

Which Corn Variety or Hybrid to Grow?

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CORN PRODUCES more feed per acre than barley, oats or other feed crops. Also when the cultivation is done thoroughly and the weeds are destroyed, the crop, like flax or small grain, yields higher on the land that was in corn or other cultivated crops the previous year. Like any other cultivated crop, corn needs a good seed bed, timely planting, and thorough and clean cultivation. The selection of land, dates of planting, cultural practices, and selection of varieties were discussed in the Bimonthly Bulletin, Vol. 4, No. 4, 1942 and further recommendation of the varieties was presented in the Bimonthly Bulletin, Vol. 5, No. 4, 1943. As the varieties are tested for a longer period, the information on the performance especially of new hybrids is more reliable. A number of selected early and semi-early varieties and hybrids were tested for 2 or 3 years in different areas as represented by the substations and the hybrid corn field trials. The 2- or 3-year average yield of grain and fodder of selected early and semi-early hybrids are summarized in table 1 and 2.

Summary of 2 and 3 years is used because many early hybrids have been tested for only that period. Old standard varieties and other hybrids tested for a longer period show comparable range in yield. Besides those listed in table 1 and 2, other varieties and hybrids of minor importance were tested at Fargo and some of them at substations. A detailed summary of the commercial seed company hybrids and standard varieties tested in Richland, Grand Forks and Burleigh County Trials were reported in the 1943 Hybrid Corn Field Trial, Agron. Mimeo. Circ. 75, 1943. The varieties in table 1 are arranged in an approximate order of maturity, the earlier ones are reported first.

Corn varieties and hybrids differ in their capacity to yield. The relative yield of a variety or hybrid, however, is influenced by the weather conditions, cultural practices and disease. Varieties that utilize the full growing season and mature satisfactorily, not only produce a good yield, but also have a higher quality feed than the late varieties that are too green at the end of the growing season. Early maturing varieties will do better under cool

growing seasons and also have a tendency to escape severe drought damage when the moisture conditions in late summer become critical. Later varieties, however, produce higher yields and good quality corn when the growing conditions are good and the season long. While the yield is an important factor, the growth habits, maturity and other characteristics of some varieties make them more suitable for some purposes. This can be illustrated by using semi-early Rainbow flint for the production of fodder in the western areas, while early yellow dent hybrids, because of better standability and higher ears, are more suitable for grain production.

Early flints like Dakota White, Gehu, and others mature early, yield high in the central, western, and northern parts of the State and therefore are best suited for early pasture and hogging-off purposes. Falconer is also extensively used for pasturing and hogging-off. Because early flints are short, bear ears close to the ground and lodge or break down easily at maturity, they are not as desirable for grain production as early hybrids that carry ears higher on the plant and

stand up better. In hogging-off flint varieties, feeding should start when the corn is still soft. When different types of corn are available, hogs prefer dent corn over dry and hard flinty types. Later varieties or hybrids that mature satisfactorily and stand up better are more desirable for winter pasture. Over wintering cattle and hogging-off corn is the cheapest method in harvesting and should be practiced more extensively.

When the corn is cut and fed as dry fodder, a variety that yields high in fodder and grain, tillers abundantly, is leafy and has a slender main stalk which is readily eaten by livestock is excellent for that purpose. The early strain of Rainbow flint and semi-dents Falconer and Northwestern yield high in fodder and grain, possess relatively high leaf area and are best suited for fodder production in the central, western and northern areas. These varieties should be cut when the ears are glazed and the plants still green in order to avoid losses from lodging, breaking over, and shedding of leaves. In the southeastern and east-central areas, other later maturing strains of Rainbow or hybrids of about 90 to 95-day maturity may be grown to advantage. Some growers prefer dent corn varieties for fodder purposes because the dent kernels are softer and more easily consumed by livestock. Although dent corn has a softer kernel, it is less leafy and has heavy single stalks, and especially when mature and hard is not readily eaten by livestock. When the corn is put into the silo any high yielding variety or hybrid where the ears are slightly dented or glazed is desirable.

