

After Milk and Beef.

After considerable investigation and deliberation, I decided about five years ago to do something more definite and systematic along dairy lines. To this end I purchased a pure-blooded Holstein bull; put a pair of spring scales into the cow stable, with properly-ruled paper for keeping a record of the milk given by each individual cow, by this means hoping to lessen the cost of production; or, in other words, to increase the profits of our dairy. A year ago I added two hundred acres of land to my holdings. It is now quite impossible to milk all the cows that we should be able to grow feed for. Of course, some heifers from the very best cows will be reared, but still there is fodder for many more. Shall I kill off all the surplus dairy calves, and go and buy stockers? I cannot figure out much profit on such a course. Shall I establish another herd of some distinctive beef breed? I figure that the calves from such cows will not yield sufficient profit to offset the loss incurred by the decreased yield of milk of several thousand pounds per year from their dams.

Now, from our experience and observation we reasoned this way: The Holsteins are a large, vigorous, growthy animal, and in grading up a dairy herd with them, by selecting according to actual performance, we make faster progress towards a highly efficient herd than if we select by the standard combination of wedges and angles of the expert judges, and still have remaining better forms from which to rear beefers.

Either Galloways or Aberdeen-Angus, being polled, pure black, and very prepotent, as well as being of splendid beef form, when crossed on any grade female (which, by virtue of their mixed breeding, lack prepotency), will produce a very large per cent. of progeny with all the desirable characteristics of the sire well stamped upon them.

Now, if my reasoning is correct, why may I not expect a goodly percentage of high-class feeders to be turned off as baby beef, by crossing my Holstein grades with either Galloway or Aberdeen-Angus bulls?

At one of our Institute meetings some weeks ago, we had a speaker for whose opinions I have much respect. He addressed us on stock-breeding. During the discussion I laid before him the foregoing proposition for an opinion. He took the wind clean from my sails and turned the laugh on me by remarking that "life was altogether too short to cut up any such capers." But a writer in the "Farmer's Advocate" has supplied a gentle breeze, by which my sails are being filled, and perhaps even yet I may get under way and sail over the troubled waves to some harbor of safety. When I found over the signature of T. G. Raynor the paragraph in which he says, "And by using a good Aberdeen-Angus on the Holstein grades very satisfactory steers can be produced," etc., I again got confidence in the old saying, to the effect that "great minds run in similar grooves."

ANSON GROH.

Waterloo Co., Ont.

APIARY.

Bringing Bees Out of Cellar.

By Morley Pettit.

The true apiarist is now looking forward with a great deal of pleasure to the time when his bees will be enjoying sunshine and blossoms. Those wintered out of doors can fly at the will of the sun; the cellar ones await a favorable day to be brought to the good daylight after so many weeks of dungeon darkness.

"Doctors differ" as to the best time to remove bees from winter quarters, but the tendency each year is toward an earlier date. As in everything else, much depends on local conditions. They should be set out early, when the cellar temperature is high, and the bees are restless and noisy; when their abdomens are distended with fecal matter, which they do not void except on the wing, unless too long confinement under unhealthy conditions brings on dysentery. Very little else can counteract these conditions than freedom to fly in warm sunshine. The first suitable day after March 15th is the time to set out such bees. There must be warm sunshine, temperature about 50° F., and little or no wind.

On such a day they fly freely, and give themselves and their hives a good cleaning out. They are then in a clean, dry, healthy condition to endure any cold days which may follow. They should be sheltered from cold winds by good wind-breaks, have entrances contracted to five inches, and have warm covers on the hives. That is where most men miss it in having a thin board on the hive as excuse for a cover. Through such a covering the heat of the bees produced at such an expense of food and energy passes off rapidly, and leaves the winter-weakened bees struggling to maintain the high temperature so necessary for brood rearing.

GARDEN AND ORCHARD.

Winter and Summer Spraying.

