

Plants, Horticulture, Illustration Stations, Poultry and Tobacco. They co-operate with the Branch Stations throughout Canada in organizing a co-ordinated plan of agricultural experimental work.

Regional Stations.—It might be asked why Branch Stations are required throughout Canada. The answer is because Canada is such a large country geographically and contains so many widely different soil and climatic conditions that experimental work must be arranged to meet these varied requirements. Some soils are very fertile; others are quite unproductive; some are heavy clay; others light sand, with numerous intermediate textures. Some soils are acid and others alkali.

Temperatures in different parts of Canada vary widely. The mean January temperature of the Dominion Experimental Station at Saanichton, B.C., is 37·9°F. above zero but at Fort Vermilion in northern Alberta it is 11·1°F. below zero. The mean July temperature at Harrow in Southwestern Ontario is 72·9°F., but at Smithers in northern British Columbia it is only 57·0°F. Precipitation, also, is very different. At Agassiz, B.C., it is 62·3 inches a year but at Summerland, B.C., it is a mere 10·5 inches and irrigation is required for successful agriculture. Obviously, these different soil and climatic conditions exert a profound effect upon the growth of various crops.

Besides these conditions, there are many different types of farming in Canada including wheat, fluid milk, butter, cheese, beef cattle, sheep, hogs, poultry, fur animals, tree fruit, small fruit, vegetables, tobacco, fibre crops, and many others. Every farmer engaged in each of these special types of farming requires information related specifically to his work. With 732,832 farms in Canada, according to the 1941 Census, it is obvious that agricultural experimental work must be undertaken on such a comprehensive basis that reliable information may be available to as large a proportion of farmers as possible. This can be accomplished only on a regional basis but with a central headquarters to organize the work in various parts of the country so as to avoid overlapping and to promote efficiency.

Main Accomplishments in Plant Breeding.—Possibly it is in the field of plant breeding that the accomplishments of the Dominion Experimental Farms are the most outstanding, or at least the best known. New varieties of various crops developed by the Experimental Farms are tangible examples of improvements which bring greater returns to the individual farmer and to the country. Over a period of 62 years, since the inception of the Dominion Experimental Farms, many hundreds of varieties of various species of crops have been developed. Great care is taken to ensure that any new variety possesses improved yield, quality and other factors before being released to the public.

Since the origination of Marquis wheat, a variety which for many years was grown almost to the exclusion of other varieties in the spring wheat areas of Canada and the United States, several improved rust-resistant varieties have been developed by the Cereal Division. Renown, Regent and the recently developed Redman are important achievements. Rescue, a variety recently developed to combat the western wheat stem sawfly, has proved very valuable in regions where this insect is prevalent. In eastern Ontario the winter wheat variety, Rideau, has proved more winter hardy and productive than existing material.

Improved varieties of oats, barley, rye, flax, peas and beans have been developed, applicable to the varied conditions in different parts of Canada.