A corn variety or hybrid that is best suited for grain production, must yield and mature satisfactorily and have other desired agronomic characters. If the corn is picked without undue loss in yield and inconvenience it must be reasonably resistant to lodging and breaking down and have ears high enough

to facilitate harvesting. Early flint varieties like Dakota White, Gehu and others yield and mature satisfactorily in the central, western and northern areas, but they break down at maturity and the ears are low which makes them unsuited for grain harvest. Falconer semi-dent is one of the most dependable and good yielding in the central, western and northern areas, but it breaks down at maturity and thus incurs considerable loss in yield during the harvest. By pasturing harvested fields with livestock, the ears left by pickers are regained by hogs or cattle. The early (Mandan) strain of Rainbow flint yields high but it is more a fodder type and also has a tendency to lodge. Early maturing yellow dent hybrids listed in table 1 and 2 yield and mature satisfactorily, have ears higher on the plant and stand up better. Harvesting of these hybrids can be done with less loss in yield and less inconvenience. Besides these, other 80-day relative maturity hybrids of Pioneer, Jacques, Newday, Magill and Kingscrot brand are also suitable for grain production. These very early and early-maturing hybrids and varieties on the average will produce better quality grain and higher yields in the central, western and northern areas than 85 to 90 day relative maturity hybrids.

Semi-early hybrids, as grouped under 85-day relative maturity, are comparable to the Haney strain of Minnesota 13 in maturity. These hybrids will do best in the eastern area, and also in better areas in the central and western parts of the state. Some semi-late hybrids of about 90-day relative maturity have also yielded good in good corn areas and longer growing seasons. A number of commercial seed company hybrids of 85- to 90-day relative maturity are also suitable for grain production in the east-central area.

Semi-late and late hybrids of 90- to 95-day relative maturity are suited for grain production in good corn growing areas in southeastern and east-central North Dakota.

A number of hybrids suitable for grain production is limited for the central, western and northern areas where corn of about 80-day relative maturity is needed. The list of available hybrids of 85- to 95-day relative maturity is more extensive and affords a better choice.

Semi-late and late hybrids as listed in table 1 and 2 are more resistant to lodging and breaking down

at maturity than either the semi-early or early hybrids. Some hybrids or varieties are superior under one set of growing conditions, while under different growing conditions or in another year another hybrid may be superior. Therefore, it may be advantageous to select two or more varieties or hybrids with the expectation that the growing conditions will be more suitable for one of them.

Table 1—Two and three-year Average Grain Yield of Leading Corn Varieties and Hybrids in Eight Areas.¹

Variety or hybrid	Fargo	Edge- ley	Johns- town	Bis- marek	Dickin- son	Willis- ton	Park ² River	Lang- don ²
	1941 1943	1942 1943	1942 1943	1942 1943	1942 1943	1942 1943	1941 1942	1941 1942
Yield in bushels per acre								
Very early								
Dakota White.....					28.0	45.4	37.9	34.7
Early								
Nodakhybrid 203.....	43.2 ^a	33.6	42.9	31.4	22.6	31.3	36.4	34.3 ^a
Falconer.....	32.8	31.1	51.9	33.3	27.5	46.1	39.2	....
Nodakhybrid 201.....	41.8	37.5	47.7	34.8	23.4	38.9	38.5	35.8
Nodakhybrid 202.....	39.6	35.3	46.6	33.6	23.6	35.6	37.8	40.2
Wis. hybrid 240.....	37.1	38.5	53.7	34.7	30.2	42.0	40.6	....
Wis. hybrid 255.....	40.7	37.7	....	....	24.4	35.7	34.5	....
Nodakhybrid 204.....	39.5	35.0	48.7	31.2	23.6	40.1	37.3	38.7
Northwestern.....	....	....	....	30.2	....	....	36.2	39.2
Semi-early								
Minn. 13 (Hancy)....	33.8	30.6	47.9	32.3	20.5	34.7	34.3	32.4
Wis. hybrid 279.....	36.3	37.2	51.1	34.3	24.4	37.6	34.8	39.7
Minhybrid 800.....	41.4	34.1	44.5	31.0	21.8	37.9	34.7 ^a	36.6 ^a
Rainbow (Mandan)...	32.8	37.1	55.7	35.7	28.9	45.0	37.4	38.5
Additional later hybrids tested at Fargo, 1941-1943 average								
Semi-late								
Minhybrid 702.....	39.3							
Wis. hybrid 275.....	39.0							
Minhybrid 700.....	39.1							
Minhybrid 701.....	40.4							
Late								
Wis. hybrid 355.....	38.6							
Minhybrid 600.....	40.0							
Minhybrid 601.....	38.6							

¹Trial at Dickinson in cooperation with the Division of Cereal Crops and Diseases, R. W. Smith in charge. Trials at Edgeley, Williston and Langdon under the supervision of superintendents, J. P. Tiernan, W. H. Huber and V. Sturlaugson, respectively.

