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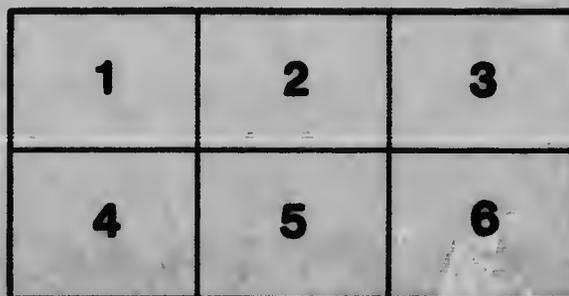
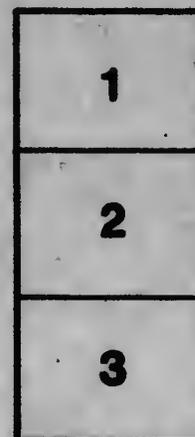
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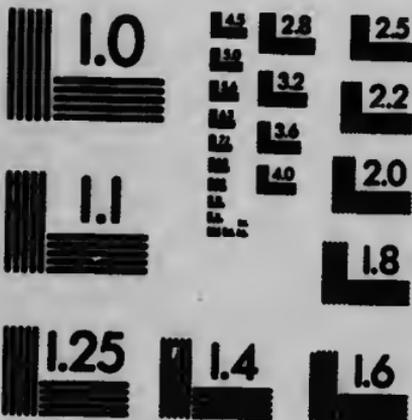
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CORN GROWING IN SASKATCHEWAN

BY JOHN BRACKEN,

Professor of Field Husbandry, University of Saskatchewan

Within recent years corn or maize, "The Giant Grass" of warmer climates, has demonstrated conclusively that it has a useful place in the agriculture of northern regions. It does not, of course, reach its highest perfection here; nevertheless, it may be grown with considerable advantage on all farms in this province, where, for any reason, the supply or variety of fodder is likely to be limited.

REASONS FOR ITS CULTURE.

Corn under favourable conditions produces very large returns. Yields of forage, varying with the season and the culture given, from 8 to 20 tons green weight per acre have been reported from different parts of the province. In the least favourable season during the past five years at Saskatoon corn produced 8 tons green weight per acre. In other years the yield has been as high as 14 tons per acre. At Indian Head the average yield for some of the leading varieties for a period of five years is over 17 tons green weight per acre.

The yield of small grains when sown on corn ground that has been well cultivated with the disc and harrows is generally greater than after any other crop. Cereals sown on corn ground following a fallow approach and sometimes exceed the yield of the same crop when sown on fallowed land. The crop on corn ground also matures earlier than that sown on fallowed ground. A similar experience, both in respect to yield and earliness, has been reported from the North Dakota Experiment Station, the Brandon and Indian Head Experimental Farms and from many farmers as well.

The intertillage necessary for the successful production of corn aids materially in the control of weeds, and weeds constitute the most serious hindrance to profitable grain farming in the older parts of the province. What is true of the older settled areas today will be true of the newer districts in the very near future. The corn crop offers another means of coping with the weed problem.

Soil drifting is becoming a real menace to profitable crop production on our heavy as well as on our light types of soil. Its worst effects are to be observed on fallowed land, either the year of the fallow or the spring succeeding. In many cases where the frequent use of the fallow is not necessary corn, if introduced occasionally, will perform, in a large degree, the function of the fallow, and the corn stubble, while not preventing, will considerably lessen the drifting. And what is of greater moment, the manure resulting from the feeding of the corn crop will replace the organic matter which is so essential to the control of both soil drifting and soil moisture.

The cost of producing farm crops must be kept down if farming as a business is to be profitable. Corn ground that has been well intertilled and kept clean does not need to be ploughed, hence the cost of preparing it for a cereal crop is very considerably reduced, and to that extent the profit on the succeeding crop is increased.

USES OF THE CORN CROP.

In this province corn may be grown either for fodder, for soiling purposes, for "hogging off," or for silage. The form in which it is generally used at the present time is as cured fodder for cattle. For soiling purposes, however, dairy farmers will find it to be unexcelled for milk production in the dry part of the summer when the pastures have dried up. The "hogging off" of early maturing corn in the warmer parts of the province, while not yet practised to any extent, promises to aid materially in cheapening the cost of producing hogs as well as in lowering the cost of crop production.

Corn is the most suitable silage crop we have. It is doubtful whether at this time, however, it will pay the average man to erect a silo, although there is little doubt about the desirability of dairy men and other owners of large herds of cattle doing so. In this connection it should be pointed out that a cheaper form of silo, and one that in the Western States is now being used quite extensively, namely, the Pit silo, is likely to fill the early need of the small stockman quite satisfactorily.

