roughage to those already described. Another neighbor, David Taylor, feeds only two pounds of meal per day, but adds a pound of corn meal to this about the first of March. The steers also have one feed of hay per day all winter, the hay being mixed, clover and timothy, but some alfalfa hay is fed in addition. The 16 steers in this stable gave evidence of careful feeding and attention. Practically the same gains are looked for by Mr. Taylor with this slightly different method of feeding to that previously mentioned.

Another stable visited was that of P. J. McCallum. His barn is given over entirely to feeding steers. The stable is divided into two parts by a long feed rack extending almost the entire length. Twenty steers are allowed to run loose on either side of the rack, and there is feeding accommodation for exactly forty head. The attendant carries the feed off the barn floor into the rack, which is elevated above the floor of the stable. These steers were being fed a mixture of silage, cut straw and cut corn stalks, the proportion being about ½ silage, ¼ straw and ¼ cut stalks. The chop consisted of oats and barley, of which they received, on an average, about 5 quarts per day. The animals were a well-chosen lot, and had done well. They, too, will go to grass on May 10 or thereabouts.

A Little Talk on Annual Pastures.

It is said that the weather in succeeding years goes to extremes. If such is the case, 1916, following a year of unprecedented moisture, may be dry. At any rate, many farmers who have a large stock to pasture and who have broken a large proportion of their land ready for spring grain and roots may feel obliged to provide some extra pasture in the form of an annual crop sown this spring immediately after the cereal seeding is completed. We have tried two different crops for this purpose at Weldwood, one of them being a mixture which Prof. C. A. Zavitz has recommended for several years, and which in trials for seventeen years at the Ontario Agricultural College gave the highest yield of pasture during the summer, and we also tried another crop very similar, only that the sugar cane was replaced with a fairly heavy seeding of hairy vetch. This was two years ago, and that year the mixture containing the vetch gave us a much heavier yield of pasture than did the other mixture. Prof. Zavitz recommends sowing 51 pounds of oats, 30 pounds of Early Amber sugar cane, and 7 pounds of common red clover per acre. This makes a total seeding of 88 lbs. per acre. The oats and the sugar cane are mixed together and are sown from the grain box of the seed drill, while the clover seed is sown in the usual manner from the clover seed box, spouts set ahead of the tubes of the drill. The purpose of the crop is to have green feed throughout the summer. The oats come on early, the sugar cane arrives in the hot weather of mid-summer, and the clover supplies the fall pasture. The crop which we found to beat this was about the same amount of oats per acre, with a heavy seeding of hairy vetch and 7 lbs. of clover. However, this latter crop cannot be considered this year, as hairy vetch is quoted by seedsmen at something over $20 per hundred pounds. It is ordinarily worth somewhere around $5 per bushel, so the seeding is expensive. The difference in soil must always be considered for annual pastures as well as for other crops. The soil at the Ontario Agricultural College is friable, well-drained, comparatively early and loamy; the soil at Weldwood is heavy, more difficult to drain, later, and inclined to be colder. We found that the oats and the clover did well in Prof. Zavitz's mixture, but there was not enough sugar cane to make it worth while in the mixture. As will be remembered, it was a fairly favorable season in 1914. We have discussed this mixture with several people, and most of them found that they had difficulty in getting the sugar cane to amount to very much on their land. Sugar cane does best in a dry, hot summer and for this reason it may be advisable to add it to the mixture, because it is the dry, hot season in which annual pastures are most profitable. However, for heavy land or land that is inclined to be cold, the oats and the clover alone make just about as good a crop as will the entire mixture. It would be a fine thing if our investigators could produce some crop that would do well universally over Ontario in which sugar cane was replaced by some other plant which would furnish pasture between the flush of the oat growth and the best of the clover growth which comes late in the fall.

Last year, on the farm proper, at the Ontario Agricultural College, a very successful pasture was composed of one bushel of wheat, one of oats and one of barley per acre and seeded to red clover, timothy and alsike for the following year. Prof. Leitch, who used this mixture, thinks a great deal of it. Of course, last year was a wet season and the crop grew well throughout the entire year and produced an abundance of feed. The objection that some have to this crop is that in a dry year it is inclined to grow rapidly and produce much feed at first, but falls down in the hottest and driest period during the midsummer season. However, the mixture has given success and is worthy of consideration, and until something better is found would likely prove more profitable, particularly on heavy and cold soil, than would the mixture containing sugar cane.

