

### Which Shall We Sell--Milk, Butter, Cream, or Cheese?

Bulletin No. 89 of the Geneva Experiment Station deals with a question of practical importance now often asked by dairymen, relating to the form in which milk can be sold. From what form of product can the greatest profit be derived—from selling milk as milk, or in the form of cream, butter, or cheese? The data which we need to know are: 1st, the cost of producing; 2nd, the market value of the product. The value of milk is based on the amount of its total solids, allowing 9¢ cents a pound for milk solids, which is equivalent, on an average of 2½ cents a quart for milk, or 1.28 cents a pound.

The value of butter is placed at an average price of 25 cents a pound; the butter contains 85 per cent. of fat.

The value of cream is placed at 20 cents a quart; the cream contains 20 per cent. of fat.

The value of cheese is placed at 10 cents a pound for cheese about one month old, which would be equivalent to about 9½ cents a pound for green cheese.

In calculating the amount of profit, a deduction is made from the gross profit amounting on an average to 12½ cents for each 100 pounds of milk, representing the amount of feeding and fertilizing material taken away from the farm in the case of selling milk and cheese. A smaller but proportionate reduction is made in the case of cream.

The bulletin gives a long table, a study of which brings out the following points on the comparative profits derived from milk and cream:

1st. In no case was the profit derived from selling milk equal to that derived from selling cream.

2nd. While the average profit derived from selling milk for each period of lactation averaged \$19.80 for each cow, that derived from selling cream averaged \$72.52. For each dollar of profit derived from selling milk, the sum of \$3.66 was derived from selling cream. (Cream consumption is yet a matter of "luxury!") The figures given above represent approximately the conditions prevailing in the market at time of writing.

Tables upon comparative profits derived from milk and cheese show:

1st. In no case was the profit derived from selling cheese equal to that derived from selling milk.

2nd. While the profit derived from selling milk for each period of lactation averaged \$19.80, the selling of cheese resulted in an average profit of \$9.79. For every dollar of profit derived from selling cheese, the sum of \$2.02 was derived from selling milk.

Comparative profits derived from butter and cream show:

1st. In no case was the profit derived from selling butter equal to that derived from selling cream.

2nd. While the average profit derived from selling butter for each period of lactation amounted to \$25.64, the profit from selling cream amounted to \$72.52. For every dollar of profit derived from the sale of butter, the sum of \$2.83 in profit was derived from the sale of cream.

Comparative profits derived from butter and cheese show:

1st. In no case did the profit from selling cheese equal that gained from selling butter.

2nd. The excess of profit from butter over that of cheese varied from \$7.08 to \$27.14. While the average profit derived from selling cheese for each period of lactation amounted to \$9.79, that from selling butter averaged \$25.64. For each dollar of profit derived from the sale of cheese, the sum of \$2.62 in profit was derived from the sale of butter.

Comparative profits derived from the sale of cream and cheese: The excess of profit from cream over that from cheese varied from \$37.37 to \$100.42. The profit derived from selling cheese averaged \$9.79, while that from cream averaged \$72.52, for each period of lactation. For each dollar of profit derived from the sale of cheese, the sum of \$7.40 in profit was derived from the sale of cream.

THE AMOUNT OF PROFIT GAINED IN SELLING MILK AND ITS PRODUCTS IN ONE FORM OVER OTHER FORMS.

(a) Butter over milk	\$ 5.84 profit.
(b) Milk over cheese	10.90 profit.
(c) Butter over cheese	15.83 profit.
(d) Cream over butter	46.88 profit.
(e) Cream over milk	52.72 profit.
(f) Cream over cheese	62.73 profit.

COMPARATIVE STATEMENT OF PROFITS DERIVED FROM SELLING MILK AND ITS PRODUCTS.

(a) Ratio of profit of milk to butter	1 : 1.30.
(b) Ratio of profit of cheese to milk	1 : 2.02.
(c) Ratio of profit of cheese to butter	1 : 2.62.
(d) Ratio of profit of butter to cream	1 : 2.83.
(e) Ratio of profit of milk to cream	1 : 3.66.
(f) Ratio of profit of cheese to cream	1 : 7.40.

How any given farmer may dispose of his milk will be largely governed by his local conditions.

