

MIDWEST VARIETIES

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"Midwest" is the brand which has been adopted for the varieties of sugar beet seed produced by the Holly Sugar Corporation. The first varieties bearing this name were produced in 1939 from seed stocks on hand prior to the organization of the beet seed breeding department in 1937. In 1942, just five years after the organization of this department 1,873,843 pounds of sugar beet seed of Midwest varieties were produced from stock seed developed by the beet seed breeding department. The accompanying table shows the performance of these varieties and the improvement obtained in this short period of time. During this period the breeding work has dealt largely with increasing yield and at the same time maintaining a high percent sucrose to bring about an increase in the pounds of sugar produced by each acre of beets grown.

The constituents of Midwest varieties may, and frequently do change from year to year as warranted by available performance data, stock seed supplies, and the current need. However, the types are established as follows; Midwest 1 is leaf spot resistant, 2 - curly top resistant, 3 - tonnage, 4 - intermediate, 5 - sugar. The Midwest 1 shown is not as yet highly resistant to leaf spot but performs well in Holly territories where leaf spot is a factor. The crop planted at present and to be harvested in 1944 will be a highly resistant variety. Midwest 2 is highly resistant to curly top and performs well where curly top is a factor. Midwest 3 is a yield type developed for our northern intermountain territories. The Midwest 4's are intermediate types for general distribution. 4A and 4B of the 1942 crop are better adapted to the Montana and Northern Wyoming districts, whereas 4C and 4D are better adapted to the Southern Wyoming and Colorado districts. Midwest 5's are sugar types with good yielding ability developed for our southern intermountain territories and outlying districts. A supply of over 150,000 pounds of original elite stock seed is maintained in order to be able to reproduce each Midwest variety as desired.

The 1943 results obtained from the large field test for the 1942 Midwest varieties are in line with our advance performance data obtained previously from small plots. The improvement over the formerly used varieties has been accomplished to some extent by regional adaptation through mass selection but largely through hybridization of mass selected lines.

In comparing the data for the 1942 varieties with the advance performance data for the 1943 varieties it appears that

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the 1943 varieties are not expected to be as good as the 1942 varieties have proved to be. This is not the case. Midwest 1-43 is identical to Midwest 1-42 and the data show them to be practically the same. The components giving rise to the high yields in Midwest 3, 4A, and 4B of the 1942 crop have been combined into a new Midwest 3 in the 1943 crop and the data show them to be practically the same. Districts needing this type will utilize the new Midwest 3. The Midwest 4C and 4D of the 1942 crop have been replaced. The Midwest 5 of the 1942 crop was used in producing the Midwest 4C of the 1943 crop. The 1942 data show this variety produced 11 percent more sugar per acre than the estimate. All of the other 1943 Midwest varieties are new varieties and although the data show them to be less adapted to Sheridan they are better adapted to the particular districts where they will be used.

EVALUATION TESTS OF MIDWEST VARIETIES - SHERIDAN, WYOMING

Variety	Sucrose		Yield		Gross Sugar		Net Lbs. Produced
	%	% Ck.:	Tons	% Ck.:	Lbs.	% Ck.	
1943 Data for Commercial Varieties Produced in 1942 Obtained from 4 replicated 12 row strips, 1000 feet long							
Midwest 1-42	17.22	99	9.722	112	3355	111	207,290
Midwest 2-42	17.22	99	10.758	124	3710	123	63,990
Midwest 3-42	17.09	98	11.374	131	3879	128	333,320
Midwest 4A-42	17.04	98	10,834	125	3677	122	189,880
Midwest 4B-42	17.04	98	12.031	138	4082	135	166,125
Midwest 4C-42	17.42	100	9.215	106	3211	106	687,530
Midwest 4D-42	17.58	101	9.833	113	3454	114	189,460
Midwest 5-42	17.80	102	10.438	120	3717	123	36,248
Check Variety	17.40	---	8.694	---	3024	---	
Europeans (1)		98		98		97	

*F Values:	1.16	2.99	2.60	Total	1,873,843
Diff. req. for Sig.	-----	1.788	606		

(*F Values exceed the 5% point except for Sucrose)

Advance Performance % of Check Data for Commercial
Varieties Produced in 1943. (2)

Midwest 1-43	99	114	112	101,860
Midwest 3-43	99	132	130	189,735
Midwest 4A-43	100	118	117	490,225
Midwest 4B-43	99	118	116	347,360
Midwest 4C-43	101	112	112	33,380
Midwest 4D-43	100	115	115	17,425
Midwest 5A-43	110	104	113	12,100
Midwest 5B-43	104	105	108	24,600
Europeans (1)	98	98	97	
			Total	1,216,685

- (1) 2 year average performance in terms of percent of our check variety of 8 leading varieties formerly used by our Company: R&G Old Type, Busczynski N.P., Braune N.T., Schreiber S.S., S.W.H.N.-E., Dippe G.D.W.I., R&G Pioneer, and Holly G.W.
- (2) Compiled data from several years' tests having 6 and 8 replications of plots 4 rows wide and 54 feet long. Not all varieties were tested the same years so data are presented in percent of the standard check variety without statistical evaluation.