There is one point which should always be remembered, and which is extremely favorable to the annual pasture crop, and that is the fact that clover almost always catches well and produces a good crop to have the next season when seeded with one of these crops.

Whole Milk for the Dual-purpose Calf.

The calf from the dual-purpose cow usually gets a different treatment from that given the pure-bred animal bred and reared for beef alone, or with beef the one main object in view. While it is generally believed, and has been many times shown that the early days of the calf's life are those in which it is more necessary than at any other time that the calf receive plenty of good feed and judicious care, those specializing in dual-purpose cattle do not believe in allowing the calves to suck the cows. In the first place, cows would not be pushed to a maximum milk production and in the second the calf would get so much whole milk if its dam was a good milker, that it would develop beef tendencies to a greater extent than milking propensities. We believe that the calf to be raised for a dual-purpose cow or sire should be well fed from the time it is dropped, and as a general thing it would be advisable to continue feeding the calf whole milk for some time, and then gradually change from whole milk to skim milk. We would not advise stopping the whole milk while the calf was yet very young. Scouring may result, and anyway the calf's growth and general condition would be impaired by substituting skim milk entirely. Besides the whole milk, some of the proprietary calf meals, linseed meal or some such concentrate as bran and oats should be fed and the youngsters given all the clover or alfalfa hay they will clean up. We would rather take chances on the cow or bull which had been kept in good flesh when a calf and on up through its earlier months and years, than upon one which had been fed a small ration, little more than a maintenance ration, and grew up thin, peaked, partially stunted and lacking in vigor. It is generally better to have a little flesh on the animals when they start their first lactation period to milk down than to have them commence low in condition and never prove profitable.

A Scourge Which Can Be Combated.

Bovine tuberculosis is a peculiar disease. A few days ago we heard of a cow being killed which had been in an isolation tubercular stable for seven years, with other cows affected with the disease. She, herself, re-acted from time to time, but never showed clinical symptoms of the trouble. When killed, practically the only lesions found in her carcass were located in the throat. Her liver appeared to have been at one time affected but had healed up. In the same stable are cows giving heavy yields of milk, some over 20,000 pounds in a year. Most of them show no effects of the disease and yet react. Some years ago we remember seeing a cow which had been affected with the disease for some time. She showed clinical symptoms, but milked heavily right up to the time she was killed, and when killed, several very large lesions of the disease were found—in fact, so badly was she affected that one would wonder from looking at her carcass how she lived. No doubt, many cows have the trouble, but it is not known to their owners. Where testing is done and the cows isolated and the calves taken away from them as soon as dropped and reared from milk from healthy cows, it is possible to use the diseased cows in the breeding herd and to produce a number of healthy calves from these heavy yielders which have fallen a prey to the disease. Calves are born as a general thing healthy, and if put in healthy surroundings, away from their diseased dams and fed on the milk from other and healthy cows, grow up all right. It is too bad to discard the best cows because they react. Young stock from cows in the stable already referred to are perfectly free from the disease, but have never, of course, been exposed to it.

Alfalfa Safest for Breeding Ewes.

Breeding ewes, without exercise, generally give trouble. A few days ago we noticed at the Ontario Agricultural College a flock of ewes of different breeds which we remarked as being over-fat, but which were producing a large number of smart, thrifty lambs. It is held by those in charge that the reason for these ewes being so fat is that they have had a liberal supply of well-cured alfalfa hay all winter. They have had no grain, but have laid on flesh all the time. In one part of the pen were three Leicester ewes with seven lambs living. They had eight and were raising seven. Ordinarily ewes as fat as these were, and housed in a comparatively small pen without an outside yard in which they could take exercise at will, give some trouble at time of parturition. Grain-fed ewes or ewes fed on grain and a heavy ration of roots kept under such conditions would surely produce flabby lambs, which would increase the number of cases of difficult parturition and increase the losses in the lamb crop. Those in charge believe that alfalfa is one of the safest and best feeds for breeding ewes, particularly where the ewes get a limited amount of exercise. It would be equally satisfactory, however, where the ewes got the maximum of exercise.

Oats and Bran for the Calf.

The beef-bred calf must be kept growing from the start. In the pure-bred herds it generally sucks the cow from the beginning. As time goes on it is necessary to give some grain, pulped roots, silage and alfalfa or clover hay. In looking over the beef herd at the Ontario Agricultural College a few days ago, we remarked that never had we seen, at that Institution, a better lot of calves, all in excellent condition and apparently good doers. We enquired as to what they were being fed. Of course, they were sucking the cows, but calves four, five and six months old were getting, besides all the good hay they would eat, about three pounds per day of a mixture composed of half rolled oats and half bran. It looks as if this was a good mixture of grain for the calf being raised as these calves are, in fact it is not a very bad grain mixture for any calf.