SUITABLE SOILS.

Corn prefers a warm soil. Other conditions being similar it will start earlier and grow faster on a rich loam soil than on any heavier type. In our climate, however, it has been commonly observed that, except in years of early fall frosts, corn produces a much heavier growth of forage when planted on low-lying soil that is well supplied with moisture. A light, warm soil under similar conditions would no doubt yield more. The crop needs both a warm and a moist soil. Where grain is desired warm soils are essential, but where forage only is looked for, while warm soils are favoured, the crop will produce heavily on any well prepared land.

SOIL PREPARATION.

Corn planted on fallowed land returns very much larger yields of fodder than that sown on either fall or spring ploughing. Fallowed land that has been manured before ploughing is probably the best form of preparation. The crop may be planted on fall or spring ploughing, in which case it will, to a limited degree, take the place of the fallow. It is not expected that this crop will replace the fallow in the drier part of Saskatchewan, but if it is thoroughly intertilled and all weed growth controlled there is no doubt that it will lessen very materially the necessity of such frequent fallowing as we are now practising.

If the land is grassy fall ploughing is preferable; if clean, thorough surface cultivation in the fall, followed by spring ploughing, well worked down immediately after, the operation is likely to prove satisfactory in the average season. If planted on fall or spring ploughing the land should be well firmed down and the surface thoroughly cultivated. Well rotted manure ploughed under is likely to prove advantageous if the season is not too dry. Strawy manure should, however, not be ploughed under the year the corn is planted. Thorough preparation of the surface soil is more essential for the corn crop than for any other cereal.

THE CHOICE OF VARIETIES.

The corn crop unlike many others offers the grower very great opportunity for selection. The early maturing types are all short, the late maturing ones tall, and there are many intermediate forms. For grain or for "hogging off," "Squaw," "Free Press" or "Patterson" and "Gehu" are the most promising sorts. These are very short but very early.

For forage the taller growing flints and the early dents are the most satisfactory. Among these "North Western Dent," "Longfellow," "Compton's Early" and "North Dakota White" are good sorts. "North Western Dent" and "Longfellow" are among the most commonly grown varieties at the present time.

The taller maturing "dent" sorts commonly grown in the corn belt are so late in maturing that they seldom form ears in this climate. The quality of the forage is therefore much poorer than that from the earlier maturing varieties, and they are consequently not recommended.

TESTING THE SEED.

The percentage and vigour of germination of the seed should be determined before planting. This information, which for corn is more important than for any other crop, can be obtained easily and quickly by either the blotting paper or the soil method of testing. Seed that does not give a high germination test should either be discarded or a larger quantity of seed used.

In this connection it should be pointed out that in all corn growing regions the practice of buying the seed on the ear is followed almost exclusively. On those farms where corn is likely to be used in a large way and planted in hills it would seem advisable to purchase the seed on the ear. Ear corn sold for seed has generally received more or less selection. Such seed is likely to be higher in price, but the percentage and vigour of germination invariably much more than offset the small additional cost.

PLANTING THE CROP.

Young corn plants are very susceptible to frost, hence the crop is commonly not sown until about the third week of May. From our observations it would seem that, in the absence of late spring frosts, rather earlier seeding is desirable. In the year 1914 corn planted on the 30th of April produced more forage than any planted later. From present indications it is probable that this year's results will not be different from last year's. It would seem that in normal seasons, even at the risk of late spring frosts which may injure it seriously, the crop might very well be planted as soon as possible after the middle of May.

The two commonly used ways of planting corn are the check row, or hill method, and the drill method. As a general rule in this country rather more forage is secured from the drill method. On the other hand, the hill plan requires only about half the quantity of seed and gives opportunity for tillage in two directions—both lengthwise and across the rows. On clean land when forage only is desired the use of the ordinary grain drill with four or five of the seed spouts closed and the fifth or sixth left open is a simple and expeditious method of putting in the seed and one that is quite satisfactory.

If grain is the object sought the hill method should be used; and of course this method should be followed on all land that is dirty and that will consequently benefit from the thorough tillage that this plan permits.

When corn is planted in hills from 10 to 16 pounds, varying with the size of the seed and the distance apart of the hills, is required per acre. When drilled in rows $2\frac{1}{2}$ or 3 feet or more apart about twice this quantity is necessary. When small seed, like that of "Squaw Corn," is used much less is necessary to sow an acre than when the larger seeded sorts are grown.

CULTIVATION.

