

results. On March 12th he put on 25 two-horse loads cow manure; on March 15th land was broken to a depth of 18 inches; April 9th, 20 two-horse loads manure spread on; cross-broken to a depth of 21 inches the following day; April 15th, 800 pounds acid phosphate and 2,000 pounds cottonseed meal, harrowed in, following which the land was laid off in rows forty-six inches wide, and 600 pounds of guano put in the rows. Corn was planted April 17th, a planter being used, dropping three grains to hill, 8 inches apart. On May 27th, a mixture of 200 pounds cottonseed meal, 200 pounds acid phosphate, 400 pounds kainit, and 200 pounds nitrate soda, was broadcasted over and harrowed in. The corn was gathered in the ordinary way. Cost of producing, \$139.02.

Of course, farmers living in Ontario would be very unwise to attempt anything of this description, where we have such a limited season.

Kent Co., Ont.

R. H. ABRAHAM.

Perennial Sow Thistle Spreading.

The judges in the standing-field-crop competitions of Ontario Agricultural Societies, in their report, sound the alarm in regard to perennial sow thistle. Almost unknown a few years ago, it is now found in patches in many sections of the Province, both east and west, and is spreading rapidly. Many other noxious weeds were, of course, noted, but this is the most obnoxious, say they, of any with which the farmer has to deal at the present time.

Smothering is recommended as the best plan of destroying it. Pasture the land closely with cattle and sheep until about the middle or end of June, and plow down, cultivate well, and sow with rape, buckwheat or millet. Rape in drills is especially good, as cultivation can be given for a time, and growth is very rapid. The smothering process should be repeated the next year, if necessary.

To this we might add mention of the practice of J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa, who, on page 590, issue of April 7th, reported very satisfactory results from a rotation of corn in hills, well cultivated, land disked in fall, sown to grain the following spring, disk-harrowed third spring, and sown to oats seeded down with ten pounds red clover, 2 pounds alsike, and 12 pounds timothy, per acre. Third year, two crops clover; fourth year, pasture till August 10th, then land plowed, rolled and disked several times, harrowed at intervals of a week or ten days, and ribbed up October 20th. Mr. Grisdale concludes that all that is necessary to rid a farm of weeds is a good rotation, well carried out.

Husking vs. Sweet Corn—Peas for Canning Factory.

Editor "The Farmer's Advocate":

I have read with interest the many and valuable articles in your paper on growing corn in different parts of Ontario. In Norfolk County we grow some good crops of husking corn, and also a large quantity of sweet corn for canning purposes. Now, Mr. Editor, I want to know which will pay the farmer better, the sweet corn, at \$6 to \$7 per ton, averaging three tons per acre, cost of growing and harvesting one acre being \$14; all the ears and parts of the husks are taken to the cannery, and nothing is kept on the farm except the stalks. Or, do you think that the husking corn would pay better? We grow from 75 to 100 bushels per acre, and value it at the present market prices, and feed it all on the farm, this also costing \$11 per acre to grow and harvest. How much fertility is taken from the acre with the sweet corn, and what is the value of same? How much are we returning to the soil by feeding the stalks and corn to live stock?

We also grow large quantities of peas for canning purposes. The peas are cut green, and the entire crop is taken to the cannery and threshed, and nothing returned to the farm. How much fertility is taken from the soil per ton of green peas; that is, before they are threshed, and counting the value of the vines and the peas?

Norfolk Co., Ont.

J. J. GILBERTSON.

It must not be supposed that a statement of the manurial constituents removed from the soil, and their value in dollars and cents, furnishes all the information necessary to conclude which of two crops it will pay the farmer the better to grow. As far as the resultant condition of the land—the relative draft on the fertility of the soil—is concerned, these data are, of course, all-important and essential, but there are other matters to be considered in such a question, and numerous instances could be cited in which the more exhaustive crop—provided plant food is returned to the soil in some cheaper form—is much more profitable. I take it, therefore, in such questions as are propounded by our correspondent, the chemist's duty is fulfilled if he presents a statement

showing the amounts of nitrogen, phosphoric acid and potash removed per acre by the crops under consideration, leaving the final balance to be struck by the farmer, who alone knows those conditions—market prices of crop, and of crop converted into beef, pork and milk; of distance from markets, cost of labor, etc., which must have due consideration.

