

Mustard Killed by Spraying.

Notwithstanding conclusive demonstrations of the efficacy of copper-sulphate spray to destroy charlock or mustard (*Brassica sinapistrum*), this method seems to be practiced by very few farmers. There is reason to believe this is due, not to any fault in the idea, but to the conservatism and inertia that delays the adoption of so many other advantageous and profitable practices—the spraying of fruit trees, for example. This may be inferred from the fact that here and there mustard-spraying has been tried, with decided success, and at comparatively small expense per acre for material and labor. It should perhaps be explained that the success of the spraying treatment depends upon the fact that mustard, having a rough, pubescent leaf, retains sufficient of a copper-sulphate solution to kill it, whereas the leaves of the grain in which the mustard grows have mostly smooth, linear leaves, which do not hold enough of the solution used to do them any serious harm. Indeed, it is believed by some to have a fungicidal value which really benefits the grain after the slight scorching has passed off.

Eight or ten years ago, S. J. Mason, of Oxford County, Ont., near Norwich, began spraying for mustard, and has continued every year since. The mustard has been particularly bad on one piece of land that was purchased, though the home farm is also infested. The formula used is 10 pounds bluestone to 40 gallons of water, which is sufficient to cover an acre. A Spramotor hand-pump outfit is used, there being a special mustard-spraying attachment, with a horizontal pipe 14 feet long, having jets 18 inches apart. With this outfit, 15 acres a day can be sprayed. Usually, each field is sprayed just once, and preferably when in full bloom. At an earlier stage of growth the plants are perhaps more tender, but if the spraying is done then, others will come on, necessitating a second operation. Last year, part was sprayed when the weed was coming into bloom, and this was not so effectual as spraying in full bloom. As a rule, only the spring grain has to be gone over, but last year the wheat, also, was sprayed.

"Does the spraying kill practically all the mustard?" "About all," was the reply; "a small percentage is missed." "Are you getting the weed out of your land?" "Well, it is thinner than it used to be. Last year I was quite encouraged. I thought we were getting rid of it, but this year there is a good deal of it again. It seems to be worst where sheaves have been carried and dropped from the bundle carrier. One needs to spray every year to make headway. One year's seeding, ten years' weeding. I would spray, though, even if I never had any hope of getting rid of it, for the sake of the benefit to each year's crop. It does the grain good. It turns yellow at first, but soon recovers, and after that seems to grow all the faster for spraying, and, of course, the crop has the extra space, moisture and plant food that the mustard would otherwise take.

"Bluestone can be bought in quantity as low as \$4.80 a cwt., though I have paid eight or nine cents a pound at stores, and the storekeeper then claim he was doing me a favor by supplying it at cost."

Three Benefits of Alfalfa.

1. Alfalfa, through its tubercles, absorbs from the air valuable plant food, which it in turn imparts to the soil.
2. It penetrates and brings up for use the plant food stored below, and beyond the reach of the growing crops.
3. When plowed under, the plants and roots resolve themselves into a valuable humus, which the soil absorbs.—[John Powers, before the Kansas State Board of Agriculture.

Alfalfa, like corn, demands certain conditions of the soil, and certain constituents in that soil. Every crop demands certain foods. All crops, except alfalfa and the other legumes, obtain practically all their food, including nitrogen, from the soil. The latter crops use nitrogen, but get it from the air. Alfalfa takes nitrogen from the soil only during the first few months of its growth, and thereafter not only takes its own necessary supply from the air, but a large surplus which it stores in the soil, available for whatever crop may follow. Other crops take much nitrogen from the soil, but contribute nothing to its enrichment.—[From Coburn's "The Book on Alfalfa."

THE DAIRY.

Summer Feeding of Dairy Cows.

Prof. C. H. Eckles, of the Missouri State Agricultural College, introduced a timely discussion at the annual meeting of the Kansas State Board of Agriculture, on feeding the dairy cow in summer. As reported in the proceedings, he said:

There is some difference of opinion on this question, from the standpoint of economy. There is no question but that a cow will produce more milk if fed grain while on pasture, and if a large yield is of more importance than economy of production, grain certainly should be fed. The cow that gives a small average quantity of milk will produce but very little more if fed grain while on pasture. However, with the heavy-producing cow the case is quite different, and it is necessary that she be fed grain, or she will not continue on the high level of production for a very long time. The necessity for feeding grain to the high-producing cow arises from the fact that she cannot secure a sufficient amount of nutrients from the grass alone, and must have some concentrated feed, in the form of grain, in order to continue to produce large quantities of milk.

Experiments made by the Cornell Experiment Station, covering four years, showed that, while an increase of milk was secured from grain feeding, it was not economical to produce it in this way. They secured only about an additional pound of milk for each pound of grain fed. In these experiments the pastures produced an abundance of nutritious grasses. They observed, however, that the cows fed grain during the summer gave better results after the grazing period was over than those that did not receive grain. This is also a matter of common observation, and should be taken into account in considering the advisability of feeding grain. The point is that the cows fed grain stored a considerable quantity of surplus nutrients in the body, which was afterwards available for production of milk. Where a small amount of grain is fed, corn is as well adapted as anything else where it is cheaper than other feeds, since, on account of the comparatively narrow nutritive ratio of the grass, the corn does not unbalance the ration. However, in case of feeding large quantities of grain, as would be necessary in the case of cows producing from one and one-half to two pounds of fat per day, or more, other feed, containing more protein, should be used in part, such as bran, gluten meal, oats, or cottonseed meal.