### Cost of Producing a Pound of Butter.

The American Creamery, quoting in full our article by "F. J. S." on the above subject, says:—"Wide-awake creamerymen and buttermakers are as much interested in the cost, to the farmer, of producing a pound of butter, as are the farmers themselves. The farmer must make a profit else he will turn his attention to something else, and it is right in line with the progress of the industry that he be educated as to the primary cost. Some of our experiment stations have made estimates, each on a different basis of milk yield and consequently reaching varying conclusions. We do not remember of seeing any fairer estimate than that of a Canadian dairyman who gave his conclusions to the FARMER'S ADVOCATE."

### Leguminous Crops.

(From a paper read by C. A. Zavitz, Experimentalist, O. A. C. Guelph, before the Central Farmers' Institute.)

This large class of plants, distinguished by the fruit, which is a pod with two valves, the seeds being borne at the inner suture only, numbers some 7,000 species of trees, shrubs and herbs, including many cultivated plants, such as peas, beans, vetches, cow-peas, lupines, alfalfa, and clover. Not only is this class of plants valuable in keeping up the fertility of the soil, but the nitrogen which they contain is united with other elements to make up what are known as albuminoids, or flesh formers. It is principally the albuminoids contained in peas, beans, cotton-seed meal, bran, etc., that make these foods of such great value for feeding to live stock. Several of the most valuable kinds of leguminous crops have been grown at the Ontario Agricultural College, more or less, during the past few years.

**Peas.**—This crop can be grown very successfully in this Province, and is one of the most valuable of the leguminous crops for the Ontario farmer to grow. In our experimental grounds at Guelph we have grown eighty-three different varieties, and find that nearly all of them have been fairly successful. The Early Britain from England, White Wonder from Australia, Prussian Blue and Mummy from Ontario, are among the leading varieties. Not only is the grain one of the best for feed which can be grown, but the pea straw is shown by chemical analysis to be one of the richest kinds of straw which is produced upon our farms. It is found by prominent feeders that with careful management of the pea crop the straw forms a very valuable article of food for their dairy stock, and also for other animals.

**Vetches.**—These form a very rich food, but are not grown very extensively in Ontario, owing to the success of the pea crop, which is usually a more reliable grower and produces a much larger yield per acre.

**Beans.**—As a grain crop the California Pea Bean and the Navy varieties have given the best yields per acre. The Horse-bean has been obtained from seedsmen from England, United States and Canada, but during the past two years they have proved a failure on our trial grounds, as the leaves and stems would turn black in the middle of the growing season.

**Cow-pea.**—The cow-pea is extensively grown in the Southern States for green forage and hay, but especially is the crop grown to be ploughed under to enrich the soil. A number of varieties, such as Black Clay, Whip-poor-Will, etc., are grown. In three or four years' experience with the cow-pea in the trial grounds at the Agricultural College we find that they are too late in reaching maturity to become a successful crop in this climate, as they very seldom reach the flowering stage.

**Soy Beans.**—Several varieties of these beans were imported from Japan into the United States, and after being grown there for some time we obtained five of the earliest ripening varieties from the Kansas Experiment Station. Among the five there are only two that have proven a success during the past two years. The Edamame and the Yellow Soy beans have both reached maturity for two years in succession, and have produced a large yield of grain per acre.

**Lupine.**—Among all the leguminous crops that are grown on the farm the lupine is one of the richest in nitrogenous material. In two years' experience, however, in Ontario, it has proven to be a total failure. It seems only adapted to Southern climates.

**Lucerne or Alfalfa.**—Experiments have been carried on with this crop, both at Guelph and over Ontario, for a number of years, and we find that in some localities it will grow fairly well. When well-established upon soil suitable for this crop, it will last a number of years and will often produce two or three or even more crops of green food per season. Its greatest value seems to be as a soiling crop, as it is apt to make an inferior quality of hay unless harvested with great care. It is one of the deepest-rooted plants that we have, and it is found that there is a large amount of fertility obtained by this plant from the atmosphere and from the subsoil. At the New Jersey Experiment Station it is found that lucerne, which produced crops annually for four years in succession, gave an average of 301 pounds of nitrogen, 50 pounds of phosphoric acid, and 260 pounds of potash per year. These 300 pounds of nitrogen, if purchased in the form of a commercial fertilizer, would cost at least \$45.

**Clovers.**—Among the varieties which have been grown are Common Red, Mammoth, Alsike, Yellow, White, and Crimson. All of these, with the exception of the Crimson, have been grown in the experimental plots at Guelph for a number of years, and all of them have been grown quite successfully; but time will not permit more than the mention of the names of these varieties, with the exception of the last in the above list.