Unfortunately, the questions are not stated in very precise terms, so that the writer is obliged to make certain assumptions before making the necessary calculations, as, for instance, that the three tons of sweet corn per acre refers simply to the weight of ears with husks. Further, the weight of stalks in both cases must be assumed. And, lastly, a difficulty has arisen in finding analytical data specially applicable to the problem in hand; and this conclusion was reached after a careful search through all the available American literature on the subject of corn.

Taking first the case of the husking corn, I shall assume that the weight of stalks would be twice that of the corn on cob, and we then have, per acre:

Corn on cob, 100 bushels.....	7,000 lbs.
Stalks	14,000 lbs.
	21,000 lbs.

Now, employing average data respecting the percentage amounts of plant food in these several parts of the corn plant, and assuming that 80 per cent. of the total plant food may be returned to the soil when the crop is fed on the farm, we obtain the following figures, nitrogen being valued at 17 cents, phosphoric acid at 5½ cents, and potash at 5 cents per pound: The value of the plant food in total crop, \$19.83; the value of the plant food recovered in the manure on feeding crop on the farm, \$15.87.

Estimating the feeding value of the crop at \$2.00 per ton (placing upon the corn a figure that might represent its value for feeding animals, compared with other feeds on the market), we have:

10½ tons, at \$2.00	\$21.00
Manurial value of same.....	15.87

Feeding and manurial value..... \$36.87

Employing the same method of calculation for the sweet corn, we have, per acre:

Corn on cob, with husks	6,000 lbs.
Stalks	12,000 lbs.
	18,000 lbs.

The value of the plant food in stalks, \$10.60; the value of the plant food recovered in manure when stalks are fed on farm, \$8.48.

The total return per acre from the sweet corn would then stand:

From sale of 3 tons of ears, at \$6.....	\$18.00
Feeding value of stalks	12.00
Manurial value of stalks.....	8.48
	\$38.48

This is not the only way in which such a problem may be worked, but, as far as I can gather, the information your correspondent desires is such as may be obtained by a consideration of the foregoing data.

With respect to the inquiry relating to peas, we would point out that no weight of crop per acre is given, and, further, that no data of the plant food in the pod (with seed) are available. Under these circumstances, we have been obliged to use certain results we obtained in arriving at the manurial value of the crop in 1906. The crop, when cut for analysis, had made two months' growth, and was just past the height of its flowering. Yield per acre, green, 12 tons 1,013 pounds; nitrogen in crop, 119 pounds; phosphoric acid in crop, 32 pounds; potash in crop, 149 pounds. As the root system was covered with tubercles, no doubt a large proportion of this nitrogen had been obtained from the atmosphere.

The total value of the plant food in such a crop, at prices already specified, would be \$29.24, and the value of plant food in manure recovered by feeding it would be \$23.39, approximately.

FRANK T. SHUTT,
Chemist, Dom. Exp. Farms.

A considerable trade in clover seed has been done between farmers this season. Prices dropped in February, and dealers, having mostly bought their supplies before the drop, were unable to sell as cheaply as farmers were willing to do. The Seed Branch, Ottawa, wishes farmers to know that they are liable to prosecution the same as are seed merchants, if they violate the provisions of the Seed Control Act in the sale of grass and clover seeds. Recent amendments to the Seed Control Act, which became law March 17th, limit the number of weed seeds in No. 1 timothy, red clover and alfalfa seed to five to the ounce (formerly, 12 were allowed), and in No. 1 alsike seed to ten to the ounce. Vitality standards have also been fixed.

