

brid, as would also be a cross of potato and tomato, or peas and clover, they, in each case, being different species of the same family. We have the same thing in animals. If we go to extremes and cross the Shetland and the Shire we have still only a cross, for they are both horses—although the one is a very small one—but if we cross the ass and the horse we have a hybrid. With this cross there is little or no difficulty in producing progeny, but in most crossing of species in both animals and plants it is not so. Nearly all the different varieties of plants are due to cross-breeding, and those who give their time to it are doing a good work and are benefiting mankind, and are practically "causing two blades of grass or two ears of corn to grow on a spot of ground where only one grew before."

There are other things connected with the farm which are also often wrongly named, but farmers should endeavor to avoid these misnomers as much as possible, for, in speaking, wrong ideas are often conveyed, and it also betrays an ignorance which should not exist in connection with anyone's own business.

Dauphin, Man.

"CLAUGHBAINE."

DAIRY.

Cost of Keeping a Cow.

In answer to a question involving a discussion of the cost of keeping a cow for a year, Mr. C. H. Everett says, in the *Prairie Farmer*:

"Much depends upon how the cow is kept, and the price of foods, pasture, etc. As to the cost, I have not been able to keep a good cow that will pay a profit for the food consumed for much less than \$35 per year. In keeping cows for profit it ought not to be. How little can we feed to get milk? Profit does not come through stinginess in dealing out feed to the cow, but, rather, through liberal and full feeding. The cow is but a machine, and requires a certain amount of food to run herself which is wasted, and if the farmer seeks to economize by giving her just enough to supply the demands of nature, then his food is wasted and the cow does not pay. On the other hand, if he gives her all she wants to eat, she will, if properly bred and developed, return a profit. A locomotive requires one hundred pounds of steam to move along the track. As the steam pressure is increased beyond this, power is added to the engine to draw cars, until the limit is reached. So with the cow, and no one can tell what it will cost to keep her until her ability to consume food has been found. It certainly pays to keep good cows the year through. A term of years is the only way in which to make dairying or any other business profitable. No man can keep cows just when butter is high and dispose of them when the price goes down, and ever make a cent. It takes time and intelligence to raise and develop good cows, to know how to feed and care for them, and to arrange buildings and other suitable necessary things in order to carry on the business. No one should engage in the business without a full determination to study and stay by the business through thick and thin. A good cow will produce 300 to 350 pounds of butter per year, besides 4,000 to 5,000 pounds of skim milk to be fed on the farm, and a calf. She ought to earn from \$80 to \$75. An ordinary cow will produce from 100 to 200 pounds of butter, about the same amount of skim milk, and a calf. She may earn from \$20 to \$40 per year. She may cost more than she earns, and she may pay a small profit."

The Unprofitable Dairy.

When it is considered the extent of valuable land in Canada that is being devoted exclusively to producing crops for the dairy industry, it is remarkable how little careful scrutiny is given to the capacity of the cows in the herds. It would, perhaps, be difficult to find many herds of any considerable size that had not a few quite heavy producers; but even where these cows exist there will be found enough inferior cows to bring down the average production to a place where actual profits are difficult to discern. According to a large number of replies to questions sent out to factory patrons by the Secretary of the Western Ontario Dairymen's Association, the largest amount of money received by any patron per cow for the season of 1894 was \$65, and the lowest \$6, the average being \$23.31. It is estimated upon close calculation that it costs from \$25 to \$35 per cow to feed the average herd for a year, so that so far as hard times among dairymen is concerned, it is not difficult to determine the cause of much of the shortage in financial returns. It is not the best cows, nor in many cases the failure of food crops, but the low average, that kills the business, and this is due in some measure to the character of food provided as well as the low producing capacity of many cows. These are conditions over which cow owners have considerable control, and which they must assume more oversight if their business is to become profitable. This applies to dairymen whose business is not now profitable.

It cannot be too much to state that if the average dairy farmer understood this cow business as well as any ordinary business man ought to understand it, he would not be moving along in this easy, contented manner, keeping unprofitable excuses where a good cow could as well be placed. It is better to have no cow than one that costs more to feed her than she returns. The great trouble is, men do not see the loss they are sustaining, or else they do not know what to do to get hold of better

cows. A man should know how to test his herd, and do so, and thus find out which side of the fence he is on. What do we find to be the custom of men who have profitable dairy herds? Guesswork does not enter into their way of doing business. They see that it is not the price they obtain for their butter or cheese that tells the story of profit, so much as the cow they use. They can see that even a very high price for dairy products would not make some cows profitable. But the other fellows fail to see this. The matter resolves itself into this: every pound of food consumed by a poor cow will sink her owner further into hard times. *Hoard's Dairyman* says:

"Here is the key to the whole dairy situation in the United States to-day. It is the poor, unprofitable cow. The way out of the difficulty is a simple one, and the 'wayfaring man, though a fool, must not err therein.' It is simply to test the herd, weed out the poor cows, and set to work to produce good cows."

