kills millions of germinating weed seeds, but its principal value is to warm the soil. Here again we have an experiment to report. One portion of a field at Ottawa was harrowed; another was not. One day later the temperature of the soil in the harrowed field was 10 degrees higher than where the harrows had not been used. The explanation is that where a dust mulch has not been created by harrowing, the moisture comes to the surface by capillary action, and is evaporated. Much heat is necessary to change the liquid to gas, hence the soil is cooled. With corn we must remember that it is not a native of this country, and heat is an important element in its success. When the corn is up harrow it again, and when the rows can be seen clearly, start the cultivator and keep it going until you can't see the horse in the field.

It is good practice in the fall to disk the corn field and then turn the rows of corn stubble out with the plow, exposing the roots to the weather Of course, a shallow furrow would be cut under the stubble. In the spring, when the land is worked up for grain, the corn stubble will not be found to interfere seriously with the planting of the grain crop, and we have had no trouble from having it mixed with the straw at harvest. The same principles apply in preparing the soil for grain as for corn. Work it up until you have a fine, mellow seed bed. We use banner oats, as

we have found that from this variety we get from five to 10 bushels more per acre than from any other variety we have tried. We use nothing but good seed.

We sow grass seed at the same time as we sow the grain, and we always sow grass seed with grain. No man should attempt to grow two crops of grain in succession. After corn, land is in the best shape for grain, and after one crop of grain it is in the best shape for grass

a disputed point. I

am convinced most farmers use too little. On our demonstration farms throughout Canada we agreed to pay the farmers for the extra quantities of seed they were to use on our recommendation. The results in favor of the heavier seeding were so extraordinary that these farmers themselves have taken to sowing an extra amount of seed, and their neighbors are following their exemple. At Ottawa we have been experimenting with the heavier seeding for 25 years. We would recommend seeding under Ottawa conditions eight to 10 pounds of timothy, six to eight pounds of red clover, two to three pounds of alsike, and five to six pounds of alfalfa per acre; about 25 pounds altogether. The resultant increase will much more than pay the extra cost of seeding. If we spend \$1.50 for extra seed, I am confident that the extra crop will be worth \$5 or more. On low bottom land I would not add alfalfa, but under other conditions I heartily recommend the alfalfa seeding. The results the first year may not be great, but the next time seeding comes around the alfalfa will make a good growth. At Ottawa our hay crop from this seeding is worth \$3 to \$5 more per ton for feed than hay from straight timothy and red clover with smaller quantities

of seed used; enough to pay for the extra seed. . are established. We should be able to produce of manure to an acre is good that 25 tons is that much better. Moderate applications frequently applied are preferable to heavy applications at long intervals. Our plan at Ottawa is 12 to 15 tons per acre every three years.

[Note.-This article is a synopsis of an address by Mr. Grisdale at a recent Patriotism and Production Conference in Peterboro, Ont.]

The Beef Cattle Outlook* John Gardhouse, York Co., Oni.

" HE world over, there has been a great shortage of good beef cattle. In the last eight years the supply on the primary markets of the United States has decreased by one and one-half million head. Then consider the effect of the war. In Europe many of the breeding herds may have to be slaughtered. This will tend to still further accentuate the beef cattle famine.

What of the home situation? I find that in Canada in the last 11 months, registrations have increased some 26 or 27 per cent. Breeders are paying more attention to producing good purebred cattle. They are safe in so doing. Population here is likely to increase very rapidly with the conclusion of war.

"Sap's Runnin' " and the Pure Syrup Will Find a Fair Market.

grass. This seeme will recall pleasant memories to thousands. It is the sap boilt The quantity of Kr. Nathan Payne and his two sons, Norman and Bafus, in Peterboro Go, grass seed to use is with adultered products will periodus a will not have to commete on a dismuted point. I matter the market for pure syrup and sugar.

Market conditions at present are not very satisfactory. The outbreak of war, the widely prevailing financial stringency, the dry season, the high prices of feed, and the United States embargo which lasted for a time, have all contributed to a chaotic state of the market. The high price of feed in particular has been responsible for the rushing to market of many immature, unfinished cattle. The same factor has accounted for the marketing of breeding cattle as well as market cattle. It is a pity if this should take place on an extensive scale. Farmers will be wise not to sacrifice now the stock that will be of great benefit to them later on. The population of Canada and United States in 50 years will be enormous. This will mean a great demand for beef of all kinds.