THE DAIRY.

Does it Pay to Rear Dairy Young Stock?

Editor "The Farmer's Advocate":

A continual introduction of young cattle into the dairy herd is necessary in order to replace those which, from old age, disease, and various reasons, have become unprofitable milkers.

In the editorial the other week I noticed that the question, "Does it pay a dairyman to rear his own cows?" was raised. Personally, I think that if due care and reasonable economy is exercised, it pays over and over again. I say reasonable economy, because, in my experience of dairy farming, both in England and Canada, I have too often seen stunting practiced in mistake for economy. The dairyman who breeds his own cows, by carefully selecting the sires, assuring himself that they are free from any symptoms of disease, and of a good milking strain, gradually builds up a herd of useful cattle, and does not run the risk of importing disease by buying in cattle which, though he knows it not, are already contaminated. The only case, in my opinion, in which the question is doubtful, is that of the dairyman who contracts to supply so much new milk daily. Even then, if he bases the contract on his winter supply, and uses the summer surplus, or some of it, for calf-rearing, he will be amply repaid.

Much has been written concerning the management of dairy young stock, and yet, even if only to jog the memory, I should like to make a few comments. One cannot start too early to take care of the youngsters. The pregnant cow should not be milked for at least a month previous to calving. She should be fed not fattening, but sustaining, food—oats and bran, for instance, with some good hay. As soon after it is dropped as I can, I give the calf some of its mother's milk. —an old enamel teapot comes in handy here—and never allow the colostrum or first milk to be withheld from the calf. New milk should be fed for at least a fortnight, and then gradually mixed with separated milk, until, at the end of a month, the new is dropped altogether. When starting to use separated milk, I generally add a little very fine oatmeal and flaxseed meal. When a month old, the calf should be encouraged to eat a little dry food. A mixture of crushed oats, bran and a very little flaxseed meal should be given, together with some sweet meadow hay. Calves have a strange craving for earth, and if a nice loamy sod is placed handy, they will often be seen at it. Salt or rock salt is a necessary article of food, and should always be within reach. It is well to remember that beef is not the object in view. Every opportunity should be given for sufficient exercise. Light and fresh air are valuable to insure health and vigor. Keep the youngster nicely growing and in fair flesh, but do not let it get fat and lazy. It is the details which do not cost much that make all the difference in successful rearing.

A HIRED MAN.

New Methods of Cream Treatment

Although the only rational method for permanently improving the general quality of cream supplied to our creameries is by the inauguration and carrying out of a vigorous campaign for greater cleanliness and increased cooling facilities on the farm, the modern buttermaker, being confronted with the conditions as they actually exist, and seldom being in a position to get results from the farm end, has in his extremity had to fall back upon himself, and depend upon the various methods at his disposal, within the four walls of his own creamery, to extricate his product from the slough into which it has fallen. Hence, "cream doctoring" is being reduced to a fine art, and it is only natural that new processes and methods of cream treatment should be brought to light from time to time. It is the intention of the writer to discuss several of the more modern methods in this and the following article.

One of the commonest and most beneficial practices is that of pasteurization. In the case of good-quality cream, its advantages are considerable, but in the case of cream of poor quality its advantageous effects are very much more marked. From the use of discontinuous machines, in which the cream was held at 140 degrees F. for twenty minutes, the change was made to continuous-flow machines run at 180 to 190 degrees F. The cream was usually pasteurized late in the afternoon, held over night, and churned the following morning. The practice of holding pasteurized cream for half a day before churning has been discontinued in many creameries, as it was found that much better results were secured by cooling immediately to churning temperature, or below, and churning within two to three hours after pasteurization. The slightly-increased loss of fat in the buttermilk is more than offset by the improved quality of the butter. Some creameries which receive their cream late in the evening have gone so far as to employ a night shift of men to do the churning,