

certain localities. New varieties of oats, wheat and barley have been originated in Ontario, and it is possible that a variety of corn superior to any now grown may be developed in the province by selection and breeding. The possibilities are great, as the corn crop is gaining in favor and value each year. Conditions relative to corn growing, both for seed and silage purposes, will be studied from one end of the Province to the other with a view of aiding in overcoming difficulties and solving problems. The importance of good live stock and seed grain was touched on. The speaker strongly advised more attention to business methods and farm home conveniences. Labor-saving devices are as essential in the house as they are in the barn and field, although many fail to see things that way.

Preparedness for Crop Production.

Dr. C. A. Zavitz, Professor of Field Husbandry, O. A. C., Guelph, discussed a very timely and important subject summed up in four words, "Preparedness for Crop Production." The thought expressed was, that we should plan long in advance for the crop production of the coming year. The varieties of farm crops most likely to give the best results should be selected, and the seed carefully tested and properly prepared in readiness for the first opportunity of seeding in the spring.

It is exceedingly important to grow known varieties of farm crops of high quality. It is also important to make the very most of the good seed which is available in Ontario before we run the risk of buying mixed and impure varieties from bulk lots brought from either the Western or the Eastern Provinces. Let us make more use of the fanning mills in Ontario to get the very best seed from the crops produced on our own farms. Even under adverse weather conditions, such as we had in 1916, we would find that we could secure a good supply of seed if we would only take the pains to obtain from ten to twenty or thirty per cent. of the best seed and use the larger bulk of lighter seed for feeding purposes. The good seed which is grown under adverse conditions is generally of superior quality. It is unfortunate that in so many instances but little thought is given to the proper supply of seed until the crop is mostly fed to the farm stock, and, as a last resort, the grain for sowing is taken from the remainder which is left in the bins, or it is purchased at a late date from the source most available at the time.

Dr. Zavitz also warned farmers against representatives of American seed houses that are going from place to place offering small quantities of new varieties at high prices. We already have too many varieties, he said, and in many cases they are offering, under a different name, the same kinds and varieties of farm crops that we have been growing for years. This is a serious matter, and farmers were urged to do what they could to keep the varieties down to as small a number as possible and to improve the uniformity of our products.

Every farmer should realize that good seed is at the very foundation of good farming. One cannot expect to receive a satisfactory crop from seed of inferior quality. Good seed does not mean freedom from impurities alone, but it also means seed of strong vitality with the inherent power of producing large yields of crops of high quality. Various experiments have been conducted at the Agricultural College in the study of seeds of different selections. Some of this work has been continued up to the present time, and the results, some of which have not been published before, are both interesting and valuable.

The average results of the experiments on seed selection show that the size, the plumpness and the soundness of the seeds exert decided influences on crop production. In every instance large, plump seed produced higher results than small, plump, shrunken or broken seed. These results emphasize the great importance of thoroughly cleaning our grain in order to secure the most perfect seed for the purpose of reproduction.

In an experiment extending over a series of years, in which winter wheat of each of two varieties was cut at five different stages of maturity, it was found that the wheat which had become thoroughly ripened furnished the best seed. The grain obtained from the last cutting produced a slightly increased yield of both straw and grain per acre and a heavier weight per measured bushel than that produced from seed secured from any one of the earlier cuttings. Experiments appear to favor the use of seed of our grain crops which has been thoroughly matured.

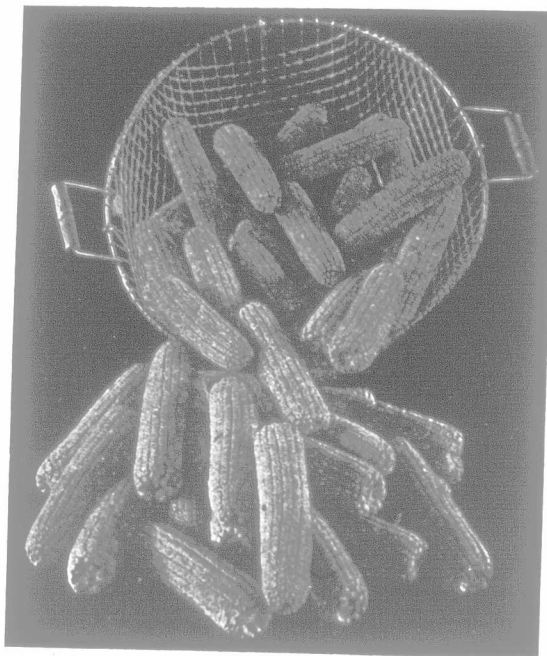
The speaker also pointed out that not only was it necessary to use pure seed of the best varieties of farm crops, but it was also important to sow seeds of the different kinds of grain at the right time to sow seeds of the best results. Extensive experiments in this connection have also been conducted at the O. A. C., particularly in regard to the different dates of seedings. The first seeding with each crop took place as early in the spring as the land was warm enough to work to good advantage. After this one week was allowed between each two dates of seeding.

