

would mean a milking period of ten to ten and a half months, leaving her six weeks to two months dry. If fed properly she should then be in condition for a good season's work. Under such treatment some excellent cumulative records have been made by individuals of the different dairy breeds. Give your cows a chance and one way of doing so is to feed them when dry.

The Maple Grove Holstein Sale.

It was considerable of a bargain day for the Holstein breeders who were present at the dispersal sale of the Maple Grove herd, owned by H. Bollert, of Tavistock, Ont., when they were dispersed on Wednesday, Nov. 28. There were very few fresh cows and much of the offering was a little too young to be attractive this year, with all mill-feeds high and prices still soaring. The general average for the twenty-four head catalogued was \$140 only; but this included a number of small calves, as well as six young bulls, and it was certainly no day for bulls, most of them going for beef prices only. The females, including calves, made an average of \$165.59. The buyers and the prices for animals selling for over \$100 were as follows:

Madolyn De Kol Mechthilde, John Nixon, Cobourg.....	\$175
Duchess Jongste Aaggie, F. Hammond, Millbank.....	200
Alice Segis Lyons, A. Hutchinson, Mt. Forest.....	310
Maple Grove Iris, F. Hammond.....	270
Maple Grove Iris 2nd, E. Snider.....	105
Maple Grove Tidy Pauline 2nd, J. Nixon.....	215
Maple Grove Creamy, C. Bollert, Tavistock.....	110
Maple Grove Queen Lyons 2nd, F. Hammond.....	305
Princess Creamelle Posch, J. Nixon.....	100
Colantha Maple Front Lina, P. Merritt, Thamesville.....	250
Maple Grove Plum, J. Nixon.....	100
Maple Grove Rose, E. Snider.....	150
Lily Lyons Greenwood, N. Bender, Tavistock.....	115
Maple Grove Queen Lyons, W. Roth, Woodstock.....	130
King Pontiac Lyons, F. Wibber, Hickson.....	100
Colantha Changeling Tehee, W. Stock, Tavistock.....	120
Glen Prince Hengerveld, J. M. Reid, Princeton.....	105

Feed and Breed to Ensure Full Development.

The size of a cow is usually indicative of her capacity for production. The care of the calf and yearling, the age of breeding, and the care after dropping the first calf, influence the size of the mature cow. Stunt a calf and it seldom catches up to the one that has been kept steadily going ahead from the time it was dropped until matured. Breed a heifer to drop her first calf before she has nearly attained her growth and then breed her to freshen again within a year, and the chances are that she will be undersized for the breed. If a heifer is bred to freshen at an early age, plenty of time for recuperation should be allowed between first and second lactation. A mature cow with small capacity for the breed cannot be expected to handle the amount of raw material necessary for heavy production. A cow extracts or manufactures the milk and fat from roughage and concentrates. Limit the feed and production is limited.

Not long ago we noticed considerable variation in the size of the different individuals of a herd. On making enquiry for the cause we were informed that improper care as calves and too early breeding were considered to be responsible for certain cows being undersized. The breeder said "I have learned by experience that it doesn't pay to neglect the calves and young stuff, nor to have a heifer drop her first calf before she has become pretty well developed. Although I have a breed that is not of the largest cattle, yet I want sufficient size for that breed. Arrested development due to any cause prevents a cow from doing what she would have had she been given every chance." Another breeder had large-framed, mature cows and his plan has been to keep the calves growing even if it requires considerable whole milk. He plans to have a heifer freshen at from thirty-two to thirty-six months of age. Feed and care during the growing season are influencing factors in the size of the mature animal. Neglect of the growing stock usually results in diminished returns later on.

Calves born in the fall have a better chance than spring calves. There is more time to attend to them, there is a variety of feeds at hand, the quarters are usually comfortable, and there are no flies to fight; consequently, the calf does well and is ready to go on pasture in the spring. Spring calves kept in the stable are frequently neglected in the rush of field work, and they are unable to fight for themselves if turned on pasture with older stock. Then, too, flies are troublesome later in the season and harass the youngsters a good deal. These conditions frequently result in unthrifty calves. Give the heifer calves a chance this winter. Turn them in a box stall rather than tie them, and feed a ration which promotes growth and thriftiness. Extra care now will be amply repaid later when they come to the producing age.

