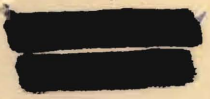


**GROW  
MORE  
CORN**

for  
**SILAGE, FEED RESERVES  
and WEED CONTROL**

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EXTENSION SERVICE  
NORTH DAKOTA AGRICULTURAL COLLEGE AND U.S. DEPARTMENT OF  
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## GROW MORE CORN FOR SILAGE, FEED RESERVES AND WEED CONTROL

In planning your best use for acreage to be diverted from wheat or other crops the next few years, consider increasing corn in your regular crop rotation, particularly for silage, greater feed reserves and better weed control.

Corn produces a high yield of livestock feed per acre, and provides effective weed control. Clean corn stubble is an excellent seedbed for grain or for establishing legumes or grasses.

### Corn is Dependable

Due to more favorable climatic conditions, corn is grown most extensively in southeastern North Dakota. Corn is not likely to become a major cash crop in the more northern and western areas of the state where the growing season is shorter, temperatures are cooler and rainfall is lower. However, in most of North Dakota a good yield of silage has been produced when adapted varieties have been grown and good cultural practices used.

Compared with small grain and hay crops, corn needs less moisture per pound of dry matter produced and usually suffers less from drouth. In 46 years of crop rotation trials at the Dickinson experiment station, corn produced an average yield of 3-1/2 tons of silage per acre and only failed in 2 years in 1912 due to hail and in 1936 because of drouth. In 33 years of rotation trials at the Fargo experiment station, corn was a high yielder compared with other crops with an average yield of 7.3 tons of silage per acre.

### More Corn for Silage

In 1953 40 percent of the corn in the state was cut for silage as compared with 10 percent 10 years ago. Several factors have brought on this increase. The field forage chopper enables a small crew to handle the job. Inexpensive trench and temporary silos require less machinery for filling. Feeding trials have proved corn silage, properly supplemented, is an excellent fattening or wintering ration.

### Corn Silage Excellent Feed

Corn silage is a most appetizing and nutritious feed which is relished by livestock. Compared with some common feed grains, corn silage or fodder has produced about twice as much total digestible nutrients per acre. However, it is low in digestible



protein. The nutritive value of corn fodder with grain for a 22-year period at Dickinson and for 24 years at Fargo is compared as follows:

Dickinson Station				Fargo Station		
	Yield Per Acre	Total Digestible Nutrients	Digestible Protein	Yield Per Acre	Total Digestible Nutrients	Digestible Protein
Wheat						
grain	967 lbs.	812	112	1638 lbs.	1376	190
Oat						
grain	1186 lbs.	848	111	1933 lbs.	1382	182
Barley						
grain	1123 lbs.	883	104	1680 lbs.	1322	156
Qorn						
grain	1168 lbs.	941	83	1731 lbs.	1395	122
Corn						
fodder	3754 lbs.	2100	133	4429 lbs.	2578	172

#### Feed Reserves With Silage

Corn silage, if undisturbed, can be stored for several years with little loss in quality.

To provide a high quality silage and good storing qualities consider the following suggestions. When corn is put in the silo it should contain about 70 percent moisture. If too dry, water can be added to bring it up to this level. It should be well packed to shut out most of the air which develops spoilage. Keep the knives on the forage chopper sharp as bruised and ragged silage is hard to pack. Finely-cut silage (1/4 to 1/2 inch pieces) will pack best.

If a trench silo is used fill your silo so it will be about level with the ground after settling. Round off the top to provide the best possible drainage and to prevent water from running into the silo, which promotes spoilage. For the greatest feeding values, cut your corn for silage when the kernels are well glazed or dented.

#### Keep Cornland Clean

Corn is cultivated in rows and so is effective in weed control.

In weedy fields, corn yields may be reduced 30 to 50 percent and the yields of the following crop are also reduced. Keeping the corn clean will produce higher yields of corn and of following crops. At the Dickinson station wheat yields following clean corn in the rotation and tillage trial were only 2-1/2 bushels per acre less than after fallow over a 45-year period. At the Fargo station for a 24-year period wheat after clean corn averaged only seven-tenths bushel less than after fallow.

For clean corn cultivate early to destroy weeds while they are small. This can be done by either uprooting the weeds or through smothering them by covering with soil. Blind cultivation, harrowing on a sunny day and the use of a weeder, can provide effective early weed control. Later cultivations should be rather shallow to avoid severe root pruning.

In a weedy field, hilling soil around the plants to control weeds may be necessary. In case of a severe weed problem a good job of cultivation which will control the weeds will usually be of more importance than the injury that may result by root pruning.

### Choose Right Corn for Silage

Hybrids or varieties that produce a high yield of grain usually will also produce a high yield of silage. However, corn for silage may be about 5 days later in maturity than is shown on the corn maturity zone map, Fig. 1. Silage corn must produce well glazed or dented kernels as the ears make up a high proportion of the feed value in silage. Since corn for silage is cut green, the tendency of some varieties to lodge such as Falconer, Rainbow and Nodakhybrid 208 are not as objectionable as when the corn is to be harvested for grain when ripe.