The objects aimed at in early spring or winter spraying, while the trees are still dormant or when the buds are just beginning to swell, is the prevention and destruction of the spores of fungous diseases and the destruction of scale insects. For the first the bluestone solution, of the strength of two to three pounds of bluestone to forty gallons of water, has been in use for several years, and highly recommended for that purpose. The time to use it is just as the buds begin to swell. For the oyster-shell bark-louse experiments with lime solution have given remarkably good results. The lime should be perfectly fresh and hot, made into a milky solution and strained through burlap to prevent clogging of the nozzles; the solution should be applied as strong as it can be conveniently worked through the nozzles of the spray pump. The whole surface of the tree should be covered until white all over, and after this coating dries a second is applied, going all over the tree a second time. The application may be made late in the fall, or any time through the winter, or in the month of March, while the trees are dormant. The action of the lime loosens the scales and exposes the eggs to the weather, so that they perish, and when the spring rains wash off the lime the scales come off with it, leaving the trees clean. The lime has no injurious effects upon the trees.

But for all scale insects, including the much-dreaded San Jose, the best application for spraying the trees while dormant is, no doubt, the lime and sulphur solution—a pound of fresh lime and a half pound of sulphur to a gallon of water. The water is brought to boiling heat, and then the lime is slaked in it, and then the sulphur is added, and the whole boiled for two hours. The mixture must be applied while warm, for if allowed to cool crystals are formed, which would give trouble in spraying, and it adheres to the tree much better if applied while warm. This mixture, while it takes some trouble and time in preparation, has given the best results in the treatment of the San Jose scale. It serves a double purpose, as it has proved quite efficacious as a fungicide as well, and trees that have been treated with it have a smooth, healthy appearance. This mixture is likely to be extensively used this year, more especially in districts infested with the San Jose scale, and it would no doubt be the best to use for the oyster-shell bark-louse as well.

Where the Bordeaux mixture is used the second spraying is done just before the blossoms open, and if any insects that eat the foliage are present, Paris green should be added to the mixture. For caterpillars it should be used of the strength of six or eight ounces to forty gallons of mixture. It will do no harm to the foliage if plenty of lime is used, and this is very important in all cases when spraying the foliage of fruit trees.

The next spraying should be just after the blossoms have fallen, and the same formula should be used again, with the same strength of Paris green, in order to destroy as many as possible of the larva of codling moth and also any leaf-eating insects that may be present.

The cyanide test should be used to test the mixture. It is a simple and easy matter. Dissolve five cents' worth of the ferrocyanide of potassium in a half pint of water, put it in a bottle and keep it well corked, and keep it out of the way of children, as it is a poison. When making the Bordeaux mixture, after the bluestone and Paris green have been put in and the lime solution added, stir the whole thoroughly and drop a few drops of the cyanide solution in while it is in agitation. If it gives a pink color, add more lime, until no change of color will take place when it strikes the mixture. Then add a little more lime to make sure; then the mixture is safe to use on the foliage, provided always that it is thoroughly well agitated while being applied.

One very important point in making Bordeaux mixture is to dilute the bluestone well before mixing with the lime solution. When the barrel of the spray-pump holds 40 gallons, the bluestone should be put in, and the poison diluted to 30 gallons, or 25 at least, before the lime solution is added. The lime should be made about like milk, and strained through burlap to prevent small particles from clogging the nozzles.

The spraying of the future will be done mostly with power sprayers, that will be able to do a vast deal of work in a day. They will go from place to place as the threshers do now, charging so much per day or per tree for their work; then the grower would do well to buy his own chemicals and prepare sufficient of the stock solutions to go over all his trees, and see that it is properly mixed and properly applied. We may look for a great revolution in this matter in the near future, whereby this hitherto troublesome part of orchard work will be greatly expedited and simplified.

Hotbeds.

A correspondent asks us to give him an idea of how to make and care for a hotbed for growing tomatoes, and also how much sash would be required for five thousand plants.