²In 1943 the corn was immature and spotted, yields were not taken in Langdon and Park River.

^aAdjusted average yield. Yield of a closely related hybrid substituted for one missing year.

Table 2—How Leading Corn Varieties and Hybrids Yielded in Tons of Fodder and Their Comparable Maturity and Height of Ears from the Soil Level.

Variety or hybrid	Edge-Dickinson			Williston 1940	Park River 1938 1939	Langdon 1940 1941	Comparative		
	Fargo 1941 1943	ley 1942 1943	son 1942 1943				Maturity days ¹	Ear height inches	Lodging %
Very early							Dry Fodder, tons per acre		
Dakota White Flint	2.10			2.17	1.87	2.06	75	6-12	30
Early									
Falconer	2.17	1.73	2.31	2.31	1.87	...	80	8-18	30
Northwestern	...			...	1.85	2.28	83	10-24	26
Nodakhybrid 203	2.48	1.63	1.98	...	...	...	80	18-33	7
Wis. hybrid 240	2.30	1.98	1.74	...	...	...	82	18-33	20
Nodakhybrid 201	2.43	1.84	1.85	1.94	...	...	82	18-34	14
Nodakhybrid 202	2.31	1.80	1.93	...	...	...	82	18-34	13
Wis. hybrid 255	2.41	1.86	2.32	...	...	...	83	20-35	8
Nodakhybrid 204	2.28	1.73	2.02	...	...	...	83	18-35	22
Semi-early									
Minn. 13 (Haney)	2.17	1.97	2.10	1.82	1.43	1.66	85	15-37	20
Wis. hybrid 279	2.46	1.93	2.30	2.60	...	2.07	85	26-40	7
Minhybrid 800	2.61	2.00	2.25	...	...	...	85	26-40	8
Rainbow (Mandan)	2.20	2.47	3.03	2.23	2.08	3.00	85	18-28	24
Additional later hybrids tested at Fargo, 1941-43 average									
Semi-late									
Minhybrid 702	2.48	...	...	...	...	...	88	26-40	6
Wis. hybrid 275	2.44	...	...	...	...	...	89	26-38	6
Minhybrid 700	2.71	...	...	...	...	...	90	28-42	6
Minhybrid 701	2.59	...	...	...	...	...	90	28-42	6
Late									
Wis. hybrid 355	2.45	...	...	...	...	...	93	30-42	5
Minhybrid 600	2.50	...	...	...	...	...	95	30-45	3
Minhybrid 601	2.60	...	...	...	...	...	96	30-45	3

¹Relative maturity, comparative days from the date the seedlings emerge from the soil up to the date the ears are well-dented or glazed at Fargo. Maturity is influenced by seasonal weather and growing conditions.

Method of Detasseling Affects the Yield of Hybrid Seed Corn

The hybrid seed corn producers may benefit from the results obtained in a detasseling test by Carl Borgerson of the Minnesota Experiment Station. A comparison was made when removing from the plants in the female rows no-leaves, one-, two- or three-leaves with the tassel during the detasseling process. The results of a 3-year test with 6 hybrids show that on the average the highest yield of hybrid seed was obtained when no-leaves were removed. Removal of one-, two- or

three-leaves with the tassel caused a reduction in yield of 2.4%, 8.2%, and 18.8%, respectively. For some early maturing parents where the leaf area was small, removal of leaves with the tassel caused a higher reduction in yield than for later maturing parents where the leaf area was high. The preliminary observation with some early North Dakota hybrids showed even greater reduction in yield. Careful detasseling with the least possible injury to the plant and with no leaves removed during the detasseling process assures higher yield of hybrid seed corn.

*Carl Borgerson, Journ. Amer. Soc. Agr. 35, 919, 1943.