### CRIMSON CLOVER.

During the past few years we have heard a great deal about the Crimson clover. It is grown very extensively and successfully in Delaware, New Jersey and a few of the other Eastern States, but our experience with this variety is as yet quite limited in Ontario. We have grown it at the Agricultural College for three years, and when sown in the spring it has proven fairly successful.

It usually grows to about one foot in height, and possesses a beautiful crimson blossom. In our experience, it has not produced a crop which would yield more than about one ton of hay per acre; and as it is an annual, it dies out each winter after the crop is removed. In many places it is sown in the autumn of the year, usually in the latter part of August or in September. In the warmer climates it generally comes through the winter well and produces a good fair-sized crop in the early part of the following year. This can either be used as a green food, converted into hay, or ploughed under as green manure. Where it can be grown successfully in this way, it would certainly be a very excellent crop to grow upon the land. We have as yet had no experience in this line, but sowed about three acres upon our winter wheat stubble in the autumn of 1894, and the young clover was about two inches high when winter set in. It will be very interesting to watch the results of this experiment, and if successful in withstanding our severe winters, we will have one of the leguminous crops which can be grown upon the land between the time of harvesting a cereal crop in the autumn and the seeding of corn, potatoes, turnips or rape in the succeeding year. Time will reveal the position which Crimson clover will occupy in the agriculture of this Province.

### POULTRY.

#### The Hens in Hot Weather.

BY E. JOHNSTONE.

As a general thing my hens take a vacation in very hot weather. I've spent some little time and thought in trying to invent some little plan by which I could make them deposit each one egg per diem as collateral for their board during July and August, but I cannot say my efforts have been particularly successful. The hens really owe me something for arrears of board last winter, but I cannot devise means of satisfactory collection.

A hen is the most contrary creature ever created. Always determined to do the thing you particularly prefer she should not. She will sit four weeks on a porcelain door-knob in July, when twelve of her own eggs would not tempt her to stay ten days on her nest in April. She will visit her chosen nest as regularly as an "old rounder" makes his tour of the saloons, when eggs are worth eight cents a dozen, and utterly ignore her responsibility in providing material for custards and cake when "hen fruit" is worth looking for. It's "hen nature," and no training seems to improve that carnal hen nature.

One great trouble is that we think the hens can pick up their own living in hot weather, and neglect to see that they are properly fed, especially when the flock is large. A hen's gizzard is a factory in continual operation. It takes a good deal of food to keep it going. Until the hens have the range of the stubble after the wheat and oats are cut, it takes a deal of travelling to keep their crops full, unless there is a plague of grasshoppers.

I divide the skim milk with the hens, the calves and the pigs. Milk is excellent for laying hens. And if we have plenty of old potatoes, I not infrequently boil a paulful for them even in hot weather. I cannot make my hens lay as many eggs as I want them to, but they lay better than my neighbors', and I ascribe it to the extra feeding. I have an old stove in "the shanty" where I have the washing done, and an old boiler too rusty for the clothes, that I boil the potatoes in. Before the fire is out wash days I generally see that there is a boilerful of potatoes—if I can spare them—cooked for the hens. It's no great trouble.

I like to keep the hens "everlastingly at it," for there is where the profit comes in. The eggs I get in July, August and September I pack for the winter sale. The eggs are gathered every day, and only those known to be absolutely fresh are packed. An egg over a day old is not eligible. I pack in starch-boxes, using salt, and keep them in a dry, cool cellar. The dryness is essential. If the cellar is damp the salt absorbs moisture, and seems to penetrate the shells of the eggs and to produce a certain chemical change which renders them unsalable. Eggs properly packed in salt will sell in December or January within a couple of cents of as much as fresh, and much above lamed eggs. At least I have often sold them at such prices, after allowing the buyer to break a couple selected at random as samples. But, two conditions are imperative. The eggs must be absolutely fresh when packed, and the cellar dry.

Everybody who raises hens for revenue ought to plant cabbage and turnips for winter food this month. Nothing helps more in keeping up laying in cold weather than plenty of green food. Hens like turnips boiled and mashed like potatoes, with meal, and if potatoes are scarce or high-priced, you've got the turnips as a substitute.

Get one of the boys to run the mower over an acre or so of clover, cutting the aftermath when it is a few inches high. Raked up and dried, it is very nice for the hens in winter, mixed with their mash, or wet with boiling water and fed that way. Think about these things now and you will not be saying, "Wish I had—" next winter.