Where the farmer can grow alfalfa and corn, there is no reason for allowing the cows to suffer for feed during the period of short pasture. Green alfalfa is the best summer soiling crop that can be grown. The only thing that is better might be a combination with green corn. These two fit together especially well. Under most conditions, the most difficult season of the year to get green crops available for feeding supplementary to pastures is in the earlier part of the summer, before corn is mature. Alfalfa is at its best during this season, and serves the purpose remarkably well. In the latter part of the summer, when corn is more mature, there is nothing better than green corn. No plant now known to us equals corn in its adaptability to the soiling system. Corn has the advantage of yielding larger quantities of digestible nutrients per acre, at less cost, than any other crop suited to soiling. Where alfalfa is not grown, the use of the corn silage for summer feeding is bound to be practiced extensively in the future. We are coming to depend more and more upon silage as supplementary to pastures throughout the season. The use of silage for this purpose allows the corn to be matured to the proper stage before being harvested, giving a maximum yield of nutrients per acre, and is more economical of labor, as compared with hauling green corn from the field, since the cutting and hauling corn for the silo is all done at once. In planning silos, it is well to build one designed especially for winter feeding, and a second one small enough so that it can be fed from in the summer, without danger of too much silage being spoiled. Next to corn and alfalfa should probably be placed sorghum, as a soiling crop. The yield per acre of green sorghum is very large, and it serves much the same purpose as green corn.

DISCUSSION.

H. W. McAfee.—Doesn't it pay a farmer who is making a practice of dairying to feed grain the year round? I feed my cattle alfalfa morning and evening, and grain morning and evening. Then, when they go out well filled up, they don't have to stand and fight flies, and eat. I believe it is economy. I average about seventy-four gallons of milk a day from thirty cows. I feed a good deal of oil meal the year round. I feed about four quarts of grain at a meal. In the summer I give them three quarts of bran and one of oil meal a day.

Professor Eckles.—I find we get more milk where we feed more grain. I think the idea is something like this: If you have an inferior milker,

or an ordinary milker, it doesn't pay to feed her any grain when she is on grass. She will give as much milk on pasture as she will on grain. But, as you go up the scale, it pays to feed her grain. No cow can possibly do her best on grass alone. She can't possibly eat and digest enough grass to do her best. The better the cow, the more you need grain. The cow that only gives a little milk won't give you much return if you do feed her grain. I would treat them as individuals while they are on grass.

A Member.—Do you increase the quality of milk by feeding?

Professor Eckles.—That question has been discussed a great deal in recent years, and, while there has been considerable new information brought out recently, the fact remains good that, for all practical purposes you cannot increase the amount of fat in a very considerable way. Under certain conditions it can be increased a little bit, but for all practical purpose you can't do it. Of course, the quantity of milk responds very quickly and very strongly to the amount of feed, but the quality, very little.

J. T. Tredway.—What per cent. of oil meal is most profitable?

Professor Eckles.—We don't feed oil meal in very large quantities. Perhaps about two pounds a day. With clover and timothy hay and grain, I would make it two pounds of grain, four pounds of bran, and two of oil meal.

R. B. Ward.—I see that the things supplying the elements for milk, and for the production of milk, are cottonseed meal and alfalfa. Now, as a beef-producer, should I feed my cattle cottonseed meal, grain and alfalfa?

Professor Eckles.—Yes; I would recommend it for both classes.

Creditable New Brunswick Herd Record.

Editor "The Farmer's Advocate":

Some two or three years ago you invited results of cow-testing from farmers, and, as far as I remember, you received no response from this Province.

We have just finished a fairly successful year with a small herd, and enclose you particulars. We have no up-to-date farm or equipment. Our cows roam over a square mile of woods and old fields for pasturage in summer, and go to the brook in all weathers for water in winter. We have no system of ventilation, but must depend on opening doors, shutters, etc., when stable begins to smell "close."

As to system followed in feeding, we have in our mind a certain condition of flesh and appearance in which to keep our cows, and guide our feeding thereby. If a cow in apparent health begins to shrink in flesh on average feed, we increase accordingly, until an equilibrium is reached, always having a care to do so carefully and judiciously, having an eye out for mammitis and other ills. We have never yet exceeded eight pounds of grain feed per day, and that only to certain individuals for a short time after freshening. Our regular feed this spring, after freshening, was six pounds per day, two individuals, Nos. 1 and 7, getting a pound more. On the other hand, No. 2, by an accident, early in March, lost the use of a quarter, went down in milk accordingly, increased in flesh, and we dropped her grain feed one-half. So, instead of forcing them, we allow them to prompt us in amount of concentrates fed. We feed largely wheat bran, costing this year from \$27 to \$29 per ton, varied with an occasional bag of middlings, oil cake, buckwheat bran, corn meal, etc., but the bulk of our grain feed is bran. We strive to make our roughage as succulent as possible, but have never succeeded to our or the cows' satisfaction, as yet. Peas and oats they revel in; corn they accept with an emphatic protest, when peas and oats are no more. They dote on turnips in the winter, but never get enough.

We have no silo. What few were built in this vicinity have, as far as my knowledge goes, all gone out of use. Is it a case of the survival of the fittest, or a warp in the gumption of our farmers? If we ever build one, it will be to bridge over the gap between June grass and peas and oats. Just now we are experimenting with alfalfa.

As to the herd of which I enclose record and account, Nos. 1, 2 and 7 are pure-bred Jerseys; No. 3 is a high-grade Ayrshire; the rest are grade Jerseys. Nos. 1 and 7 are calves of No. 2; No. 3 is the mother of No. 4. If No. 2 had not suffered the accident before referred to, she would have been up among the leaders, if not head of all. The figures, as they stand, show No. 4 to be superior to No. 7 in milking ability, which is not so. She freshened early, and had three months in her three-year-old form, while No. 7 only had twenty days. Let your dual-purpose editor note where the Jerseys stand in this herd. Nos. 3 and 4 are the only ones a dual-purpose man would look at the second time, and they are distinctly "not in it."