After corn is planted and until the crop is 6 inches high it may be harrowed with a light harrow without doing serious damage to the crop. This practice is advisable in order to maintain a mulch on the surface and to kill the thousands of small weeds that on most soils

are sure to spring up. Harrowing once or twice before the corn is 6 inches high should be looked upon as a necessary operation. After the crop is high enough that the rows are clearly distinguishable intertillage should commence. The more cultivation the crop is given up to the time that it is impossible to get the horse or horses through between the rows the heavier the crop will be and the better condition the land will be in for the following crop.

If small areas only are planted to corn the one-horse cultivator is quite satisfactory. If, however, larger areas are planted to this crop a two-horse two-row machine will quickly pay for itself in the saving of one man's time.

HARVESTING.

The time to harvest the crop should be determined, first, by the maturity of the crop, and, second, by the probability of fall frosts. As a rule, in this country the crop should be left as long as possible and yet avoid frosts. We have in the past usually cut our corn in the first ten days of September. Occasionally frosts occur before this date, but sometimes they do not come until considerably later. A slight frost usually stops the development of the crop, but may not do much injury to its feeding value. As a matter of fact, when corn is very green and immature a slight frost results in drying it out to some extent, and thus makes the fodder easier to cure. It also makes green immature corn less moist and the silage from it less sour. Of course a frosted crop that is to be ensiled should not be left to dry out too much or it will not keep well in the silo.

By some men corn is left standing uncut until the pressure of fall work is past and the dried stalks are then cut and stooked. In cases where the short, early maturing varieties are grown for grain this practice would seem to have some advantages, since it gives opportunity for the more or less immature ears to harden the grain they carry, and thus aids in making it more fit for binning. On the other hand, the feeding value of the stalks is much decreased, and as these at the present time, at least, are generally of greater value than the grain they may carry, the arguments in favour of this plan lose much of their force.

The harvesting may be done with the sickle, with the binder, or with the corn harvester. The first is the most labourious, and is advisable only when the crop is grown in a small way. The second plan is quite satisfactory in seasons when the corn is short. It is, however, rather hard upon the binder. When corn is grown in large areas, and particularly if the crop is heavy, a corn harvester should be used.

CURING.

Depending upon the uses to which it is to be put the corn crop is cured in different ways. Of course that used for soiling purposes is cut green and fed in that condition. If it is to be used for rough fodder for stock it is cured by stooking in the field or in long stooks near the buildings. The crop may also be preserved by means of a silo, which preserves it in as near the natural condition as possible. There are many types of silo, but all of the "above-ground" type are rather expensive and at the present time can only be recommended for those having dairy farms or a considerable number of growing or fattening cattle. The "pit" or "underground silo" is much less expensive and although less convenient, it promises to lend itself better to the conditions that exist on many Western farms than does the more expensive "above-ground" type, which large herd owners may find best.

EQUIPMENT NECESSARY.

When corn is grown for fodder only no equipment other than the hand planter and the one or two-horse cultivator should be secured at first. If after the crop has been tested thoroughly it is found to be satisfactory a horse-drawn two-row planting machine, or a two-horse cultivator, or a corn harvester, or all three may be purchased. Until the value of the crop to the particular type of farm management followed has been determined or carefully estimated these capital expenditures should not be made.

At first the grain drill or the hand planter may be used to plant the seed, the one-horse cultivator to till the crop and the binder or the sickle to harvest it. The other machinery, including a cutting box, can be purchased from any of the leading implement houses as soon as they are needed.

SUMMARY.

Corn is a warm climate crop, one that grows slowly in cool seasons, and one that suffers from even slight frosts. It produces large yields of fodder and but little grain in this climate. It is useful here for soiling, dairy cattle, for ensiling, for "hogging off" and for rough fodder. It is useful also because of its favourable effect upon the soil, the opportunity it affords to control weeds, soil moisture and soil drifting, and the lessening of the cost of producing cereals. It prefers warm, moist, fertile soils in a good state of tilth. The short early native or improved native sorts, such as "Squaw," "Free Press" and "Gehu" are best for grain. The taller growing flints, such as "Longfellow" and the early dents, like "North Western," are best for fodder. The seed should be tested before planting. The crop should be *sown* or *planted* as conditions determine. Planting

should be done after danger of heavy frosts is over or shortly after the middle of May, using 10 to 30 pounds per acre, and putting the seed rather deeper than cereals are sown. Harrowing after the plants are up and regular and thorough intertillage are essential. Harvesting may be done by hand, with the binder or with the corn harvester. The crop may be fed green, pastured off, cured as dry fodder or preserved as ensilage. No costly equipment is necessary to start growing it.

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