A 1200-pound steer, ready for market, contains only about 360 pounds of actual food. A dairy cow at two years begins to produce and yield daily thereafter about 900 pounds of edible nutrients in the year, and will continue to produce the same amount for seven years thereafter; that is she produces during her life 6,300 pounds of human food. In other words it takes 17 steers to produce the same amount of human food as a dairy cow produces during her lifetime—Bulletin 24—National Dairy Council.

POULTRY.

Crate Fattening—Wide Versus Narrow Rations.

The use of crates for the finishing of poultry for the market has been general for years, and yet this year, with the high cost of feed much of the stock is being killed in a very thin condition. Numerous tests have shown that feeding in a crate or coop for 15 days before killing produces a high quality and an economic finish, and even this year this practice of finishing will pay. At the same time there are rations that will produce flesh more cheaply than others and for feeding this year it is more important than ever to make the most out of the feeds used. Therefore a further test made by the Experimental Farm will be of interest. For flesh the ration should be high in fat-forming material and because of the tendency on the part of some to use, for crate feeding, a ration high in protein, a trial was suggested between narrow rations (rich in protein) and wide rations (rich in fat).

The object of the experiment therefore, was to determine the relative value of a series of rations ranging from an extremely "wide" nutritive ratio to one correspondingly "narrow". For this experiment sixty vigorous cockerels were selected and placed in five crates. They were fed rations ranging in nutritive ratio 1: 7.1 to 1: 3.2.

The rations fed and their nutritive ratio were as follows: No. 1—6 parts milk, 1 part ground oats, 1 part cornmeal, 1 part buckwheat, $\frac{1}{2}$ part tallow: Ratio 1: 5.6.

No. 2—6 parts milk, 1 part ground oats, 1 part cornmeal, 1 part buckwheat meal—Ratio 1: 5.09.

No. 3—4 parts milk, 1 part Feed Flour, 1 part bran—Ratio 1: 3.2.

No. 4—4 parts milk, 1 part ground oats, 1 part shorts—Ratio 1: 4.1.

No. 5—6 parts milk, 1 part ground oats, 1 part cornmeal, 1 part buckwheat meal—Ratio 1: 5.09.

An attempt was made to increase the tallow to one half part and widen the ration to 1:7.1 but this resulted in an unpalatable and heavier feed than the birds could evidently assimilate. The amount fed was doubtless the limit of pure fat material that could be supplied in a ration and give any likelihood of beneficial results.

Without skimmed milk, it would not be difficult to widen the ration by the addition of feed rich in carbo-

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hydrates but such a ration would lead to trouble as the lack of animal matter always induces feather pulling and like vices.

A small quantity of "Beet Pulp" was fed to the birds in crate No. 5 to decide the worth of a substitute for green feed. The result, however, was not encouraging. It was apparently unpalatable and the birds consumed so little that no advantage could be shown for the feeding.

At the conclusion of the 21 days all the birds were in first-class condition and could have easily been made to show better gains in weight by continuing the feed. But three weeks is usually conceded to be as long a period as is profitable, therefore, this was the time decided upon.

In giving the results for the different rations it should be borne in mind that the duration of the experiment was twenty-one days and that on the market the birds before the feeding were worth 15 cents per pound, and after being finished they brought 25 cents per pound. The costs were worked out at price of grain at the time, but the number of pounds of feed to produce one pound of gain are in each case given so the cost at present local prices may be worked out.

Ration No. 1—Gained 23 lbs., consumed 70 lbs. feed; required 3.4 lbs. feed to 1 lb. gain. The cost of each pound of gain was 12.5 cents. The net profit for the 12 birds was \$6.49.

Ration No. 2—Gained 32 lbs., consumed 80 lbs. feed; 2.5 lbs. feed to 1 lb. gain, at a cost of 6.2 cents; net profit was \$9.36.

Ration No. 3—Gained 16 lbs., consumed 67 lbs., No. of pounds fed for one pound gain 4.2—at a cost of 9.4 cents; net profit \$5.60.

Ration No. 4—Gained 19.5 lbs.; 72 lbs. eaten; 3.7 lbs. feed to 1 lb. gain, cost per pound gain 8.7 cents; net profit \$6.74.

