

rather than hold this pasteurized cream over till the following day to churn.

Pasteurization, however, is not without its occasional drawbacks, and it is in trying to overcome these that several new methods have been brought to light. The curdling of the cream into larger or smaller lumps during the process of pasteurization has caused considerable trouble and financial loss in many creameries, and in some cases a discontinuance of the process altogether. The factors favoring this trouble appear to be medium acidity of cream (0.3 per cent. to 0.4 per cent.), low fat content (below 25 per cent.), and heating only to medium temperature (140 degrees to 160 degrees F.). Of these, the acidity appears to be the most important, and is, moreover, the factor which is the most easily changed. By the addition of an alkali, the acidity can be so reduced that trouble from curdling is no longer experienced. Viscogen (succrate of lime) has been used for this purpose, sufficient being added to the cream to bring the acidity down to .2 per cent. The cream is then pasteurized, as usual, cooled to ripening temperature, a large starter added, and acid allowed to develop to about .4 per cent., when the cream is cooled for churning.

It is claimed that good results are being secured by this method, but care must be taken not to overripen the cream after neutralization.

Another common trouble arising from pasteurization, and one which has come into prominence during the past few years, is the development of a strong metallic flavor which shows itself in the butter as soon as it is churned. No one has yet been able to determine the exact cause of this trouble, but there is no doubt that it is closely connected with the acidity of the cream. To overcome this, the method of "double pasteurization" has been recommended, and proved successful. The cream is first heated to 125 degrees, and held at this temperature for twenty minutes, and then heated to 180 degrees, cooled immediately, and churned within two or three hours. Professor Mortenson, of the Ames Dairy School, claims to have secured a much greater bacterial efficiency with this method, compared with the usual one, but cannot as yet explain just why it eliminates the metallic flavor. T. H. L.

[Note.—With regard to this matter of double pasteurization, practical experts in Canada do not consider that it would be practicable under creamery conditions in this country. Nor has the metallic flavor been noticed to any extent worth mentioning, where practiced, in this country.—Editor.]

### Glassware Must Be Tested.

"That every test bottle, pipette and measuring glass used in connection with the testing of milk or cream shall be tested for accuracy of measurement, and accuracy of the per-cent. scale marked thereon, by such persons, and at such places as are designated by the Governor-in-Council, and if found to be accurate shall be ineffaceably marked in a manner provided by regulations," is the point of a bill called the Milk Test Act, or an act to provide for the testing of glassware used in connection with milk tests, which has passed both Houses of Parliament at Ottawa. Such marking of glassware not so tested is prohibited; likewise, the sale or use of glassware not so tested and marked is interdicted. Exception is made, however, in the case of burettes or measures used in connection with the Babcock milk test for the measuring of sulphuric acid. Regulations for the operation and enforcement of the Act, fees for the verification of apparatus, and provision for imposition of penalties, are left in the hands of the Governor-in-Council.

This legislation has been found necessary, owing to the largely-increased number of inaccurately graduated pieces of Babcock glassware that have been found during the past few years. The directors of the Dairymen's Association of Western Ontario passed a resolution asking for this legislation some time ago. Since the matter was brought to the attention of the Dairy Commissioner's Branch, at Ottawa, they have been collecting inaccurate test bottles and other pieces, and have found a very large number inaccurate, varying from .2 to .6 per cent. in the case of milk bottles, and they found at least one cream bottle that was 10 per cent. out in the marking. Dairy Commissioner Ruddick has come to the conclusion that American manufacturers have been dumping their inaccurate pieces on this market, owing to the fact that nearly all the dairy States in the Union have passed similar legislation.

There is a promising outlook for dairy production this season, is the report sent out by the Dairy and Cold-storage Branch, Ottawa. Cows have wintered well, and fodder is plentiful. Pastures are in good condition, the fine snow covering having protected from winter killing, and promise to be much earlier than last year. An increased output of dairy products is expected.

## POULTRY.

### Caponizing.

Editor "The Farmer's Advocate":

I was thinking a few remarks on this subject might be of interest to some of our farmers who are interested in the raising of poultry, and who are subscribers to your valuable paper. I have performed this operation on different breeds of fowl for a number of years, with very favorable results. The larger breeds, of course, are the ones from which the greatest profit may be derived. The majority of birds I have operated on were Barred Plymouth Rocks. However, some of the cross-bred birds do very well. For instance, a cross between the Indian Game and Brahma, or any of the Plymouth Rocks and Brahma, produces excellent birds for capons, as they grow to be very large, and are plump and richly colored when dressed for market. I have not operated on the Wyandotte or Orpington birds to any particular extent, but I can see no reason why they would not produce excellent capons.

There are advantages in caponizing, viz.: The price which they bring on the market, as compared with ordinary birds; they are worth from five to eight cents a pound more when dressed, and probably more, when people learn the difference between the flavor of their meat and others, they being more tender, sweeter, and more juicy.

Speaking from prices where I have been, capons were selling for fifteen cents a pound, while ordinary birds were eight to ten cents a pound, according to quality. I am now speaking of towns, and if these birds were marketed in cities, still higher prices could be realized. To my knowledge, a great many people do not appreciate the difference there is in them, but have only to help eat one or two to be convinced of their superiority. Generally, a few cents a pound is nothing to them after that.

The increase in weight is considerable. It is not difficult to have a capon weigh from eight to twelve pounds. The heaviest I have yet known was sixteen pounds, being a cross with a Brahma. They grow for a few months longer than ordinary birds, and for this reason may be kept later in the season, when prices are better and fowl scarce.