It is interesting to note that, for every day's delay in the time of seeding after the first week had past, there was an average decrease in yield per acre of 47.4 pounds of oats, of 47.1 pounds of barley, of 26.8 pounds of spring wheat, and of 19.9 pounds of peas. It is important to sow spring wheat, barley, oats and peas in the order here given, and to try, if possible, to have the seeding completed within a week or ten days after the land is warm enough to work to good advantage in the early spring.

In conclusion Dr. Zavitz said: "May the corn growers of Essex, the bean growers of Kent, and the various farmers throughout Ontario arise to the occasion in the production of those things which are so greatly needed at the present time. This is the time for action, so let us get earnestly at work at the earliest possible moment."

On Thursday morning Dr. Zavitz gave an interesting talk on grain judging, illustrating his points by use of samples of oats. Thick and thin hulled oats were placed before the audience who were asked to pick out what they considered the best all-round sample. The thick-hulled variety was plumper and of better appearance than the others, and was placed first by the majority of those present. The hull of oats is practically valueless for feed, but few growers think much of the hull when selecting oats for seed or feed. It is hard to think of a short, plump oat having less feed value than some of the long, thin varieties. The difference was carefully explained by the speaker, and when a few oats of the different varieties were hulled it was quite noticeable, and it was seen that it is possible to be deceived by appearance.

If the average percentage of hull on the oats grown in Ontario was only one per cent. less than it is, it would mean an actual saving of many thousands of dollars to



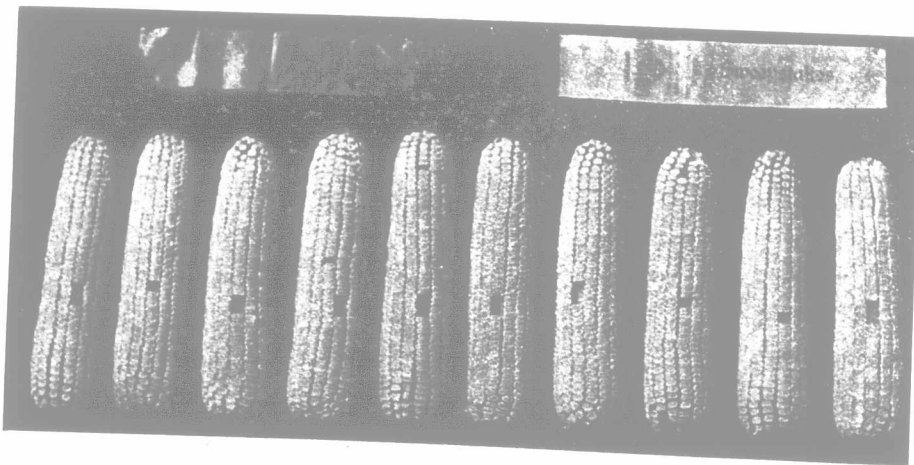
Best Bushel of Dent Corn.

Exhibited at Kingsville by B. R. Cohoe, Woodslee.

farmers of the province. By selection and breeding Experiment Stations have evolved varieties with comparatively small percentage of hull without sacrificing other desirable qualities. The importance of considering the hull on oats in particular was readily grasped by those who attended the meeting.

Corn as a Feed.

In introducing the subject of feeding corn, Prof. Day of the Ontario Agricultural College, Guelph, remarked that live stock aids in the growing of corn, the same as corn aids in the growing of live stock. In the United States the corn crop occupies a more important place in agriculture than it does in this country. It is rather unfortunate that corn cannot be grown in all parts of Canada since it is a hot-weather plant, but it is gratifying to know that it is being more widely distributed now than it was formerly thought possible. It is claimed that corn is one of the best and yet one of the worst feeds for live stock; it depends on the feeder. The following table compares the composition of corn with that of wheat, barley and oats:



Best Ten Ears Dent Corn at Kingsville.

Exhibited by Walkerside Farm, Walkerville.

