

hogs are a necessity on every farm, and, as rent-raisers and mortgage-lifters, have a record that is probably unexcelled by any other line of live stock. To winter the sows, would not be a very expensive operation, if they are provided with warm and comfortable quarters. Very little, if any, grain need be fed, as they can be carried along in very fair condition on roots, ensilage and kitchen slops, arrangements being made to get them out early to pasture in the spring.

#### ADVANTAGE OF SCALES IN MARKETING STOCK.

That the price of hogs continues low, notwithstanding the abnormal cost of feed, is a poser that farmers generally would like some ray of light thrown upon. Packers claim that the shipment of selects has been considerably reduced this fall, and the market glutted with unfinished and undersized hogs, which alone would have no small tendency to keep prices down. Evidently, farmers are very well aware that the feed required to put the last 30 or 40 pounds on a 200-pound hog is decidedly more costly, in proportion, than to bring him up to the necessary weight limit of 160 pounds. Consequently, they are hustled off just as soon as the owner "guesses" they are heavy enough to pass muster. A good set of scales would eliminate this guesswork and soon pay for itself. I have in mind a certain butcher, since retired in comfortable circumstances, who made it a practice, when out buying cattle, to nose around in every out-of-the-way corner to satisfy himself whether or not there were any scales about the place, governing himself accordingly as to what price he would offer. Not until the business side of farming is transacted with something like exactness, and more attention paid to details, will the farmer reap his whole share of the profits.

#### WILTSHIRE BACON IS CANADA'S SPECIALTY

A question that is not infrequently raised, and is having a somewhat protracted innings at the present time, is whether it costs more to produce the bacon hog than those of the fat type. That there is any fixed relation between the type of a pig and the cost of producing 100 pounds increase in weight, it has been found impossible to demonstrate. Personally, I have never been able to discover any real difference from tests or observations covering a series of years. The belief, in some minds, that the difference does exist, is, I am of the opinion, more a product of the imagination, or of judgment from a too-limited number of instances, than sound doctrine backed up by indisputable facts. If a pig is thrifty, has a good constitution, and good digestive organs, it can make good use of its food, no matter to what type it belongs. Individuality has been shown far more effective in determining the cost of production. The whole problem thus resolves itself into a question of selection, and clearly proves how important it is to perpetuate only the best. The short, fat breeds are unsuited to our conditions. They have been evolved in the great corn belt of the Middle West, for the purpose of converting corn into lard, for which there is but little demand in Canada. To compete for a share of the export trade in fat-pork products would be folly. Our interests are centered in the lean type, with a fastidious class of customers, willing to pay a high price for our carefully-prepared brand of "Wiltshire Sides." With an established reputation and a growing demand, let us not thoughtlessly tear down what we have builded so well; rather give close attention to right principles in breeding and feeding, whereby economy and quality are promoted, and, incidentally, our own cash accounts.

Elgin Co., Ont.

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## THE FARM.

### CANADIAN AGRICULTURE.

Synopsis of address by Prof. C. A. Zavitz, Agricultural College, Guelph, before Canadian Institute, Toronto, Saturday evening, Nov. 16th.

The agricultural wealth of the Dominion of Canada amounts to upwards of two billion dollars. The annual value of the products of agriculture, according to the last statistical reports of the Dominion amounted to over \$366,000,000. The products of agriculture are seven times greater than those of the forests, eight times greater than those of the mines, and nineteen times greater than those of the fisheries. In fact, the products of agriculture are greater than the combined total value of the products of the forests, the mines, the fisheries, the wild animals, and of the manufactured products, less the cost of the raw material.

The agricultural wealth of Ontario is greater than that of all the rest of the Dominion. The annual value of the field crops grown in Ontario alone is greater than the combined value of the products of the forests, and the mines, and the fisheries, of the whole of Canada.

The average yield per acre of some of the principal farm crops of Ontario is now increasing from year to year, owing to the introduction of better varieties and to the improved methods of agriculture which are being adopted. There are yet vast areas of good farming lands in Northern Ontario which are almost unknown. The extensive areas of the rich soils of the West are gradually being brought under cultivation. We are, therefore, convinced that Canada is not only an agricultural country at the present time, but that it has great agricultural possibilities for the future.

Unfortunately, the occupation of agriculture has not always received the high recognition in Canada that it has received in many of the older countries of the world. In England, we find the nobility proud of their possessions of lands, of herds and of flocks. His Majesty King Edward VII. takes a very deep interest in agricultural pursuits, and usually has exhibits of pure-bred stock at the leading exhibitions, in competition with the other stock of the country. The social status of the agriculturists of Canada is undoubtedly increasing. The farmers are gradually taking their proper place in the affairs of the Dominion.

