have a flavor and palatability which makes them acceptable to practically all classes of live stock.

Experiments credit them with producing ten per cent. more milk and fat than an equal weight of bran when fed with clover hay and corn fodder. It is claimed, however, that if timothy hay displaced the clover the bran would be the more valuable on account of its higher protein content. They also contain a large proportion of ash which makes this grain particularly suitable for raising young animals. Peas are considered to be one of the best stimulants of milk production, as they contain a very high percentage of protein and are also rich in other constituents. However, the price prohibits them from general use. Buckwheat can be fed to a limited extent, but when fed in large quantities it is thought that it injures the quality of butter. Rye is considered to be the most unsatisfactory of farm-grown grains for milk production. It tends to produce hard, dry butter, and is believed to cause digestive troubles. A small quantity might be used without any serious trouble arising.

When it comes to dry roughages, red clover is generally considered to be the most important crop for milk production. While it may not contain as high feeding value as alfalfa yet it can be grown on every farm, and it contains a high percentage of digestible protein. Liberal feeding of red clover permits the dairyman to reduce the more expensive concentrate part of the ration. Clover hay is a fairly well-balanced ration in itself for young stock and for cows giving a small flow of milk. Of course, its value is influenced by the condition in which it is stored and the time it is cut. The aim should be to grow all the red clover the cows will eat. There is too much timothy hay grown on many farms; more clover would aid in comprising a more economical ration than can ever be done with timothy. Alsike hay has very much the same composition as red clover, but it is not quite so acceptable to cows. Alfalfa is the highest in protein and the most palatable of all roughages, and analysis shows it to compare favorably with bran as far as composition goes. Experiments have proven that for cows of moderate production very little grain is required when good alfalfa hay is available. Sweet clover is coming into prominence, especially as a pasture crop. If cut at the right stage it makes very good hay, but owing to having a slightly bitter taste it takes a little time for cattle to become accustomed to it. It thrives better than the other clover on poor soil. In some portions of the country peas and oats are sown and cut green and cured for hay. This crop can be sown in the spring on meadows which have been winter-killed. The time of cutting to secure the highest feeding value is when the peas are in full bloom and the oats are in the milk stage. Timothy hay is harder on the soil than clover, and when it makes up the roughage part of the ration for cows, protein-rich concentrates must be added to the ration to properly balance it. Millet compares with timothy for milk production. While straw contains a high percentage of fibre it can often be used to advantage to supply the bulky part of the ration. If fed whole, cows will pick over a good bit of it, but it can also be cut and mixed with silage or roots. Oat straw is generally considered to be the best. The chaff of wheat and oats should be saved, as it is very acceptable to the stock when mixed with silage.

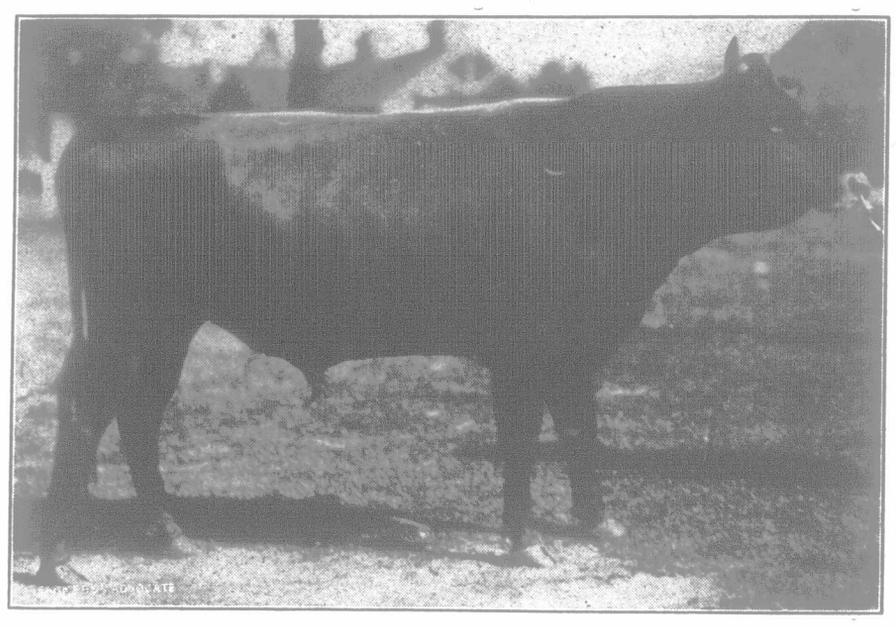
The majority of dairymen, especially in Ontario, rely on corn silage to supply the succulent part of the ration. A large weight of corn can be grown to the acre and the silo makes a convenient place to store the crop. Experiment stations in the United States claim three pounds of silage equal to one pound of alfalfa. However, silage is not a perfect ration in itself and must be combined with some other roughage. Its succulency, however, aids in making some of the coarser roughages more palatable. Where corn cannot be grown successfully, a mixture of oats, peas and vetch may be ensiled satisfactorily. In feeding value it compares favorably with corn silage, although it does not yield so heavily. Roots, such as mangels and turnips are excellent for keeping stock in a healthy, thrifty condition.

