

is fed, which is secured by grinding up both the kernels and the cob. In this case the cob adds bulk and lightness to the meal, which is, therefore, a more satisfactory feed in the absence of other bulkier concentrates than if the cornmeal were fed alone. Sometimes corn is used as a supplement to skim-milk for growing calves. Its value here lies in the fact that it is rich in easily-digestible fats, in which property the skim-milk is lacking.

The use of barley for milk production is more limited than oats. When fed along with bran, as half the grain ration, barley was found at the Ontario Agricultural College to give almost as good results as oats. Like corn, however, barley contains a large proportion of easily-digested carbohydrates, although the proportion of protein is ten per cent. greater and the amount of fat only half as much. Like corn, it is a heavy feed when ground, and should be lightened by the addition of bulkier and lighter concentrates, such as bran or oats. Leitch advises that on account of its tendency to heat the animal, it is usually not advisable to feed barley just previous to freshening, or immediately after, especially if the cow's udder be swollen or inflamed.

It may sometimes pay to feed wheat for milk production, if the quality of the grain is too low to sell to advantage. At the Maine Experiment Station wheat was found to be of equal value with corn, pound for pound, when fed for both milk and fat production. Danish experiments go to show that wheat is nearly equal to an oats-and-barley mixture. At the Central Experimental Farm, Ottawa, it was found that screenings containing 65 per cent. wheat, 25 per cent. other grains, and 10 per cent. weed seeds and chaff, was equal to a mixture of four parts bran, two parts gluten feed, one part oil cake, and one part cottonseed meal, when the screenings constituted one-third of the daily grain ration, and the other two-thirds consisted of the mixture mentioned above. The value of wheat screenings largely depends upon the proportion of weed seeds contained in them.

When not too high in price, which does not occur very often, peas are excellent stimulants to milk production. For this reason they are sometimes used, in spite of their high price, for feeding high-record cows in order to make large milk and fat records. Peas are rich in protein, fat, carbohydrates and ash. Although easily digested, they make a heavy feed when ground, and must be lightened up with bulkier and lighter concentrates.

Buckwheat middlings are about equal to a mixture of corn and bran, equal parts, when fed as a part of a balanced ration for milk production. Buckwheat middlings, however, are not relished to any extent by cattle, and if fed in too large a quantity are likely to injure the quality of butter made from the milk. This unfavorable influence, however, is more marked in the case of the buckwheat itself, which is on the whole more suitable for fattening purposes than for milk production. Where available, however, buckwheat may take the place of part of the corn, barley or oats.

Neither rye nor emmer are very efficient grains for the production of milk. This is particularly true of rye, which is probably the least satisfactory of all farm-grown grains for dairy cows, while at the South Dakota Experiment Station, emmer was found to be from 12 to 15 per cent. less efficient for milk production than either barley or cornmeal. Emmer, however, can be fed with safety as part of a ration, while rye is a more frequent cause of digestive troubles than other cereals, and in addition has not the feeding value of other grains. Where it can be secured at a sufficiently low price, it might be used satisfactorily to replace some of the other grains.

HORTICULTURE.

Move Made to Organize Niagara Fruit Growers.

Every fruit grower in the Niagara Peninsula is sufficiently well aware of the disastrous effects of inadequate distribution and the unusual shortage of packages, refrigerator cars, and labor on the fruit business of the Niagara District this year. Early in October the Hon. Manning W. Doherty, Minister of Agriculture for Ontario, took steps to call together a small committee of about a dozen representative Niagara district fruit growers, with a view to preventing another year the recurrence of conditions which in 1920 have been so unsatisfactory. A part of the Minister's letter to representative growers reads as follows: "I have followed with interest and much concern the progress of the fruit crop of the Niagara district. In its magnitude and quality it has been a credit to the growers, and further evidence that the district is wonderfully favored by nature. In its marketing, however, I regret to know that difficulties have arisen which have resulted in serious loss to the growers, and the Province as a whole. For this many causes have been ascribed, and some remedies suggested. I think it would be very useful to get together men from different sections to exchange experiences and endeavor to work out a plan for future operations. It has been suggested that better distribution and wider markets would offer a solution of many of the difficulties encountered this year, and it is also suggested that this could be effected through a more general and more complete organization of the growers themselves. If the committee is able to recommend definite plans of action, it may count upon the active and aggressive support and assistance of this Department to the fullest possible extent."

