

*Central Experimental Farm.*

The Central Experimental Farm is situated in latitude 45° N., about seven miles from Ottawa, the capital and seat of the Dominion Government. The annual average precipitation is 34.93 in. It is some 465 acres in extent, of which about 70 acres are devoted to arboreta, and 32 acres to ornamental lawns and forest-belts, both of which areas form the campus or grounds on which the extensive buildings necessary for the successful carrying-on of the various activities are erected. I might mention that the campus is a striking feature at all agricultural colleges both in the United States and Canada. The area devoted to this varies at different institutions, being from 40 acres to over 100 acres in extent. These grounds are not enclosed inside a fence, but are open, beautifully laid out with lawns, trees, and shrubberies, with well-kept roadways, drives, and walks in all directions. On these grounds or campus are erected the necessary educational buildings, each division having its own building entirely apart and at some distance from the others. The public are admitted to the grounds at all times, there being no fences or gates to bar them.

At the Central Farm, Ottawa, are the headquarters of Mr. J. H. Grisdale, Director Dominion Experimental Farms, and the technical and administrative staff under his control. From here the work of the Dominion branch farms and stations is guided and supervised, although the superintendents of the latter are allowed a free hand to work out the problems peculiar to their districts. Here also the scientific study of agricultural questions along indicated lines is carried on by officers having charge of the various branches of such work.

The Dominion experimental-farm system in Canada, and its purpose, may be briefly stated as follows: To conduct researches and experiments designed to test the value for all purposes of different breeds of stock and their adaptability to the varying climatic and other conditions which prevail in the several provinces; to examine into scientific and economic questions involved in the production of milk, butter, and cheese; to test the merits, hardiness, and adaptability of new untried varieties of wheat and other cereals, and of all field crops, grasses, and forage plants, fruits, vegetables, plants, and trees, and disseminate among persons engaged in farming, gardening, or fruitgrowing, upon such conditions as are prescribed by the Minister of Agriculture, samples of such surplus products as are considered to be especially worthy of introduction; to analyse fertilizers, whether natural or artificial, and conduct experiments with such fertilizers in order to test their comparative values as applied to crops of various kinds; to examine into the composition and digestibility of foods of various animals; to conduct experiments in the planting of trees for timber and shelter; to examine into the diseases to which cultivated plants and trees are subject, and also into the ravages of destructive insects, and ascertain and test the most useful preventives and remedies to be used in each case; to conduct any other experiments and researches bearing upon the agricultural industry of Canada which may from time to time be approved by the Minister of Agriculture.

The work at the Central Experimental Farm under the direction of Mr. J. H. Grisdale, Director Dominion Experimental Farms, is carried out under various divisions, each with a chief officer who supervises the work, and are as follows: Division of Field Husbandry; Division of Animal Husbandry; Division of Chemistry; Division of Horticulture; Division of Cereals; Division of Botany; Division of Entomology; Division of Forage Plants; Division of Poultry; Division of Tobacco.

*Division of Field Husbandry.*—The operations are very practical in nature, and, briefly, consist of soil-management, crop-management, and agricultural engineering. Its scope is indicated by the following features: Crop-yields, rotation of crops, cost of production of field crops, weed-eradication, soil-cultivation, use of barnyard manure and commercial fertilizers, irrigation and underdrainage, clearing land, fencing, &c.

A comparatively small number of field experiments were conducted on account of the limited amount of land suitable for experimental work. This is due to the soil being too variable in composition for satisfactory field tests.

*Rotation of crops:* This is a phase of the work carried out which is worthy of consideration by New Zealand farmers. The aim in view is to obtain definite results as to the relative values of different rotations with varied cultural methods, these results to serve the farmer as a basis for the management of general farm crops. That certain crops do better when following after certain other crops has long been known, hence rotation of crops is considered an essential part of the programme to successful farming in the older countries of the world. Farm practice in the newer settled countries, however, seldom keeps pace with knowledge in such matters, and to this particular phase of crop-management work especially too little consideration is usually given.

For the past eleven years experiments have been carried out at this farm to determine the relative value of different rotations suitable for live-stock purposes, and to this end fifteen rotations are now in operation. The line of farming engaged in must, however, determine to a great extent the kind and relative amounts of crops that should be grown. The climatic conditions prevailing in Canada, where stock require to be housed and hand-fed, are so dissimilar to New Zealand conditions, where stock are in most cases in the open and fed there all the year round, that it would serve no purpose to detail the rotations followed. A brief consideration, however, of a few facts relating to this important farm practice may not be out of place.

A systematic rotation of crops means a certain regular succession of crops so arranged that after each the land is left in the best possible condition to receive the crop which follows. The order in which crops follow makes a great difference in the yields from year to year, because different plants have different manurial requirements—they vary in their power to abstract certain foods from the soil. All plants do not feed to the same depth in the soil, nor are they alike in the residue they leave behind. Some tend to produce better tilth than others, and vary in their