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language alone, would make what most people would call a good-sized library. The experiments thus described are numbered by hundreds and even thousands, each one of which has cost the labor of days, weeks or months. They have called in requisition the services of the ablest scientific men and the most successful farmers. They have involved an incalculable amount of thought, care and toil, in the laboratory, the stable and the study. The labor, much of it of a menial sort, has been performed willingly, and even enthusiastically, by those to whom it has brought, not wealth, but meagre support. Nor has the work been in vain. These investigations have done a vast deal to settle the questions about stock-feeding, and which are as perplexing as they are important to millions of farmers on both sides of the Atlantic. Combined with the results of daily farm experience, they have shown for what purposes different kinds of fodder materials as best fitted, and how much each is worth. They have taught the farmers how to make valuable fodder out of poor hay and straw; how to employ lucerne, seradella, clover and other forage crops, to the best advantage; how to utilize waste products, such as flaxseed and cotton-seed, and the oil-cake made from them; also the refuse from the manufacture of sugar from beets, and of alcoholic spirits and starch from grains and potatoes. They have shown in what proportions these and scores of other fodder materials should be mixed and used, so as to get the greatest benefit at the least cost.

In brief, this sort of work is supplying German farmers with just the information they need, in order to keep their stock and produce meat, dairy products, and whatever else comes from the maintaining of domestic animals, most rationally and with the largest profit.

Clover Hay.

Many farmers take the position that clover hay is injurious to stock, especially horses, and that the prevalence of heaves is attributed to this kind of hay. Clover is, however, too valuable a plant to be condemned on flimsy evidence, at least, without a full investigation. But the great source of objection to clover hay is the manner in which it is made; and it must be admitted that clover is very difficult to make, particularly when the stand is heavy. To save the blossoms and leaves from falling off in handling, it is often stored away with the largest stems partially filled with moisture, and, of course, in the sweating process, fermentation will take place to some extent, and the hay will be slightly musty and very dusty, and if fed to stock without being moistened, will undoubtedly affect injuriously the respiratory organs of the animals. Still, in case of such misfortune, it will be no great trouble to have a watering can and a cask filled with weak brine in the stable entry to sprinkle over the hay as it is fed to the horses, and which will answer a double purpose—settling the dust and give a healthy relish to the food.

Clover hay can be cured without much loss in the blossoms and leaves, if cocked in the field when partially dry, and secured from rain by muslin caps and allowed to wilt and sweat a few days, when the cocks can be turned over and can be thrown about carefully to dry and be stored away. Clover is too often imperfectly cured, and that is the only reason why it is objectionable to feed to stock.

Corn for Soiling.

Whatever may be said as to the value of the various plants for soiling, there is no doubt that, in the west especially, Indian corn is, all things considered, the cheapest available plant we have, from the time it can be made ready to cut for feeding until frost comes. To this end, the first sowing should be made immediately after planting the corn crop, and be followed up every ten days, until about the 10th of July. Thus you may have an abundance of feed, to follow the early sown grain.

One of the great mistakes in sowing corn for forage is the lack of seed. Not less than three bushels should be sown, and we have used four bushels per acre with decided benefit; and we should recommend three and one-half bushels as a rule. The corn will thus completely cover the ground from the first, and the stalks will be so slender and succulent that the crop may be cut with a reaper, and the produce will be eaten entire.

We are altogether in favor of drilling, rather

than sowing broadcast, when it can be done, covering the seed say one and a half inches deep, the rows about seven inches apart. Thus you get an equal distribution, and just as the corn is sprouting the land may be thoroughly harrowed with a light harrow, both ways, if necessary, which will effectually kill the young weeds, and at the same time assist the growth of the corn. If sown broadcast, we should prefer plowing in the seed, say about two inches deep, by means of narrow furrows, and harrowing the soil just as the corn is about to come up, as before directed.

Much has been said, first and last, in reference to the variety of corn to be used for fodder. The ordinary Western Dent corn is fully as good as any we have ever used. It is true that sugar corn, as a rule, has more foliage than the Dent varieties, but, when it is sown thickly, both the stalks and foliage are eaten, so that it will not pay to go to the extra expense; certainly it will not pay to buy sugar corn to sow.

Very often seasonable rains keep pastures flush, thus obviating the necessity, in a measure, of soiling; but this, even if it were more usual than it is, would be no valid reason for neglecting to sow these fodder crops. If not wanted, it is easily cured for winter by partial curing and then tying in small bundles, and finishing the process in shocks made as secure from rain as possible. When properly cured, it may be stacked in narrow ricks covered with slough hay, or thatched, thus making one of the best possible winter feeds, not only for milk cows, but also for young stock.

Nevertheless, while we do not advise sowing corn exclusively for winter forage, where corn itself is so cheaply grown as it is in the West, we reiterate that no dairyman should find himself without this, or some other green crop, to assist his cows through the drouths of summer, even though he be obliged to cure a portion of it for winter forage.

Salt in Canada.