To construct a hotbed, choose a situation well protected on the north side by a building or high board fence. Dig an excavation running east and west, eighteen inches deep, and about the width of the length of the sashes, and any desired length. Stakes are driven into the ground at each corner, and the frame nailed to them, so as to get a box-like structure, about eighteen inches high at the back and twelve inches at the front. Make the frame about three inches narrower than the length of sash, so that the sash will reach properly on the given slope. Nail a strip of inch board, wide enough to act as a rest for the sash edges, and to allow of the adjustment of an inch wide strip between each two sashes, across the top of the frame, where each two sashes meet, making everything snug and tight to keep out the cold.

The excavation is then filled with fresh horse manure and urine-soaked litter, previously "tempered," by heaping it up in a conical pile, and leaving it till fermentation has well set in, then turning and piling up again. In a few days it will then be ready for the bed, and should be packed down solidly and evenly. When the manure is in, put on the sashes and allow the manure to come to a heat; open the sashes and let the first heat pass off, then place a layer of good rich soil, six inches in depth, on top of the manure.

The sashes should now be left on for a few days till the soil is thoroughly warmed through, then stirred with a hand rake to kill what weed seeds have germinated, and the bed is ready for use. For five thousand plants, allowing them to grow two inches apart each way, it would require a bed about six feet wide by twenty-five feet long.

Aggressiveness in Fruit Culture.

The chances are that the buds of the more tender varieties of peaches and grapes will be injured considerably. The trees and vines will probably come out with but little damage. Fortunately, the ground has been covered with a thick layer of snow throughout the severe cold of the winter, so that the roots are likely all right. I do not anticipate much damage to the tops and trunks of trees and vines through the action known as "dry freezing," for the reason that there has been very little frost in the ground, and, consequently, the root system is likely to have supplied all the moisture required by the rest of the tree, notwithstanding the abnormally cold, dry atmosphere. Had the roots been frozen solid, as in 1899, it is likely that thousands of trees would have been destroyed.

In regard to spraying: The time has doubtless come when it should be done in the same way as our threshing, by a competent man having a complete outfit and sufficient help moving from farm to farm in his "beat" during the spraying season. As a rule much better work would be done, and the cost would be relatively less.

In regard to the apple spot or scab, the bottom of the question has not yet been reached. It seems to me that too much attention has been paid to fighting the disease from the outside, and that greater care should be taken of the health and constitution of the tree in order to make it more resistant to fungous attacks. I propose this spring to use land plaster heavily on an acre or two of apple orchard in bearing. Lime is a most important plant food, and also has a good effect on the soil. Sulphur, the other element of plaster, is the basis of most fungicides. In other words, I want to treat the tree via the roots and circulation system, and thus try to get at the seat of the fungous predisposition.

Then, again, there appears to be a fungous parasite, friendly to the apple-grower, which, under given conditions, preys upon and destroys the spot, converting it into a light bronze color, not unattractive to the eye. Can anything be done for the rapid propagation of this parasite?

Apples and export pears appear to have the brightest future of any fruits in the Burlington district. In apples, the Duchess for summer, the Ribston and Blenheim Pippins for fall, and the King, Baldwin, Greening and Spy for winter, seem to fill the bill. As for pears, the Duchess probably stands first to-day for export, with the Keiffer, Anjou, Bosc, Clarigau, Josephine, Winter Nelis and Easter Beune in second place.

Probably the greatest improvement in the fruit industry lies in the gradual extension of the co-operative system in selling the larger fruits. A farmer then controls his fruit, and reaps any advantages that are going.

The discouraging features of the fruit industry are the lack of aggressiveness in finding new markets, and unreliable cold storage for tender export fruits. Bartlett-pear growers in Ontario will probably think twice before they risk many more carloads under present conditions. A. W. PEART, Burlington Fruit Exp. Station, Halton Co., Ont.