, produced this last season in field culture on the Experimental Farm at Indian Head, Sask., an average of 53

bushels per acre. This is a great triumph of skill in this direction. Varieties which are found to be early in ripening are submitted to further trial by grinding the grain into flour and the baking of bread in the Experimental Farm laboratories, and those sorts which are found of high quality are grown in large fields for more general distribution. Promising varieties are multiplied as fast as possible and distributed free to Canadian farmers for testing, in samples of five pounds each. During the past ten years, the average number of samples distributed in this way has been about 40,000 each year. This has materially increased the average yield of crops throughout the Dominion by the introduction of pure and unmixed samples of seed all over the country. The object lessons which have been conducted in the growing of corn for ensilage, thus providing succulent food for the winter feeding of cattle, has stimulated the dairy industry, especially the manufacture of butter in winter, and the fattening of steers, giving profitable employment for farm labor during the winter months.

Extensive experiments in the testing of fruits and in the originating of new varieties suitable for the different climates of Canada, have been carried on since the establishment of the Experimental Farm and in this case as well, the opening up of the North-West gave rise to new features of the problem. The severe winters of that region proved fatal to most of the varieties of fruit which were quite hardy farther east, and many years of patient work were necessary before some of these became acclimatized sufficiently to thrive in the west. Many sorts of fruits were originated by crossing some of the best Ontario varieties with hardy stock of inferior quality imported from Northern Russia and other countries, and many of these proved of sufficiently good quality to be eagerly sought for by settlers in the North-West. Ornamental trees and shrubs were also tested in the same way and many varieties obtained which are now grown throughout the North-West country, making the surroundings of the settlers' homes attractive and protecting the more tender growths from the prairie winds.

Those branches of scientific work which are connected with agriculture are carried on in the laboratories of the Central Experimental Farm, and include chemistry, entomology and botany. These divisions of the work have also been enlarged in keeping with the growth in the other parts of the Experimental Farm work.

The distribution of the information gained on