It is an important thing in periods of national stress to shoulder a gun and go to the Front It is equally important that those of us who are left behind should put our shoulder to the wheel and produce all the food we can. To the pure-bred breeder I would say, Ontario should be the breeding ground for the rest of Canada. We are the oldest province, the herds "Synopsis of an address at the Guelph Winter Fair.

A final word. Don't think that because 10 tons # all the good breeding stock the other provinces require

The Scales and Babcock Test James P. Jeffrey, Carleton Co., Ont.

HAVE just finished my first year of weighing the milk from my herd. I am so, well satisfied with the results that I would like to see more people trying it out. Why should not Farm and Dairy advocate the weighing of milk more extensively.

My herd is a very ordinary one, having one cow that produced 8,240 pounds of milk on very ordinary feed in 10 months. The cow that I consider the best grade in the herd produced 8,000 pounds of milk in seven months and a half. Then I have another cow which I considered a good one that freshened and was bred again about the same time as my 8,000 pound cow, By feeding them on the same feed they had an equal chance to prove their good qualities. The scales, however, showed the latter cow to be the meanest one in the bunch, only producing 5,660 pounds of milk, which at the average price per hundred from the cheese factory last season would make a difference between the two of-well, the price of an ordinary cow ten years ago

I intend giving some of my cows a year's test feeding them better, and will watch the result shown by Mr. Scales at the end of the year. I think the scales and Babcock test are the only ways in which to prove a cow's worth.

When Should the Heifer Freshen?

T one time it was generally believed that the miking qualities of a heifer were strengthened by having her freshen at an early age. Of late years this theory has been questioned by practical dairymen. While travelling through the Belleville district, a representative of Farm and Dairy found considerable difference in the practice of various breeders in this regard.

The majority of men interviewed disliked having their heifers freshen until they were about 30 months of age. Among these were Mr. E. B. Mallory, whose herd of fine large cows proves that the heifers were not robbed of their growth. Mr. H. K. Denyes and Mr. Eagleson, Mr. Wm. Stewart and Mr. Alex. Hume, the well-known Ayrshire breeders, do not object to their cows reaching the age of three years before freshening. In their opinion the milking qualities are not impaired and the size is benefited. On the other hand, Mr. Nelson has his heifers freshen at about two years, and does not find any ill effects from early breeding. Of course, his calves are brought along rapidly. ... Mr. Wm. Honey also has his heifers freshen at an early age. It may reduce the size a little, but not the productive ability, he maintains.

Mr. A. D. Foster, of Prince Edward county, is opposed to the practice of early breeding. There is more immediate money in having the heifer drop her calf when two years old than in allowing it to come in six months later. But there is no doubt the former system interferes with growth. Mr. Foster's neighbors, Mr. Ed. Purtelle and Mr. Sen Leavens, differ in their methods, the former seeing no ill effect from early breeding.

Large, strong cows are being developed under both methods. But it would appear that the tendency is towards later breeding. The treatment of the calf and the size at time of breeding is of as much importance as the age.

The most successful farmers are those who keep their sons and daughters on the farm and give them all an interest in the farm, a partnership interest, if you please .- Dr. G. C. Creelman, O.A.C., Guelph.

" HE splendic College, Q cattle by Prof. H revealed to the shire Cattle Bre sion of a recent following the an held at Montreal the stock judgin an hour Prof. B: the herd brough tion. The herd i comprises some 35 Holsteins, as of milking Shorth Canadian cattle.

In his remarks cattle, breeders, 1 phasized the point was made at the large records. the animals for co is considered even Nevertheless, even herd is expected dard of productio ensure a good m of feed. Heifers. are not bred too y reasonable rest b record of the here ages, including Canadians, and m month milking pe 3.6 per cent. Prof. Barb

As regards the h stated that his ain average 10,000 pou a calf each year. ing the goal, for 1 Ayrshire cows and aged 9,395 pounds of average test of 8. butter fat. The hig one of practically 1

Prof. Barton first ants lead in the he side Lucky Cavalie a noted prize winne ring as a youngste ed into a bull of gra He has retained his and dairy type. M announced that the bull had completed days before of only less than 17,000 pour The sire of this bu pion at the Chicago looked just about fit He is three years of