	Ash	Crude Protein	Carbohydrates		
			Fibre	Nitrogen-free extract	Fat
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Dent Corn	1.5	10.1	2.0	70.9	5.0
Flint Corn	1.5	10.4	1.5	69.4	5.0
Wheat	1.9	12.4	2.2	71.2	2.1
Barley	2.7	11.5	4.6	69.8	2.1
Oats	3.5	12.4	10.9	59.6	4.4

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It will be noticed that corn is lower in ash and protein than the other grains. These two substances are very important, especially in the feeding of young animals as the ash of the feed goes to build up the bony structure and the protein is used in building up muscles and substances of similar composition. Corn falls below the requirements of young animals, and hence is not suitable to constitute their exclusive ration. "Its composition also indicates and practical experience has demonstrated," said the speaker, "that corn is not a first-class ration for milk production." However, it surpasses the other grains in carbohydrates and fat, substances which are used by the animal to keep up the heat of the body, provide energy and produce fat. The carbohydrates, it will be noted by the table, are divided into two groups, namely, fibre, which is difficult to digest, and nitrogen free extract, which represents the more soluble carbohydrates such as starch, sugar and similar substances. The fat or oil of the food is also used to keep up heat and energy and produce fat in the animal body. Pound for pound its value is considerably higher than that of carbohydrates. Corn is essentially a fattening feed, and is much better suited for producing fat in matured animals than for producing growth of bone and muscle in young animals. "If these facts are clearly kept in mind by the feeder, it will enable him to avoid many mistakes and to secure more satisfactory results from the feeding of corn," said Prof. Day.

The comparative value of Dent and Flint corn has been the subject of much discussion, but the speaker claimed that they were practically equal in feeding value, as has been proven by both analyses and feeding tests. It was also stated that yellow and white corn were practically equal in feeding value.

When feeding corn, it is necessary to provide some other feeds to make up for the deficiencies in the corn. This applies especially to all growing animals. Feeders have learned that to use corn to the best advantage it is better to supplement it with some feed rich in protein and ash. Unsatisfactory results are usually obtained with pigs fed almost exclusively on corn. Dairy by-products, tankage, wheat middlings, or shorts, were mentioned as excellent feeds to combine with corn for pigs. In the case of beef cattle, clover or alfalfa hay gives excellent results with corn, as they make up the deficiencies of ash and protein. The same also applies to the feeding of sheep, although Prof. Day suggested that it would be better to add a certain proportion of concentrates, such as bran, to the ration. For feeding dairy cattle, cottonseed meal and bran were mentioned in addition to clover and alfalfa as satisfactory feeds to combine with corn. In some countries corn takes the place of oats in feeding horses, but care should be taken not to feed the same bulk of corn as one would of oats. If allowance is made for extra weight and judgment is used, the speaker contended that oats could be partially replaced by corn for feeding horses doing farm work.

There are a number of by-products of corn which make valuable feed. The most important is gluten feed, which is the residue from the manufacture of starch from corn. High-grade gluten feed may contain over twenty-five per cent. of protein, but low grades fall below eighteen per cent. Thus it will be seen that gluten feed is a valuable product to use to increase the protein content of a ration, but it is advisable to purchase it on a guaranteed percentage composition. Gluten meal is another by-product of corn, and it is higher in protein than the gluten feed. Germ-oil meal and hominy feed were other by-products mentioned.

As a grain crop, corn is limited to rather a small portion of Ontario, but it can be grown as a forage crop in most parts of the province and in large areas of other provinces. Its large yield of feed, the palatability of the fodder it produces and the opportunity it affords for checking the growth of weeds, tends to give it an important place in our agriculture. It is as a silage crop that corn especially commends itself to the farmers of this country. It is important that varieties suited to the district be selected. The late-maturing varieties usually give a larger yield per acre than the early-maturing varieties, and it is often a debated question whether to sow an early or late variety for silage purposes. During the summer of 1915 experimental work along this line was commenced at the Agricultural College, Mammoth Southern Sweet, White Cap Yellow Dent and Longfellow

varieties of corn were put in the silos, and their effect upon the milk yield of cows was tested. As this particular summer was wet, corn was rather late in maturing. On the Mammoth Southern Sweet ears were barely found, White Cap was in the medium milk stage, and the Longfellow had reached the dough stage. The silage from the first variety mentioned was very sour, but that from the other varieties was quite satisfactory. The feeding experiment proved that Longfellow silage was worth \$1.43 per ton more than that from Southern Sweet. The White Cap silage in one experiment was worth \$1.11 per ton more than the silage from the Southern Sweet, and in another experiment the White Cap excelled by \$1.64 per ton. These comparisons were made on the basis of \$1.60 per hundred pounds for

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