It has been proved time and time again that it is no great thing to produce a herd of cows that will range from 200 to 300 pounds of butter per cow per year, which will be an average for ten months of 25 to 30 pounds of milk per day, testing 3 per cent. of fat; but it is necessary to start right. It will never be done by breeding poor, scrub, half-starved cows to good bulls, and being thus satisfied that because he is not worse off than his neighbor, he need not make further effort. The only hope for the keepers of poor cows is in finding out the cause of the failure and setting about to correct the fault.

Shall Butter be Worked Once or Twice?

The object of working butter is to get the salt evenly distributed and to expel a portion of the brine. When it is worked but once, the butter-maker thinks he has worked the butter enough and packs it immediately. There is, at that time, no way to tell whether the salt has been evenly distributed or not. A few hours afterwards he draws out some of the butter with a trier, or cuts it with a ladle, and finds it mottled, which will seriously affect the selling price. He knows the cause is unequal salting; that the portions which have salt have changed to a deeper yellow, and the unsalted portions have remained of a lighter color. With the next churning he is determined to remedy this and be sure to work enough. The chances are that this time it is worked too much, so that the grain is injured and the butter has a greasy appearance. But after much practice and the exercise of good judgment and care, these errors can be avoided to a great extent, and a fairly uniform and even product produced.

In the opinion of C. P. Goodrich, expressed in Bulletin No. 57 of U. S. Department of Agriculture, it is better to work butter twice instead of once. The first time it should be worked just enough to mix in the salt. Then for four or six hours it should be left on the worker, or in some other place, where the temperature is from 60° to 65° F., so that the butter will remain in the right condition as to hardness to work well. This will give time for the salt to dissolve and also time for it to change the color of the butter that it comes in contact with. Then it should be worked just enough to obliterate the streaks and mottles. This second working expels some more of the water, for the salt has had time to draw the moisture together in drops, and it is worked out, thus making a drier butter containing from 85 to 87 per cent. of butter-fat. Such butter will be firmer and better and more satisfactory to the consumer than it usually is when worked but once. Immediately after the butter is worked, it should be packed in neat, clean packages, or put up in such form as is required by the market to which it is to be sent. If tubs are to be used, ash or spruce is to be preferred, and they should be well soaked before packing the butter. If other wooden packages are used they should be lined with parchment paper. This will prevent the butter tasting of the wood.

Milking Machine Competition.

At the Glasgow show of the Highland and Agricultural Society, a prize of £50 was offered for the best milking machine. The judges were Messrs. Alexander Cross (convenor), John Speir, John Gilchrist, John Drysdale, and James D. Park, engineer. The following entries were made, viz.: Mr. William Murchland, 23 Bank street, Kilmarnock—one machine, No. 1 in the catalogue—hydraulic suction regulation; made by the competitor. The "Thistle" Mechanical Milking Machine Company (limited), 25 Gateside street, Glasgow—two machines, No. 2 in the catalogue—steam-power milking machine; made by Messrs. Shiels, Elliot & Nelson. No. 3 in the catalogue—horse-gear milking machine; made by Messrs. Shiels, Elliot & Nelson.

The following details of the prices of these machines were supplied by the makers, viz.:

THE "MURCHLAND" MACHINE.	
No. 4 size, to milk 4 cows at once; 20 cows per hour.	£ 30 0 0
No. 6 size, to milk 6 cows at once; 30 cows per hour.	36 0 0
No. 9 size, to milk 9 cows at once; 45 cows per hour.	54 0 0
No. 12 size, to milk 12 cows at once; 60 cows per hour.	72 0 0
Power and fitting-up extra.	
THE "THISTLE" MACHINE.	
Machine to milk 6 cows at once, No. 1 type.	£ 80 0 0
Machine to milk 10 cows at once.	100 0 0
Machine to milk 15 cows at once, No. 2 type.	80 0 0
Machine to milk 20 cows at once.	119 10 0
Machine to milk 30 cows at once.	146 0 0
Machine to milk 40 cows at once.	210 0 0
Machine to milk 50 cows at once.	237 10 0
Power, piping, connections, and fitting-up extra.	