Corn for grain must be early enough to mature in a normal growing season, to yield satisfactorily, be resistant to lodging and have ears high on the plant to assure efficient harvesting with a mechanical picker. Select varieties or hybrids best suited to your average local conditions. The corn maturity zone map, Fig. 1, indicates where a variety of given maturity is likely to mature in an average growing season.

Many farmers have determined the varieties best suited for silage on their farms. Suggested hybrids or varieties for silage



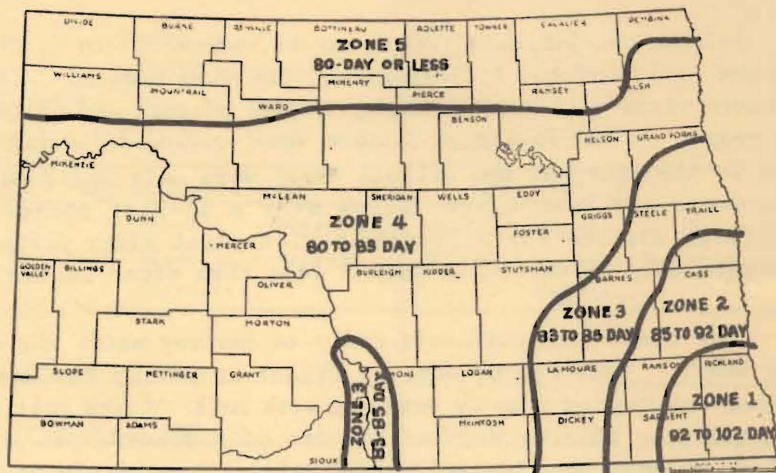


FIG.1. - CORN MATURITY ZONES OF NORTH DAKOTA

and grain in the different maturity zones of North Dakota are as follows: (See Fig. 1).

	<u>For Silage Hybrids or varieties such as</u>	<u>For Grain Hybrids or varieties such as:</u>
Zone 1	<u>100 to 105 day hybrids</u> Minnhybrid 608, 607 Wis. 464A, 464	<u>90 to 95 day hybrids</u> Wis. 416, 355, 341 Minnhybrid 706
Zone 2	<u>95 to 100 day hybrids</u> Minnhybrid 608, 604 Wis. 464, 416, 341, 355	<u>83 to 92 day hybrids</u> Nodakhybrids 301, 304 Wis. 279 Minnhybrid 706
Zone 3	<u>85 to 90 day hybrids</u> Wis. 279 Nodakhybrids 301, 304, 305 Rainbow (Mandan strain)	<u>83 to 85 day hybrids</u> Nodakhybrids 301, 304, 208 Minnhybrid 802 Morden 77 Wis. 240, 279
Zone 4	<u>83 to 90 day hybrids</u> Nodakhybrids 301, 304, 305, 208 Rainbow (Mandan Strain) Wis. 279	<u>80 to 83 day hybrids</u> Nodakhybrids 301, 304, 305 201, 208, 203 Morden 77 Wis. 240 Minnhybrid 802
Zone 5	<u>80 to 85 day hybrids</u> Nodakhybrids 301, 305, 208 Rainbow (early) Falconer, (Northwestern dent)	<u>80 day or less hybrids</u> Nodakhybrids 203, 208, 201 Wis. 240 Morden 77 Falconer, (Northwestern dent)

(Commercial hybrids of comparable maturity are satisfactory)

## Seedbed Preparation - Planting

Corn will grow best in sandy, fertile and well aired soil. In heavy, compact clay soil, corn will do best after manuring or after alfalfa or sweet clover has been plowed down. Fall plowing is urged in heavy clay soil while, on soils inclined to blow, spring plowing is advisable. The seedbed should be well prepared and the early weed growth eliminated.

When temperatures are cool and the soil is cold, corn seedlings make a slow growth. However, corn needs a long growing season, and planting as early as the season permits is necessary. Plant corn when the soil has warmed to about 60 degrees. In a normal season this will usually be about the middle to the latter part of May.

On land that can be kept reasonably free of weeds, drilling the corn will be advisable. In a weedy field, corn planted in check-rowed hills allows cross cultivation to control weeds. Rate of planting will depend upon the available moisture and fertility of the soil.

For silage, a stand with plants about 12-inches apart in 42-inch rows or 3 plants per hill is recommended. A thicker planting will produce higher yields when moisture is adequate. Thinner planting is advisable for grain production in drier areas.

### SUMMARY

Corn is a dependable feed crop in North Dakota. In most areas a good yield of silage can be produced if an adapted hybrid or variety is grown and good cultural practices are used.

Corn cultivated in rows in the regular cropping system provides effective weed control. Clean corn ground has produced good yields of small grain the following season as well as an excellent seedbed for establishing grasses and legumes. Keep corn relatively free of weeds for high yields of corn and of the following crops.