Making Pork Rapidly.

No hard and fast rule can be laid down regarding the breed of hogs or kinds of feed that will give the most satisfactory returns. A good deal rests with the care and attention given by the feeder. Some feeders claim to make large profits from feeding hogs while their next neighbor with the same breed of hogs, similar style of pen, and same variety of feeds barely meets expenses. Armstrong Bros., successful York county farmers, feed their hogs a little differently from most feeders but they secure very remunerative returns. Three Yorkshire sows of splendid type are kept and bred to a Tamworth boar. They have left large litters that do well both summer and winter. One sow raised three litters, of ten pigs each, since February 1, 1915, and is due to farrow again in May. The pigs are housed in a frame building which is ventilated by leaving two of the four windows out all winter. In case of a storm, a bran sack is hung over each opening and the pigs never appear to suffer from cold. The pen has a concrete floor which is kept well bedded.

When the pigs are two weeks old, they have access to sweet skim-milk and soon learn to supplement their regular ration. The custom is to wean the pigs when four weeks old and feed them principally on skim-milk for a few weeks. While the majority of feeders consider middlings and finely ground oats almost indispensable for starting young pigs, such feeds are not used for hog-feeding on the farm in question. Wheat and barley chop in equal proportion comprise the grain ration until the hogs are about four-months old, then the grain ration is composed of two-thirds wheat to one-third barley. Mangels are fed the growing pigs and dirt from the root house is thrown in the pen. On the feeds mentioned, one pen of nine would average about 150 pounds at four months old. Another litter of nine, farrowed November 6, averaged close to 190 pounds April 6. Six of this litter weighed over 200 pounds, but three were smaller. Last summer these same feeders had two sows farrow June 8, and seventeen hogs were shipped Nov. 29, which averaged 200 pounds. These results with both summer and winter litters show that the method of feeding is giving satisfactory returns. The supply of skim-milk no doubt is a large factor in keeping the pigs doing well.

Without a liberal supply of skim-milk, the pigs could not be weaned so young, and wheat and barley would probably be too strong a feed for young pigs. On this farm skim-milk is valued highly. Another feeder might not have any success in feeding the ration outlined. The majority of hog raisers prefer to allow the pigs to remain with the sow until they are at least six weeks old, and then start them on skim-milk, middlings, and finely ground oats, using the heavier feeds for finishing.

Grading Wool and Flock Management.

EDITOR "THE FARMER'S ADVOCATE":

A few years ago my brother and some of the neighbors took a liking to the Dorset breed of sheep. They started raising them and were producing a class of wool inferior to none, or very little, being put upon the market. Others were keeping either Lincolns or Leicesters. Their wool was coarse and of poorer quality. The wool was at that time mainly marketed at the woollen mills in Kingsville. There was a slight difference paid in favor of the finer wool but nowhere near enough to compensate for the difference in the weight of the fleeces. This difference in weight amounted to say from 4 to 6 lbs. per fleece, while the spread in price was only about four or five cents per pound. Thus the fine-woolled breeds were shearing, say, an average of 6 lbs., which sold at around 22 cents per lb.—$1.32. The coarse or long-woolled breeds sheared an average of 10 lbs., and sold at 18 cents per lb.—$1.80. The result has been to drive many from keeping short-woolled sheep. When the war started the woollen mills were closed because of a shortage of dye stuff. Since then the wool has in most cases, I believe, not been graded at all, because the men who bought it did not know how to grade it. This does not hurt me, because I keep Lincolns from preference.

I am conducting things in a way that seems new to most people. I have a tag put in the ear of each sheep. This contains my name, and they number from 1 up. Then each ewe has a page in a note-book kept for the purpose. The number and sex of the lambs she drops also the weight of wool she shears are put down. The lambs are tagged before they are weaned, and the number of the dam is put down on the record of this lamb. I am using pure-bred rams which shear a heavy fleece, and are desirable in other ways. I hope to build up a flock from heavy-shearing dams and with a tendency to throw a large proportion of twin lambs. My flock last year sheared an average of 13 lbs. of wool each. But individually this runs from 11 to 16 lbs., and you could not always tell by looking at or handling these sheep which