It is yet only about one hundred years since the first school of agriculture was established, near Berne, Switzerland. There are now hundreds of colleges and schools of agriculture throughout the world. Agricultural instruction is also becoming a part of the system of public-school education in many of the eastern countries. In France, for instance, agriculture is now being taught, not only in the farm schools, the practical schools, the nine agricultural colleges, and the Agronomic Institute, in Paris, but it also forms an important part of the whole system of public-school education. Several thousands of country schools have school gardens or demonstration fields attached, and the subject of agriculture is divided into several grades, and is taught to children of different ages about as follows: Lower grade, seven to nine years; middle grade, nine to eleven years; and higher grade, eleven to thirteen years. After pupils are more than about thirteen years of age, they take the advanced course in the superior primary schools. Systematic instruction is given in the normal schools along the lines of field agriculture, live stock, and rural economy.

In Ontario, we are pleased to note that, through the co-operation of the Educational and the Agricultural Departments of the Provincial Government, classes in agriculture have been started in six of the High Schools of the Province. These classes are in charge of teachers who are graduates of the Agricultural College. Such teachers, who possess the practical knowledge, the scientific training, the teaching capabilities, and the love of the work, should in time help to overcome prejudices, and to establish an education touching somewhat closely the rural homes and the very lives of the people. Undoubtedly, this line of work will be gradually extended until it permeates our whole system of public-school education, especially throughout the rural districts.

It seems difficult for us to realize that it is only about sixty years since the establishment of the first experiment stations for the investigation of agricultural problems. It was about the middle of the last century that Sir J. B. Lawes, in a private capacity in England, and a little group of farmers in an organized capacity near Leipsic, Germany, started the experiment-station move-

ment, which has been most marvellous in its development and has been far-reaching in its results. At present there are about eight hundred experiment stations in existence. Those countries are few which cannot boast of their organizations for experiment and research work along the lines of agriculture. It is certainly true that these organizations vary greatly in extent of their work, in the variety of their investigations, and in their methods of operation. The great object, however, in the experiment-station movement throughout the world is to help in the development and in the progress of agriculture. Through the aid of organization and of Government support many exceedingly important lines of investigation are being successfully conducted by united effort which it would have been practically impossible to have undertaken by the individual efforts of the people who are engaged in agricultural pursuits. The experiment stations are endeavoring, by the aid of chemistry, botany, bacteriology, and other sciences, to better understand the underlying principles of agriculture. Not only are they making use of the scientific knowledge obtained in past ages, but, through their skillfully-arranged and carefully-conducted experiments and investigations, they are now actually helping to enrich and to give a deeper meaning to the study of science itself. It will, therefore, be seen that this great work is destined to wield an immense influence on agricultural methods and on our knowledge of the fundamental principles of agriculture. I believe the time is fast approaching when the experiment station, with its co-operative work throughout the country, will be the chief source of information, not only for the farmer himself, but also for the agricultural-college professor, the institute speaker, and the agricultural writer.

The Ontario Agricultural College at Guelph performs the work of investigating and of experimenting, as well as that of teaching. It is endeavoring to unite science with practice. The fertility and the cultivation of the soil, the ripening and the storing of the crops, the selection and the preservation of the seed, the feeding and the care of the farm stock, the breeding of the plants and the animals, and many other problems of intense interest and of great practical value to farmers, are being carefully studied in the fields, in the stables, and in the laboratories of the College. The experimental grounds for the Department of Field Husbandry occupy about fifty acres, and contain some 2,000 plots. Fully one hundred distinct lines of experimental work are being conducted during the present year. Some of these are comparatively simple, while others are very extensive, complicated and difficult. All of them, however, have a direct bearing on agriculture. The work in plant-breeding has been receiving a considerable amount of attention during the past few years. This involves the systematic testing of varieties, the thorough selection of plants and seeds, and the proper mating and skillful crossing of varieties of different characteristics, in order to produce new sorts, with the object of combining the good qualities and of eliminating the undesirable characteristics of the parent varieties. Work of this kind requires not only a practical knowledge of the greatest needs of the farmers, but also a scientific knowledge of the laws of nature, and especially of heredity, as well as a considerable amount of time, money, good judgment, patience and perseverance. About 20,600 hybrid plants of farm crops were grown separately in the experimental grounds at the College this season. Some exceedingly interesting and very promising hybrids have already been obtained. It has been stated that the introduction of new varieties of farm crops, through the medium of the Agricultural College and the Experimental Union, is worth to the Province of Ontario as much as it would require to maintain one hundred agricultural colleges. The prospects for future work in plant-breeding and in plant-introduction are very encouraging.

The Ontario Agricultural and Experimental Union is doing an admirable work in this Province. It forms a close connection between the scientific worker at the College and the practical worker on the farm. Under the guidance of this organization, upwards of seven thousand farmers throughout Ontario conducted co-operative experimental work at their own homes in 1907. When the farmers themselves once become both interested and active in the carrying out of some important and well-defined line of experimental work, they have entered upon a course of thought and action the good results of which it is impossible to correctly estimate. This work not only enriches the lives and improves the farming operations of those who are actually engaged in the work, but it also tends to the betterment of agriculture generally. It helps to impart to those who engage in the work some of the important and essential features of a true education.

Agriculture is not only the most valuable of the Canadian industries, but it is also one of the greatest of the sciences and one of the noblest of the professions.