The committee appointed by the Society to conduct the trials decided, after consultations with the competitors, that machines already at work on different farms be taken for the competition. The judges inspected the working of the machines at seven farms in the counties of Ayr, Lanark, and Dumfries. On each occasion samples of the milk drawn from certain cows by the machine, and from the same cows by hand, were taken and set, to test the keeping qualities of the milk. These samples were distinguished only by numbers, the key to which remained under seal until the judges met finally to complete their report.

Having thus inspected the working of the machines and investigated the keeping qualities of the milk drawn by the respective machines, the judges unanimously awarded the prize of £50 to Mr. Wm. Murchland, Bank street, Kilmarnock, for No. 1 in the catalogue.

The following are the judges' remarks on the different machines: (1) The "Murchland" Machine.—The judges inspected this machine at three farms. On No. 1 and No. 2 it has been at work since 1891, and on No. 3 for two months. It was found in each case to perform the operation of milking efficiently and speedily. The time occupied for each cow was generally from four to six minutes, sometimes rather less. It seemed to cause no discomfort to the cows, and no injury to the teats or udder. It draws the milk by continuous suction, without any apparent pulsating movement. The apparatus is simple in its construction, equally simple in its working, and not difficult to clean or keep clean. The power required to work the machine is not great. At No. 1 farm a half-horse power oil engine milks ten cows at a time quite easily. Until this engine was put in recently, the machine was worked by one man with an ordinary force pump. In every instance the samples of milk drawn by this machine were found to keep satisfactorily; after a lapse of 48 hours they were perfectly sweet, and in no respect inferior to the milk drawn by hand. The judges regard this machine as a practical success, and are of the opinion that in large dairies where milkers are scarce it may be introduced with advantage. (2) The "Thistle" Machine.—This machine was inspected at four farms, where it has been at work for two years or less. It is ingenious but somewhat intricate in construction, not so simple in its working, nor so easily cleaned or kept clean as is desirable. Besides the action of suction common to both machines, the "Thistle" machine has a pulsating movement, and it would seem that the intricacies in this machine arise mainly from the mechanism required to produce the pulsating movement. This machine also performs the milking operation satisfactorily, but it appears to have a more severe effect upon the teats of the cow than the other machine, although no serious injury was seen upon any of the cows on the farms inspected. It milks more slowly, the time for each cow being, as a rule, from six to ten minutes. It requires considerably greater power for its working. The chief defect in this machine is the effect it has upon the keeping qualities of the milk. The judges found that the milk drawn by it kept very unsatisfactorily. Most of the samples from it developed sourness in from twelve to fourteen hours, and marked or great acidity in twenty-four hours, while samples drawn by hand from the same cows at the same time, and kept under precisely the same conditions, remained perfectly sweet for from thirty-six to fifty hours.

The decision of the judges in making the award to the Murchland machine was confirmed.

POULTRY.

Selling Fresh Eggs.

A lady living a few miles from a city asks information as to the best way to market eggs in order to get a good price, to which *Farm Poultry* makes the following reply:

"We would not look to the stores or hotels for a market for fresh eggs, but would look to family trade, and in private family trade one would find the best market. Stores buy in quantities, to sell again, so of course expect to buy cheaper; hotels and restaurants similarly. They buy at wholesale prices, and to get the best prices for eggs one wants to sell them at retail; hence, should cultivate the family trade. In any of the cities or towns there are many families where strictly fresh eggs are appreciated, and good prices paid for them. By good prices we mean about five cents per dozen above the retail price for the best store eggs."

"To build up such a trade we would make a personal canvass of certain selected families within reasonably easy access, a printed circular letter (or mimeographed letter) would do the work, simply stating that the undersigned 'was prepared to supply families, two or three times a week, with strictly fresh eggs, to be not more than two days old when delivered, and guaranteed as represented.' With such a representation of the eggs one had to sell it would not be difficult to get a trade started, and once started it would extend itself."

"The writer knows three or four private customers, one family of whom takes twenty dozen of eggs a week, and the lady of that household came to us personally and solicited us to supply her with eggs, saying that 'she had found it extremely difficult to find reliably fresh eggs.' That was nearly three years ago. We have been supplying that family with twenty dozen eggs a week ever since, and that