

error is made by supposing that warm air is foul air, and that cold air is pure. The reverse may be the case in our stables. Our farm animals could live several days without food or water, but they could not live many minutes without air. Therefore, fresh air is the most essential element in the maintenance of life. It is the cheapest and most easily obtained of all the life-sustaining elements, but, judging from what we see in many stables, farmers use it as if it were costly. Judging from what I have seen in many of the best farms in the Province, I am satisfied that this is the weakest point in the housing of stock in our country.

The importance of water will be more clearly understood when we consider that an average cow as she stands consists of about 50 per cent. water, her milk about 87 per cent., and her blood about 90 per cent., and that all the food is carried through the system by the action of water. The water should be pure, spring water, free from any contamination, and constantly in front of the cows, in the stable, where they can drink at will. If allowed to drink whenever they please, they will never drink enough at one time to cause a chill. A cow that gives a large flow of milk must of necessity drink a large quantity of water. The day has gone by when a man can afford to stand and pump water by hand for a large number of cows. Some power should be used for that purpose, such as wind, gasoline, or electricity. This permits the well or spring to be located a considerable distance from the barns, where it will not be contaminated by sewage from the barnyard. A storage tank should be provided so that the drinking troughs can be supplied automatically by gravitation, but prevented from overflowing by a valve.

Owing to the high price of lumber and its comparatively short life in the stable, it is hardly necessary to say that cement floors and mangers are the best from a sanitary and economical standpoint. The stables should be whitewashed every fall, which adds much to their light and sanitary condition; the manure removed from the gutters twice a day, and the cows curried and brushed daily. This adds much to their comfort and health.

What to feed for milk production is always an interesting subject. An analysis of milk shows that it contains about 87 per cent. water, and 13 per cent. of solids. Of these solids, the percentage of butter-fat is the only part of the milk that the butter-maker is much interested in. It is the most valuable element of the milk from a commercial standpoint. We should aim to get cheap feeds, mostly raised on our own farms, that will fill our requirements. We have in mangel, sugar beets and corn silage cheap, bulky palatable and succulent feeds. Corn silage lacks that very necessary element, protein, that is required for milk production. Therefore, it must be supplied from some other source, such as clovers, oats, peas or vetches. The best supplement to corn silage is alfalfa hay, and where alfalfa can be successfully grown, protein can be produced at less cost than in any other way. If protein has to be purchased, we can secure it from such feeds as wheat, bran, oil cake, cottonseed meal and gluten meal.

The forty million dollars' worth of milk produced is only one instance of the great agricultural wealth of the Province of Ontario. The value is not only in the money that comes to the people for their work, but the fact that during these years the grain and the other feed grown on the farm has been used to feed the cows, and the farms become more and more productive year by year. In every section of the Province, where dairying has been carried on to any great extent, the people have been increasing the fertility of the soil.

Bruce Co., Ont.

R. B. D.

Not Afraid of Western Butter.

Editor "The Farmer's Advocate":

I have read with considerable interest your editorial, in Jan. 27 number, re "Dairymen should demand cream grading." In the main, I can endorse what you say, but I am not one of those who is alarmed at the Northwest Butter Bogey, so far as Ontario markets are concerned. There are two factors that will always limit the importation of Western butter in Ontario—the long, expensive freight haul, and the fact that the Ontario trade is largely a print trade in butter.

However, for the good of Ontario butter-making in creameries, some grading system should be adopted. The remedy is so simple that it seems hardly possible the matter has been so long neglected. Let the creamerymen agree among themselves to pay a lower price, say two to three cents per pound fat, for all second-grade cream, and stick to that agreement. In three years the whole problem would be solved. With all due respect to our creamerymen (and we have some of the best dairymen in Canada, and particularly in the Province of Ontario among creamery owners

and mangers), I hope they will forgive me if I say, the present system (muddle if you like) is largely the fault of the butter manufacturers. The remedy lies in their own hands. Let this useless, "cut-throat" competition cease, and pay for cream what it is actually worth. No class is so sensitive to a cut in price as are the producers of cream, because a slight lowering of the rate per pound of fat, makes considerable difference in the returns on a can of cream—much more so than on a can of milk. If the creamerymen adopt this plan and give the farmers a "square deal," there will be very little "kick" from patrons.

O. A. C.

H. H. DEAN.

POULTRY.

Layers Which Laid.

Editor "The Farmer's Advocate":

I would like to give further results in handling the flock of 95 White Leghorn pullets mentioned in one of my recent letters to "The Farmer's Advocate." It will be remembered that these pullets were mostly hatched on April 12, and a few on May 7. They started to lay on September 25, and by the middle of October they were laying a dozen eggs a day and keeping themselves. Here is their record from November 23 to December 23, when the 90 pullets laid 1,349 eggs in the month, yielding a net profit of \$32.90 for the month only. Up to January 2, when I last heard, they were doing still better, and this from Leghorns, which are not usually considered winter layers.

Now, are you doing anything like this? And if not why not? One reader of my former article has been interested enough to write me for information as to the methods used, and although I have replied at some length to his letter direct, probably you too are interested in knowing how my friend and I got those results.

