Producing Fodder and Silage Corn.

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One of the most valuable forage crops on the Minnesota farm is common Minnesota corn grown too thickly to produce ears, resulting in plants with but few ears and with stems and leaves so fine that stock will eat the entire plant. Dairymen near the Twin Cities have thus sown corn thickly in drills on well manured land for a number of years, by this means avoiding the purchase of so much expensive hay. Corn raised in this manner and dry-cured or siloed has formed the principal roughage for the dairy herd at the Minnesota Experiment Station for a number of years. During the very dry summer of 1900, a silo which had been filled with this corn in 1899 and held over winter took the place of pasturage for the dairy herd, and part of the small pasture was plowed to give room for more fodder corn. Corn is now planted

thickly for fodder and silage and partially takes the place of the grasses on Minnesota's several experiment farms, where it is deemed superior for sheep, horses and store cattle, as well as for cows in milk.

In 1900 the excessive, widespread and entirely unprecedented drouth throughout the entire months of May and June made impossible the production of a full crop of hay. It also seriously injured the grain crop, and threatened to cause a serious reduction in the number of the young live stock of the state on account of a shortage of food. Press Bulletin No. 10, sent out from this station, and numerous newspaper articles, induced farmers to plant many thousands of acres of fodder corn. The station has heard from many districts that the corn planted thickly under that advice saved the partial disbandment of herds and kept the price of hay from reaching prohibitive prices. The farmers who planted large crops of fodder corn in June, or even as late as July 1st, are only sorry that they did not plant much more. This fodder corn was worth in some neighborhoods six to eight dollars per ton, each ton taking the place of a ton of salable hay.

To make a clearer demonstration of the value of fodder corn, the Experiment Station sold at a low price three or four hundred bushels of Minnesota No. 13 corn from the crib, which upon trial proved ready to germinate, to men who would grow it according to our directions. This variety is similar to most dent varieties which ripen and yield well in the southern half of the state. Those securing this corn are pleased with this way of growing fodder corn. Some of the letters received in response to inquiries are very enthusiastic, none take a negative view. In some Red River Valley counties, the excessive autumn rains made harvesting and saving the crop so difficult that the best results were not obtained, but results were satisfactory clear to the north line of the state.

MINNESOTA FODDER CORN.

Instead of the southern fodder corn planted thinly or thickly, Minnesota varieties planted very thickly are found better. (1) The seed may be secured cheaply at home, and sufficient can be afforded to plant thickly (60 lbs. per acre), making fine stems and leaves. (2) The seed may be raised on the farm where needed, in the southern half of Minnesota, and the Northern Minnesota farmer can secure it from Southern Minnesota and always know the variety he is using. (3) These earlier dent varieties may be planted later and harvested earlier, leaving a longer, warmer autumn for curing the fodder. (4) The corn harvester may be used in harvesting this fodder corn. (5) The finer stalks without ears are more palatable and richer, requiring less concentrates to balance the ration than coarse varieties grown thinly, or than corn stover from which ears have been husked. (6) The fodder is more easily handled than the large kinds, whether in the silage cutter or in the mangers, and there is but little coarse refuse to bother in the manure. (7) It is cheaper to raise an acre of thickly grown northern corn and the value per acre is as great or greater, while the land is left cleaner for the wheat or other crop following in the rotation than where large fodder corn or ear corn is grown. (8) Fodder corn planted rather late at the rate of a bushel per acre, harrowed till six or eight inches high, and cultivated two or three times grows so rapidly on good ground that it smothers all weeds.

RAISING FODDER CORN.

The land may be plowed in the fall, but spring plowing is quite as good, and has the advantage of providing the best possible place to spread manure, in the spring after the other crops have been planted. Fodder corn will thrive on very coarse manure, and reduces it in the soil for a succeeding

crop without the usual 50 per cent loss which occurs in the compost heap or when scattered about the barn yard. The plow should be run a little deeper than for the other crops in the rotation, especially if the field is to be seeded down to grass with spring grain on the unplowed corn stubble the next year. The spring plowed land should be harrowed before leaving the field each half day, that clods may be prevented from forming. In case of fall-plowed land the disk or other deep-going cultivator should be used to thoroughly stir the surface to the depth of two to three inches. The harrow or other like implement should then be used to make the surface fine and smooth, so that the harrow will have only a finely pulverized seed bed to move while the corn is young, that the small weeds may be destroyed without killing the young corn plants.

PLANTING.

The corn is planted in drills about three and one-half feet apart, using about 60 pounds of seed per acre. Where there is not available a two-horse corn planter which will plant the seed in drills so thick as 60 pounds per acre, this can be accomplished by using the common shoe or hoe grain drill. If one tube will not carry sufficient corn for the row, two tubes may be left open every three or four feet apart, making a double row six to eight inches between the two drills. The grain drill does not indicate correctly the amount of corn that will be sown per acre, and this can be learned only by experience with each drill. A kernel every two to four inches in each of the double rows, or one every one to two inches in the single row, will be about the desired amount. In planting with the common grain drill it is considered a saving of time to mark the field one way, using a marker adjusted for the purpose with a runner where the grain drill places each row. Then by covering those seed cups which are not to be used

the box may be filled and the drill tubes which are to sow the corn driven over the marks, thus saving the labor of setting stakes each time, and insuring straighter rows. The shoes or hoes should be run so as to plant the seeds two to four inches deep. The only disadvantage in the double row is the increased difficulty of harvesting with the corn binder in case the corn has been blown down, the points not gathering all of the broad row. Two-horse corn planters should be chosen which have attachments for drilling sixty pounds and even more of corn per acre.