There are a number of by-products which enter into the composition of many rations. Bran is possibly the best known. It has high feeding value and can be fed in fairly large quantities. Shorts are a little richer than bran, but owing to their heavy, sticky nature cannot be fed in such large quantities. They may be used as part of the ration. Brewers' grains contain a fairly high percentage of protein but are devoid of carbohydrates; pound for pound they compare favorably with bran for milk production. The by-product, of the manufacture of starch from corn, known as gluten feed, is a valuable product if of high grade. As a source of protein high-grade gluten feed is claimed to be worth about twenty per cent. more per ton than bran. Cottonseed meal is believed to be the cheapest source of highly-digestible protein and is one of the best stimulants of milk production. Its value is in increasing the protein-content of a ration. It must be fed in moderation, however; two pounds per day per head is a fair quantity to feed, although some feed heavier. It is not considered advisable to feed it to calves and pigs; the danger lies in its constipating nature. It should, therefore, be fed with silage or roots or some laxative concentrate. There are different grades; a good brand containing forty per cent. or more of protein is worth about twice as much per ton as cold-pressed cottonseed cake or cottonseed feed. The latter two grades are not worth much more per ton for feeding than bran. The by-product of flax-seed, known as oil cake, oil meal, or linseed meal, contains a high percentage of protein and is less dangerous to feed than the cottonseed. However, it does not contain as much protein as the cottonseed, therefore, for protein alone cottonseed meal is probably the more economical. There is something about the oil cake which makes it particularly valuable for conditioning animals. It is a safe feed for all classes of stock. Dried beet pulp, a by-product of sugar beets, while containing a considerable portion of fibre has a fair amount of protein, and is worth about two-thirds as much per ton as wheat bran.

There are a vast number of feeds which may be used in making up a dairy ration. By feeding heavily on the right kind of roughage, there can be a saving of the concentrates. Very often it pays to purchase some of the feeds which are high in protein to balance up the home-grown grains. When doing so particular attention should be paid to the composition and digestible nutrients in the feeds. The feed to buy will depend on the nature of the home supply. To purchase high-priced feeds without giving any thought as to how they will combine with the feeds on hand is poor business. With the present high prices a dairyman cannot afford to make up his ration haphazardly; a little study of the feeds to enter into the ration is necessary in order to feed most efficiently and yet economically.

Grading Up the Herd.

In view of the fact that, by the use of a well-bred sire from high-producing stock, the average production of an ordinary herd can be practically doubled in a few generations it is astounding that the average milk yield is so low to-day. It is only a few hundred pounds higher than it was ten years ago and yet in that time individual dairymen have more than doubled the production of their herds. Why hasn't every dairyman done so? It is a difficult question to answer but we believe it is largely due to failure to use high-producing bulls, and to neglect to practice selection of the breeding females. It is unfortunate for the dairyman that he permits a few dollars to prevent him using the right kind of sire and so jeopardize his chance of success. "Like tends to beget like" consequently heifers from a sire of heavier producing stock than the dam's ancestors would be better at the pail than their dams. This is clearly shown in experiments conducted by Prof. L. S. Gillette of Iowa Experimental Station. Pure-bred bulls were mated with ordinary cows and the resulting heifers were bred back to approved bulls of the same breed as were their sires. The following table gives the results:



Maple Lea Hero.
First senior yearling Jersey bull at London for T. O'Brien, London, Ont.

Bull Used	Dams' Average		Daughters' Average		Granddaughters' Average	
	Milk	Fat	Milk	Fat	Milk	Fat
Holstein	3,255	161	6,311	261	11,295	431
Guernsey	4,168	186	4,634	218	7,091	355
Jersey	3,903	186	5,400	287	5,479	291

These are exceptionally big increases and show the possibilities of improving the herd through the sire. Comparatively few farmers have pure-bred herds, consequently grade cows must continue to furnish the bulk of our milk supply. Don't be content with feeding and milking just grades, aim at building up a herd of high quality grades and then you may see your way clear to purchase a few pure-bred females and gradually build up a registered herd. The most economical and practical method of doing so is by using a high-quality, typy sire whose ancestors were heavy producers of milk and fat.