As a result of this letter the following committee of growers was called together at the Horticultural Experi-

ment Station, Vineland Station, on Wednesday, Nov. 24: David Allan, Grimsby; Major Homer Carpenter, Fruitland; Arthur A. Craise, St. Catharines; J. B. Fairbairn, Beamsville; W. M. Gayman, Vineland Station; J. R. Hastings, Winona; J. W. Hewitson, Winona; Erland Lee, Stony Creek; T. J. Mahoney, Hamilton; Jas. A. Railton, Fonthill; T. B. Revett, Niagara-on-the-Lake; Col. H. L. Roberts, Grimsby; A. J. Sheppard, St. Catharines; Arthur W. Smith, Winona; and Hudson Usher, Queenston. Messrs. Lee, Railton and Sheppard were the only ones not present of the committee, while the Department was represented by W. Bert Roadhouse, Deputy Minister; P. W. Hodgetts, Director, Fruit Branch; and E. F. Palmer, Director of the Horticultural Experiment Station. Messrs. Roadhouse and Hodgetts were asked to act as temporary chairman and secretary, respectively, until such time as the committee could select suitable officers from among themselves.

TRANSPORTATION MATTERS.

There was also present the general Agricultural Agent of the Canadian Pacific Railway, who was promptly given a busy hour by the growers, endeavoring to make clear the reason for the shortage in refrigerator cars. It seemed to be apparent, however, from the remarks of the growers, that the onus of responsibility for failure to promptly supply "freezers" or refrigerator cars rests largely with the Grand Trunk Railway. C. P. R. freezers in most cases appeared to have been promptly supplied to Niagara district growers over the line of the H. G. & B. Electric Railway. Mr. Dougall pointed out that so far as refrigerator cars are concerned, the C. P. R. must look after its own growers first, that is, those on C. P. R. land, and made a further statement that there are a lot of refrigerator cars on the way East to take care of the apple situation. The British Columbia crop is practically all moved, and the shortage of the potato crop in New Brunswick will permit of more refrigerator cars being available for other crops. The speaker believed that the supply of equipment was adequate to take care of the situation.

It was also explained that the C. P. R. gets out a crop estimate yearly, a copy of which is supplied to the officer in charge of the distribution of cars. The cars are then distributed on the basis of this crop estimate, but if the crop later on falls down below the estimate made the distribution of cars may, perhaps, prove to have been faulty.



An Illustration of the Unfortunate Waste of Fruit Forced Upon Niagara District Fruit Growers this Year.

It was further stated that it is much more difficult to estimate crops from the Province of Ontario than from British Columbia, for instance, where the fruit areas are comparatively small and isolated from each other. At the present time there are ten freezers of the most up-to-date brine-tank model being turned out daily from the C. P. R. shops. Refrigerator cars have been cut off from the export meat business to take care of the moving of the fruit crop. Mr. Dougall also stated that the Canadian Pacific Railway very much preferred to deal with fruit growers as an organization, and cited the efficient work of the Okanagan United Growers, in British Columbia, as evidence of the splendid results which might be secured from co-operative effort. British Columbia growers, in the opinion of the speaker, were practically driven to co-operation by poverty. Just this year, also, fruit growers in the Province of Quebec have organized on a co-operative marketing basis with much success.