My friend at the beginning of last year determined to go in for poultry-keeping. He had never kept any before. He was a railroad clerk living in an Ontario town. He thought he would try Leghorns as egg-layers, and he, therefore, bought 1,000 eggs of the best breeding he could get hold of in Canada, eggs laid by birds bred from stock that had won in laying competitions, and with the famous blood of Tom Barron's stock appearing in their pedigree. I hatched those eggs for him in two batches, setting 500 at a time in two incubators of 250-egg capacity each. We had no marvellous success with the hatching. It is always possible to get better results if the eggs do not have to travel and be shaken about. From the first lot we got 255 chickens, from the second 280. When the first lot of chickens appeared on April 12 they were put into a little hut built for them with a large brooder stove in the centre. That kept them warm. The floor was covered with straw and chaff. They thrived amazingly. Some were taken by rats, a very few died, but the rest did well. The second lot followed later, but when they were about a week old someone left the hut door open, one cold, stormy afternoon for several hours. They all took cold and nearly all the second lot died. The first lot which were older were not affected by the cold. Altogether there were left about 250. They were kept in the brooder house until six weeks to two months old, being allowed an outside run, and then as they grew too big for their run I took them out with me to a farm I had my own birds on. There they had free range, shelter, lots of good feed but no forcing materials, clean water three times a day or more often in the hot weather, until the beginning of September. Meantime the cockerels were shipped to Montreal, but alas! the proceeds were only sufficient to cover cost of rearing. What were left were about 100 pullets, whose performances I have described above.

The first secret of success is breeding. It is useless to expect 200 eggs per year from a hen that has not been bred for that particular purpose. The next secret is feeding. To obtain such results the feed must be of certain chemical constituents blended and balanced to get the best results. The next secret is exercise. The birds must be kept warm in winter, not by artificial heat, nor by double or treble walls, but by their own hard work. The grain food must be thrown into several inches of straw or other scratching materials and buried in it, six inches at least. Do not be afraid of wasting the straw. The more there is the longer it will keep clean. The hen-house must be clean, airy, well-ventilated, but free from drafts—and above all things, dry. In addition to this you have early pullets of a good laying strain, your profits are sure. My friend made \$32.90 in one month from 90 pullets. Are you doing the same from yours?

W. J. FLETCHER.

Canning Chicken in the Home Kitchen.

At a recent meeting of the Ottawa Poultry Association, an interesting paper was read by Dr. Robert Barnes, Health of Animals Branch, Department of Agriculture, Ottawa. The importance of the law regarding canned goods was first discussed, and it was shown how the provisions of the Act had protected honest canners, and had made it possible for them to compete in all lines. Previously, he said, dishonest canners prepared veal and sold it for canned chicken or turkey, thus making competition very unfavorable for those who put up a reliable product. A process was also described whereby a few neighbors might co-operate and can their surplus stock. But of more interest to readers, probably would be Dr. Barnes' recommendations regarding canning chicken or fowl in the home kitchen. "I may say that it is quite possible," he remarked, for the housewife to can her own poultry on the kitchen stove, and provide herself with a supply of nourishing food, such as is looked upon in many homes as a delicacy, and fit to set before the best in the land."

The method of operation is as follows: Clean and cut up the chicken. Sort out the fleshy portions, such as the legs, thighs, and breast. Break off the protruding portions of the bone in each piece. Pack these fleshy portions in a gem jar, or other container, as closely as possible. Add salt and pepper (about a teaspoonful of salt and one-eighth teaspoonful of pepper). Fill to within three-quarters inch of overflowing with the liquid that comes from "the balance of the chicken," which is treated according to the process described later in this paragraph. Next place the jars in a boiler, or other vessel containing warm water, and gradually bring to a boil. For pint jars boil 2½ hours, for quart jars boil 3½ hours. For "the balance of the chicken" treat as follows: Place in a kettle and boil till the meat will strip free from the bones. Strip off all the meat and pack in the jar. Pour off the balance of the liquid that has not been used to cover the fleshy portions in the jars mentioned in the previous process. If there is not enough liquid remaining to fill the jars, add water. Place in boiler, as mentioned heretofore, and boil pint jars 1½ hours; boil quart jars 2½ hours. If desired, the entire chicken may be prepared as has been advised for "the balance of the chicken." In all cases take care not to expose the gem jars to a sudden change of temperature; also, after the jars have cooled off, examine the tops to see that the covers are air-tight. During the cooking of the product place the glass tops on the sealers, but do not fasten them. Any steam or gas which may be generated will escape. As soon, however, as the processing is finished, fasten the tops securely.

Glass containers were recommended by Dr. Barnes. However, in commercial canning, he said it was found necessary to resort to tin. The canneries prefer good, plump fowls, with a fair proportion of chickens, the bones of the latter giving a firmer jelly and lessening the danger of a soupy or slushy product. As a precaution against this condition, where the pack is as described in the first part of the paragraph, gelatin may be and is often used. As regards the preparation of fowl for canning, Dr. Barnes said, "All poultry intended for food, canned or otherwise, after being properly starved, bled and plucked, should be left undrawn and kept in a suitable temperature for at least a week, in order that the chemical changes which follow killing of the bird may have an opportunity to take place."

HORTICULTURE.

Feeding the Orchard.

In the large commercial orchard, the owner supplies manure and fertilizers even more abundantly than the grain or stock farmer does for his crops of corn or roots. As the average farmer would not consider growing his hoed crops without fertilizer of some kind, so the fruit-grower does not expect his trees to bear him a profitable crop of apples without feeding them. But where fruit growing is only a side-line the trees are usually woefully neglected, drawing nourishment from the same soil for twenty-five or thirty years with only an occasional dressing of manure, and yet they are expected to bear large, highly-colored apples every year. It is too much to expect of the trees. If first-class apples are desired for winter use, the trees require the best attention. Plan to give the old orchard a liberal supply of good, farmyard manure this spring. Do not put it just around the trunk, but cover all the ground, as the little feeders of the roots extend out as far as the branches. If the orchard is a sod, allow the grass to grow up through the manure, and instead of pasturing or harvesting allow it to remain on the ground. When the manure is applied on the frozen ground