Add another fifty or one hundred dollars to what you intended to pay for a sire and in all probability you will be able to secure the kind that will materially improve your herd. Too many good bulls are slaughtered at three or four years of age. You may be able to purchase a proven bull, one that has daughters in milk, for a reasonable figure. If properly handled and fed a bull's usefulness does not terminate until he is over the ten-year mark. We must build for the future. It does not show much progress when the sons have to milk cows that give no more milk and are of no higher quality than the representatives of the bovine race which their father milked and tended as a boy. Look well to the records of the sire's ancestors, but do not lose sight of type and conformation in the individual. Combine type and production as much as possible.

Regulations Governing Oleomargarine.

Following are the twelve regulations governing the importation, manufacture and sale of oleomargarine in Canada:

1. On and after the first day of November, 1917, and until the Governor in Council has by order declared that the present abnormal conditions have ceased, paragraph (a) of section 5 of The Dairy and Industry Act, 1914, Statutes of 1914, chapter seven, shall be suspended in so far as it provides that no person shall manufacture, import into Canada, or offer, sell or have in his possession for sale, any oleomargarine as hereinafter defined, and the importation, manufacture, offering for sale and having in possession for sale of any such oleomargarine shall be permitted, subject, however, to the rules and regulations hereinafter set out.

2. For the purposes of these regulations "oleomargarine" shall mean and include oleomargarine, margarine, butterine, or any other substitute for butter which is manufactured wholly or in part from any fat other than that from milk and cream, which contains no foreign coloring matter and which does not contain more than sixteen per cent. of water.

3. No person shall import or manufacture oleomargarine without having first obtained a license from the Food Controller for Canada, such license may at any time be cancelled by the Food Controller for the violation of any of the provisions of these regulations or of any other regulation made by His Excellency the Governor General in Council or by the Food Controller.

4. No oleomargarine shall be manufactured in Canada unless it has been manufactured under the supervision of the Minister of Agriculture of Canada, and no oleomargarine shall be imported into Canada unless it has been manufactured under Government supervision in the country of production and is accompanied by satisfactory evidence of such supervision.

5. Oleomargarine shall not be manufactured in any premises used as or connected with a butter factory and no butter manufacturer or any person who handles butter for the purpose of re-working or mixing it shall be given a license to import or to manufacture oleomargarine.

6. No preservative shall be used for or in oleomargarine except salt without the written permission of the Food Controller.

7. No person other than a manufacturer of oleomargarine shall mix oleomargarine and butter.

8. Every person who either imports or manufactures oleomargaine shall keep a book in which is entered the date of each importation, purchase, sale and shipment of oleomargarine, and the quantity so imported, sold or shipped, the person from or to whom it has been purchased, sold or shipped, the place from, in or to which it was imported, sold or shipped, and the name of the railway or steamship company by which such oleomargarine was transported; and such book shall be at all times open for inspection by the Food Controller or any person authorized by the Food Controller to examine the same.

9. The Food Controller shall have power from time to time to regulate the price of all oleomargarine sold in Canada, and may determine the price with respect not only to the quality of the oleomargarine but also to the place in which it is sold.

10. Every package open or closed and containing oleomargarine must be durably and clearly marked "Oleomargarine" on the top, bottom and sides of the package itself in printed letters not less than three-quarters of an inch square; and if such oleomargarine is exposed for sale by retail there must be attached to each parcel thereof exposed, in such manner as to be clearly visible to purchasers, a label marked "oleomargarine" in printed capital letters not less than one-half inch square.

(2) Every person selling oleomargarine by retail in packages other than packages so marked shall in every case deliver the same to the purchaser in a paper wrapper on which is printed in capital block letters not less than half an inch long and distinctly legible the word "Oleomargarine." No other printed matter shall appear on the label.

(3) In all hotels, restaurants and public eating houses where oleomargarine is served there shall be prominently displayed in some conspicuous place a placard containing the words: "oleomargarine served here," in capital block letters, not less than one and one-half inches long.

(4) No label, placard or brand shall be used until it has been approved of by the Food Controller.

11. There shall be no customs duty charged on the