Ration No. 5—Gained 26.5 lbs.; 80 lbs. feed consumed; 3 lbs. feed to 1 lb. gain; cost per pound gain, 6.7 cents; net gain on crate, \$8.52.

The wide rations without tallow were most profitable; the narrow most expensive. It did not pay to add tallow at 13 cents per pound to the ration. The extra finish usually looked for on tallow fed birds was not apparent on Crate No. 1 when dressed. At the prices ruling during the experiment, such feeds as bran and flour are not satisfactory if fed alone, though often recommended for crate feeding. Apparently the wider the nutritive ratio of the grains in the mixture the better. There seems no likelihood of getting it too wide if milk is used. Should milk not be used with a wide ration there is a probability that feather plucking and other vices might become prevalent.

The advisability of "finishing" poultry before marketing is apparent and where skimmed milk is available it can be put to no better use than to fatten what fowl there are available before killing. It will be seen from the above table that almost any ration will improve the bird in the fattening crate, but the wide ration is preferable, if the necessary ingredients are obtainable.

EXPERIMENTAL FARMS NOTE.

HORTICULTURE.

Winter Injury to Peach Trees.

The winter injury which peach trees frequently suffer may appear in several different forms, some of which are quite common while others are less common but of far greater significance. The fruit buds may be killed, the branches and twigs may be killed, or the roots may be killed. One should be able to discern these differences for the results in each case are of different consequence. Bulletin 241, of the Ontario Department of Agriculture, discusses these three forms of winter injury as follows:

The first form is most noticeable because it is marked by a small crop, or the total absence of fruit. This form of injury is caused most largely by a very sudden drop in temperature, following a warm spell in winter, such as occurred in January, 1914, or sometimes the first warm days of spring having opened the buds the blossoms are exposed to frost or cold, adverse weather conditions late in the spring. Cultural methods are of little avail in such cases, except in so far as good cultural methods tend to keep the trees thrifty. A site for the orchard that is not subject to these conditions is the best insurance against loss.

The second form of winter injury, viz., the killing of branches or twigs and possibly the blackening of the hearts of the main limbs and trunks is more readily guarded against. This injury is most common in over-cultivated orchards, over-pruned trees, or under any conditions where soft, sappy growth has been produced. The remedy lies in more judicious cultural methods that would tend to keep the tree vigorous and healthy, but not overgrowthy. The slower growing and slower maturing trees are the most resistant to cold.

The third form, root injury, may be due to a number of causes. Peach roots cannot withstand excessive moisture. Roots in a poor soil lacking in humus suffer from deep freezing and are themselves weak from want of food. This form of injury can be detected by the behavior of the tree in early spring. It may begin to leaf out and even open its blossoms, but in a few days begins to lose color and in a time, ranging from a few days to mid-summer, gradually but surely dies. It is expected that the trees are budded on the most hardy roots obtainable, because beyond this there is no insurance against loss except the removal of surplus moisture by ridging up with the plow in the fall and the prevention of deep freezing by mulching with farm-yard manure. A cover crop that holds the snow is an insurance against deep freezing. Judicious cultural methods are again the best form of insurance.

When pruning young pear trees, thin out any limbs that cross or interfere with the proper spacing of the branches that will at a later date form the framework of the tree. Cutting-back or heading-in is not considered advisable. This may be necessary in exceptional cases in order to properly form or balance a tree, but it should be done out of extreme necessity only. A bearing tree is less susceptible to blight but even here it is considered advisable to reduce pruning to a minimum. A little pruning regularly, March and August, might be considered a reasonable rule.

Students' Judging Competition.

As we go to press a staff Representative of The Farmer's Advocate at the Chicago International, wires that the results of the students' judging competition were: 1, Nebraska; 2, Kansas; 3, Texas; 4, Minnesota; 5, Iowa; 6, Missouri; 7, Purdue; 8, Pennsylvania; 9, Ohio; 10, Ontario.

Prof. G. E. Day Goes to the Short-horn Association.

As we go to press we learn that Prof. G. E. Day of the O. A. C. is about to take a position with the Dominion Shorthorn Breeders' Association. Prof. Day will be Secretary-Treasurer and special representative of the Association.