J. B. Fairbairn stated that the shortage of refrigerator cars had cost fruit growers in the Niagara district thousands of dollars this year, and that at one time there were one hundred empty refrigerator cars on the tracks at Hamilton when growers could not get one placed for fruit. On one day also, during the peach season, when fourteen refrigerator cars had been asked for, only three were delivered, while on the same day a refrigerator car loaded with empty baskets which could just as well have been shipped in any other kind of a car, was delivered at the same station. Arthur Smith also pointed out that the Grand Trunk would supply a car for the Montreal market when they would not supply it for smaller towns, because they claimed a longer haul was thus possible. The result, however, was that the Montreal market was glutted with fruit on occasions

when other cities and towns would have offered a good market.

VIEWS REGARDING ORGANIZATION.

After this preliminary skirmish about transportation matters, members of the committee were asked to give their views with regard to the situation, and the trend of the whole meeting thenceforth was toward organization the need for which all members of the committee were agreed upon, but there were many and varied views as to the causes of present conditions and methods of overcoming them.

J. R. Hastings, Chief Fruit Inspector for Western Ontario, and formerly Manager of a co-operative fruit growers' organization in the Niagara district, offered on behalf of C. W. Baxter, Dominion Fruit Commissioner the fullest co-operation of the Fruit Branch of the Dominion Department of Agriculture. The Fruit Commissioner, said Mr. Hastings, takes the position that organization offers the only solution for Niagara district growers. The speaker believed that no sane person, unless prejudiced, would say that a well-managed co-operative association would not give more satisfactory service to the growers than individual effort. Some say that there are too many large dealers, and that a man cannot be secured who is qualified to handle a big association. These difficulties could be overcome. It should not be expected that all the growers will come in at first, and there are some who will need a considerable amount of education before they would make valuable members. So far as the dealers are concerned, some of them should stay in the business whether an association is formed or not, and they will undoubtedly benefit mutually with the growers by so doing.

Mr. Hastings enumerated several essentials which, in his opinion, were necessary for the most successful organization. It would be necessary to have a private telephone exchange whereby every portion of the Niagara district could be reached immediately with market information. The railways must provide good accommodation at every shipping station. There are also conditions obtaining in the Niagara Peninsula that probably do not obtain anywhere else in North America, and the speaker believed that small organizations controlled by a larger central organization is a plan that will not work. He would have members directly connected with the central organization, and would form districts under the control of sales managers employed by the central association. No large amount of capital need be raised.

Colonel H. L. Roberts had been connected with co-operative organizations since 1904 or 1905, and since that time had never sold fruit otherwise. He was free to admit, however, that at Grimsby they had started originally with an impractical idea in mind. This was the idea of packing tender fruits in central packing houses and it was found to be unworkable. Colonel Roberts laid greatest stress upon the necessity for strict and careful grading. In his opinion the person who determined whether or not a certain lot of fruit was properly graded, or was up to the grade, should not be in the employ of a local branch or local association. He should be an employee of a central association. A No. 1 sample of fruit should be the same all over the district, and must be worthy so far as practice of the same price.

The good grower could only be retained in a central association by protecting his grade. There must also be effective communication between the grower, the central association, and the market. It would need a big man to run the association. The speaker saw no difficulties in organizations that were insurmountable, and he did not think it would be necessary to have every grower a member.

COMPETITION BETWEEN LOCAL ASSOCIATIONS.

J. B. Fairbairn said there might be some question as to whether all of the growers were ready for a central Niagara district organization. There were many instances where co-operation had been most successful where it was the result of extreme conditions. Personally, as an independent grower and not a member of any local association, he favored organization. As a non-member he felt that perhaps one of the difficulties of organization would be the feeling which now exists to a greater or less extent, between the existing local co-operative associations. He felt that if a large organization were to succeed, it would be necessary to give it sufficient control over the fruit business of the members and of the districts.

J. W. Hewitson believed the lack of good feeling to be due to competition, which resulted in many cases of price-cutting. He quoted one instance wherein he had sold 1,100 packages of sour cherries, 800 of which his association could supply and which were shipped by freight. The remaining 300 he shipped by express, and these were purchased from the manager of another association. They were sold in a certain town at \$1.30 per package, but they were purchased from the other co-operative association at \$1.15. Less than two hours after, he found that the manager from