

Producing Fodder and Silage Corn.

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Several years ago the Experiment Station conducted experiments which resulted in changing from the use of southern ensilage corn and sweet corn to the use of Minnesota dent corn for drilling in thickly for fodder corn and for ensilage. Several advantages are gained by this change: (1) It enables us to produce our own fodder corn seed at very low cost. (2) It avoids purchasing one variety of corn this year and another next, and having one variety year after year, we know how to plant, cultivate, harvest, store and feed it. (3) The use of the corn harvester, and even the grain binder in some cases, is practicable with these smaller varieties of corn. (4) Since the fodder crop matures sufficiently for fodder in a shorter time than the larger kinds, it can be planted later and harvested earlier, thus economizing labor in our short spring seasons. (5) The early harvested fodder is better cured during our short cool autumns, and can be stored with greater safety and fed more economically. (6) The smaller stalks make finer, more palatable and richer fodder, requiring less expensive concentrates to balance the ration. (7) The fodder is more easily handled in putting

through the silage or fodder cutter, or if fed long, more easily handled in the mangers, and the stalks, which are refused and carted out with the manure, are far less numerous and more easily disposed of. (8) There is a far less proportion uneaten by the stock. (9) The total value per acre is greater and the cost of raising it is less than in case of the larger, coarser varieties. (10) In extensive experience the testimony at the Experiment Station and among many farmers who have tried this plan of growing corn for fodder is almost if not quite universally in favor of the northern varieties of dent corn. (11) Dairymen who have tried this plan of growing fodder corn are especially pleased with it, and those who raise beef cattle or sheep will find it a very good and sure way to produce roughage.

VARIETIES TO USE.

The Experiment Station uses its newly-originated Minn. No. 13, an early yellow dent, which has averaged for several years at University Farm, St. Paul, when grown for ears, 55 bushels of sound shelled corn, and when grown thickly, as for fodder, 20 tons of ensilage, or 8 tons air-dried fodder, per acre. Since the seed is not to be saved, or even grown, any good dent corn used in the neighborhood, will answer well the purpose of the farmer. The present spring we have exhausted a supply of several hundred bushels of corn from the crib for "fodder corn seed," selling it in all parts of the state, to be grown thickly for fodder. Purchasers have planted from 1 to 50 bushels each of this variety. Minnesota dent corn taken from the crib and of good variety, which gives a germinating test of above 90 per cent., will give satisfactory results if grown for fodder corn; those varieties which yield very heavily of ears being best. A variety which stores a large amount of dry matter and food nutrients, especially of nitrogen, in its ears, should have a large amount of sugar and nitrogen in its leaves and stems where ear formation is prevented by thick planting.

Corn planted 60 pounds per acre produces only very small ears, but since the substance of the grain is left distributed throughout the blades and stems, this fodder corn is very much finer, richer and more palatable than corn stover, grown thinly and allowed to become fully ripened from which the ears have been husked. The proof is strong that more food per acre for cattle is produced from the common dent corn by planting thick than by planting thin for a combined crop of ears and stover.

Since dent varieties cannot be grown for matured grain in the northern half of the state, the fodder corn seed for that section can best be secured from southern Minnesota. Growers and dealers should be able to establish a trade at every railway station in northern Minnesota for southern Minnesota dent corn in car lots. The success of fodder corn over all other kinds of dry cured fodder at the substations at Grand Rapids and Crookston warrants the recommendation that dent corn be grown for fodder according to the general plan outlined below in all of the counties of northern Minnesota as well as in the southern part of the state. As a hay for horses as well as cattle and sheep it has shown a surprisingly high value in feeding experiments at the Experiment Station.

PREPARATION OF THE LAND.

Excepting the clovers, peas and other nitrogen gathering plants, we have no crop which prepares the field so well for a succeeding crop as does corn, and thickly grown fodder corn leaves the land cleaner of weeds than does the corn grown thinly for ears. Fodder corn is planted later, and develops so rapidly that the weeds are smothered, making it a valuable cleaning crop. 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 last plowing before the field is seeded down to grass with spring grain on the unplowed corn stubble. The spring plowed corn 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 seedbed 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, making a double row six to eight inches between the 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 broadrow. 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 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, destroy 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 gives a good dust blanket and destroys all weeds between 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 small horses hitched tandem, and each of the two men collects a very large armful, 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 in 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, each cord 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 moulding 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 centre of the silo. A canvas cloth tube attached to the upper end of the carrier and moved about, distributing the silage even over the surface, helps to prevent that part on which the silage falls from becoming more compacted than other portions of the mass. The whole of the surface should be constantly and evenly packed by tramping. 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 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 horses, sheep, dehorned cattle have 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, and the improved methods of cultivation are rapidly pushing the corn belt northwestward.

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