They should be operated on at two to three months of age, just before they commence to crow. The operation is simple, and only takes from one to two minutes after the bird is caught and held in position. They must be fasted for at least twenty-four hours, then fed warm, soft feed for three days following. My fatalities have been less than one per cent. If the operation has been successful, the birds will commence to grow rapidly, sit around, become pale in the head, and have no desire to roam with other birds. Their combs do not grow, and a great many of them never crow. However, if the smallest portion of the testicle is left intact, it will grow to quite a size, and the bird crows, and is little different from a cockerel. They should be kept where they can be fed by themselves, for they will not push in and feed with the other fowl, the other birds all bossing them. Their inclination is to eat, sit around, and grow, but will not search for food.

I give the experience of one of my clients, which was as follows: I caponized 125 birds for him. The chicks were hatched in May and June, and were disposed of during the end of December and January. They weighed from eight to ten pounds, and were sold for 12½ to 15 cents per pound. The birds not operated on weighed 6 to 6½ pounds, and sold for 9 cents per pound, so each ordinary bird brought on an average of 56½ cents. Allowing an average of 8½ pounds for each capon, at 12½ cents, they would bring \$1.06½ each. This would be 50 cents over and above each ordinary bird, or \$62.50 on the lot, and I don't believe they ate any more feed. W. J. R. FOWLER (V. S.).

[Note.—Commenting upon this article, Prof. W. R. Graham, of the Ontario Agricultural College, while agreeing that in the main the article is true, stated, nevertheless, that, in taking the matter of capons up with the commission houses, two or three years ago, he was unable to persuade them to offer him any more per pound for capons than for crate-fed cockerels. "Undoubtedly," he says, "there can be worked up a trade for them, and, no doubt, they are valuable, particularly as roasters, for the months of January, February and March. To be marketed in the autumn, I doubt whether they have any premium value, except for house-to-house trade, above ordinary cockerels; but, where one wants to supply individuals with dressed poultry the year round, they are practically a necessity. This much must be taken into consideration, however, that they require to be housed for a longer period than ordinary cockerels, consequently, I think, must be more expensive to produce; that is to say, I do not believe it would pay to market them in November, when one is naturally getting rid of the surplus males. If one has house-room, and knows where he can

sell to advantage, then the proposition is all right.

"I doubt very much whether they would grow up to, say, Christmas time, to be any larger than the ordinary cockerels. We raised a number of them here last year. They can be housed more closely than the cockerels can, or even laying pullets, and they are very quiet; in fact, in many respects, are much the same as your correspondent writes. For home use, they are certainly worth a trial, and the same would apply to the first-class retail trade."

### Another Good Egg Record.

Editor "The Farmer's Advocate":

As I see poultry reports from time to time in "The Farmer's Advocate," I thought this might be of interest to some of the readers. I have a flock of 33 White Wyandotte hens, 22 of which are pullets, and the rest a year old. In January they laid 428 eggs, an average of 13.58 eggs per day; in February, 496 eggs, an average of 17.70 eggs per day; in March, 634 eggs, an average of 20.45 eggs per day; in April, 641 eggs, an average of 21.36 per day. I have now three nice flocks of chickens hatched in April; also, two more hens sitting. I do not think this is a bad record, compared with others I have seen in "The Farmer's Advocate." Frontenac Co., Ont. LAWRENCE L. PRICE.

### Marking Chickens.

There are two methods of marking chickens in common use. One is by the use of aluminum leg-bands, and the other is by punching a small hole in the web of the foot, between the toes. The latter method has several advantages. The hole, though punched the day a chicken is hatched, remains as long as the bird lives. No inconvenience is caused. At least ten distinct markings can be made without using more than two punch-holes.

## APIARY.

### Elementary Instructions in Bee-keeping.

Morley Pettit, Provincial Apiarist, O. A. C., Guelph.

#### BEES MUST NOT SWARM NATURALLY.

A swarm of bees in May is worth a load of hay,

A swarm of bees in June is worth a silver spoon,

A swarm of bees in July isn't worth a fly,

A buckwheat swarm in August—

seems to have been overlooked by the author of this famous little stanza. The fact is, natural swarming at any time is more or less of a disaster. It is more; it is a reflection on the progress of this branch of the science of agriculture. The farmer regulates the increase of all other farm stock; why should he be lax here? Lack of swarm control spells heavy loss to the beekeeper, great and small. It is the greatest obstacle to keeping bees as a side line with farming or any other business. It necessitates close watching ten hours daily seven days in the week by a responsible person for nearly two months in the busiest part of the summer. This alone is too big a price to pay, when it can be avoided, but if the price is not paid by watching, it is by loss of swarms, and hay and spoons go sailing away to parts unknown. When the little lambs die in spring it is considered a loss; but when a swarm absconds, the mother sheep has died, and left a suckling which will not grow into much value for a year, and may perish before reaching maturity.

Experience, and careful weekly examination of each hive will prevent this loss, and make it possible for any systematic person who has a spare hour of daylight daily, or a half day weekly, to keep 30 or 40 colonies at a profit of \$100 or more per annum.

To have any animals really do well, we must care for them for their own sake. Show me a sleek, good-natured team, and I will show you a man who puts a lot of time on his horses simply for the love of it. Success in beekeeping comes by having the same love for the busy little denizens of the hive. One who has it will spend his or her spare time studying their actions at the entrance, or wherever they may be seen. The weekly visit to the interior of the hive will be a pleasure. Conditions and treatment, and results, will be watched with much interest, and noted for future reference in similar conditions.

Bees swarm when they have contracted what we call the "swarming impulse." It is a state of mind, or nerves, or something which we do not well understand, which can be prevented, but is not easily cured before running its course. Certain conditions nearly always induce the swarming impulse, and, once under its influence, the bees of the hive make certain preparations before swarming. Before one can learn to keep bees from swarming, one must learn what these conditions are that cause it, and what preparations