Having seen a communication in your last issue upon the application of salt as a manure, I fully endorse the good results of its use, as expressed by your correspondent. In Brant county, where I reside, its non-application will soon be the exception and not the rule, as the material benefit accruing to those who have used it, is such as to make us feel that our success in growing good crops, particularly barley, depends to a considerable extent upon its application. Experiments have been tried, such as leaving strips in a field without any salt, resulting in such a contrast as to cause anyone not knowing the facts to wonder at it. But the most noticeable difference within my knowledge is where a farmer sowed the salt with an attachment on a grain drill for that purpose, by which, not working properly, some drills were salted and others not, making the barley field at harvest time present a rather ludicrous appearance, as the salted drills were of a brighter color, taller, and ripened fully a week earlier than the other.

We find we received the most benefit from an application of about 240 pounds per acre. We sow broadcast upon the ground after plowing or before cultivating, as the case may be, working it in with the grain. There is no question with us whether we shall apply it or not. Of course, last season barley was generally a pretty light sample, yet in this vicinity we grew a considerable quantity up to the standard, and which, I may say, almost invariably received the aid of salt, bringing the highest market price, while the lighter grades could hardly find a purchaser.

So far as the cost is concerned, we can get good, clean salt at \$4 per ton, costing at our rate of application about 48 cents per acre, surely a very cheap manurial agent. It is considered that salt very generously absorbs ammonia, yet it is not thought to be a permanent benefit, as in the decomposition the ammonia is liberated freely.—*Country Gentleman.*

The Spring Roller.

Many people who lose heavily every year by having their wheat, rye or grass drawn out by the frost, might save a good portion by a judicious use of the roller in time. The plants are drawn out in the first place not so much by the frosts as by the thaw. The water in the ground freezes and the ground expands, the only room for which expansion is upwards. When the thaw comes, that which is heaviest sinks first. The plant being lightest does not sink at all. It rises when the ground rises, but does not sink when the ground

sinks. With a continuance of freezings and thaws the plant is brought up little by little till with the advent of spring only a few fibres attach the plant to the ground.

It has been noted that in thoroughly drained ground the heaving out is slight. Indeed, where there is no water in the ground there is nothing to freeze and no expansion follows. In the next place, where the water is abundant there is the greatest expansion, and the greatest losses in heaving out. Much may be done to preserve crops from destruction by making open ditches after sowing in the fall. Mere plow furrows are often enough to carry away considerable water, and make all the difference between failure and success. But in our climate, where rain and snow are often succeeded at once by frost so severe that the water has no time to drain away before it is frozen up, the best system of draining ever devised will not avail to prevent a good deal of heaving out in the winter season.

The plant drawn out in this way does not seem to be much injured till the sun gets warm. Then the evaporation soon dries up the whole plant, which can get no help to draw a supply of moisture from the soil. If we can only press the roots into the ground before there has been much of this sort of drying, they will often make new roots and grow again. Now this can be brought about by rolling. In this there is a danger to avoid. If we roll the ground when it is wet it will only harden. It is the way to make brick. The surface dries rapidly, and when the warm weather comes wet rolled land suffers very materially. It requires a nice judgement to know when to roll land. The soil should rather crush a little than make paste when rolling. Those who can exercise their judgement will find a good roller one of the best of all farm implements.—*German town Telegraph.*

A Wire Worm.

In reply to enquiries we have recommended the application of fresh slacked lime to the soil as a preventive of the ravages of these destructive pests. We made use of it ourselves and know it to be used by others for that purpose. A correspondent of the *German town Telegraph* prescribes for their extermination as follows:—

To extirpate the wire-worm, when the soil is very much infested with them, and which are very destructive to various crops we raise, one experiment has been tried with beneficial results. This is to sow the field with white mustard seed. I will give you a statement made by a farmer who tried the experiment, which he has tried frequently and always with success. Encouraged by the result of former trials, he writes:—

"I sowed a whole field of forty-two acres, which had not repaid me for nineteen years, in consequence of nearly every crop being destroyed by the wire-worm, and I am warranted in stating that not a single wire-worm could be found the following year, and the crop of wheat throughout, reaped the next harvest, was superior to any I had grown for twenty-one years. I am, therefore, under a strong persuasion that a wire-worm may be repelled and eradicated by carefully destroying all weeds and roots, and drilling white mustard seed and keeping the ground clean by cultivation."

Another farmer who occupied a farm in my native village; some parts of his farm was a black soil, subject to wire-worm so very much, that he sowed the field with mustard-seed, and had a splendid crop of mustard, and it corroborated the above statement in regard to annihilating the wire-worm.

Of all the ordinary grain crops, barley requires the richest and best land. A poor crop is a nuisance. It is difficult to harvest, and worth little when harvested. Good six-rowed barley, last fall, weighing 48 lbs. to the bushel, would have sold for \$1 per bushel much more readily than poor barley 44 lbs. to the bushel would have sold for 70 cents per bushel. I have had a crop of barley of 12 bushels per acre, and I have had a crop averaging over 50 bushels per acre. Of course, in the former case, I was inclined to throw the blame on the "season," and in the latter to take the credit to myself. But, in fact, the difference in the two crops was largely due to the condition of the land, the preparation of the soil, and the time of sowing. Last year my whole crop of barley averaged 39 bushels and 10 lbs. to the acre. I do not think the whole crop of the neighborhood averaged 15 bushels per acre.—*Agriculturist.*