The fodder corn should be planted two to four weeks after the time for planting corn for ears. This gives time to manure and plow the land, and very many early sprouting weed seeds are destroyed, especially by the preparatory cultivation in fall-plowed land.

CULTIVATION.

The cultivation of this corn is more simple and cheaper than the cultivation of corn planted in hills. The corn is harrowed two or three times until the plants are six to eight inches high, the heavy seeding making it no serious loss if the common spike harrow, or, what is better, the slanting tooth harrow, destroys an occasional plant. This corn, planted late and thoroughly cultivated until several inches high, and until all weeds are killed in the row as well as between the rows, responds so rapidly to the July "corn weather" that late germinating weeds in the row are smothered. Twice or thrice through with the cultivator, set only two or three inches deep, gives a good dust blanket and destroys all weeds between the rows until the corn forms such a dense crop that no weeds can grow, and when the crop of fodder is harvested the land is the cleanest on the farm.

HARVESTING.

Fodder corn should be cut for dried fodder or for ensilage when the drying of the lower leaves show that the plants are passing their succulent stage. At this time there is available the largest food value per acre. The corn binder is revolutionizing corn growing, and is helping greatly to make corn our greatest hay crop. Where the area is sufficient to justify it, this is the most useful machine to purchase, or to hire of a neighbor. The bundle carrier is useful in bunching the bundles and in placing the shocks in rows wide apart, but close together in the row. The bundles can then be collected into small shocks, which will dry rapidly, and before the snow begins to fall they can be drawn to the barn, or several can be collected into much larger shocks and left to be drawn from the field as fed through the winter.

Where the corn binder is not available the corn can be cut with the hand knife, or a sled machine can be used to some advantage. This machine best serves its purpose if a strong horse is used, or two horses hitched tandem, and each of two men collects a very large armful from a row as cut by the knife either side of the sled, not throwing it to the ground, but stopping the horse and getting off and placing the bundles in the shock, the rows of which can be placed at uniform distances apart. Where the corn is not tall or heavy the common grain binder proves equal to the task of cutting and binding one row at a time. The shocks should be carefully made, and bound tightly at the top with a cord. In ten days, when the stalks will have shrunk, the cord on each shock should be tightened.

STORING.

Fodder corn must be stored with wisdom and care, as the thick portions of the stems retain much moisture and cause heating and mouldling in the stack or hay bay. A variety

which will mature for fodder early, while there is yet a period of warm, dry weather, is the first requisite, and placing the fodder in small shocks the second. No corn which has perceptible moisture inside of the stems is safe to place in a large bulk, especially in moist, warm weather.

Fodder corn may be stacked in ricks only as wide as the stalks are long and 8 or 10 feet high; in round stacks 15 to 20 feet in diameter, or in wide, tall ricks. If dry, either method works well, but the narrow ricks are a little safer for fodder which is slightly moist, and are more easily turned out if signs of heating are discerned. The stacks should be carefully built to shed rain, and may be covered with straw, cheap hay or boards. When large hay bays are available, fodder corn may be stored in bulk, if dry; or it may be dried by standing it in single open tiers on floors, and on the surface of the settled masses of hay. Fodder corn which has been run through a fodder cutter must be well dried or it will heat if stored in bulk in an open hay mow.

SILOING.

Fodder corn grown thickly can be made into a most excellent silage in the following manner: Harvest with the corn binder. Cut to one-half or three-fourths inch lengths, distribute carefully throughout the silo, using care to pack along the walls and in the corners as solidly as in the center of the silo. The whole of the surface should be constantly and evenly packed by tramping. A canvas cloth tube attached to the upper end of the carrier and moved about, distributing the silage evenly over the surface, helps to prevent that part on which the silage falls from becoming more compacted than other portions of the mass. While the work of siloing green corn is considerable, the labor of feeding this finely cut silage in winter is reduced to a minimum, and there are no long stalks giving trouble in the mangers or in the manure.

PREPARATION FOR FEEDING.

Where the facilities can be provided, it is often profitable to run dried fodder corn through a feed cutter. The necessity of cutting only a limited quantity of fodder which is not well dried so as to avoid loss in the stored fodder is the most serious drawback experienced. Where the amount of stock will not warrant a power cutter the fodder must be fed whole. This can be done in properly constructed individual mangers, in large racks or mangers to which stock have free access, or it may be fed on the ground as a part of the daily ration. The larger profits from crops of properly grown fodder corn, as compared with crops of grass or even clover, warrant our abandoning the old theory that "corn fodder is too much bother." The corn binder, the silo, a better adaptation of varieties to localities and soils, thick planting and the improved methods of cultivation are rapidly pushing the corn belt northwestward.

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