

**VARIETY TRENDS AND VARIETY APPROVAL PROGRAMS
SINCE THE ADVENT OF MONOGERM SEED
FOR MONITOR SUGAR COMPANY**

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Monogerm seed was the number one improvement to sugarbeet seed and benefited all growing areas. The first year that monogerm seed was available to Monitor Sugar growers was in 1967. All varieties sold through 1982 were developed by the U.S.D.A. By 1993, all varieties sold in our area were developed by private companies and Monitor Sugar relied on competing seed companies for new parent material for planting. In 1995 there are eight varieties that have full approval.

In 1967, the price of medium seed was \$1.20 per pound, and over the next 16 years increased to \$7.00 per pound. The price increased by \$9.00 per pound in the four years after privately developed varieties were introduced. Privately developed seed varieties brought improvements along with a higher price.

Printed below is our Variety Approval Program:

VARIETY APPROVAL PROGRAM

Recoverable white sugar per ton (RWST) and recoverable white sugar per acre (RWSA) are based on the current fully approved varieties.

Cercospora Leafspot reading must not be more than 120% of the average of the reading of four varieties; E-4, E-9, ACH 185 and Beta 5315.

To become approved for limited or full commercial planting:

- 100% or more on RWST
- 195% or more on RWSA + RWST
- 120% or less of average of four on Cercospora

To maintain approval:

- 97% or more on RWST
- 195% or more on RWSA + RWST
- 120% or less of average of four on Cercospora

Varieties may not be sold or given away for contract planting purposes unless approved by Monitor Sugar Company and the Grower Seed Committee.

A variety will be considered for limited approval after two years of tests, including one year in the commercial test. A variety that receives limited approval will have sales limited to 5% of total acreage.

A new variety will be considered for full approval the following year after receiving limited approval, if included in the commercial test that year, and if field tested on a minimum of 1,500 acres.

When a variety is disapproved, after being fully approved, it may be sold for the following three years. A variety must be included in the tests all years for which it is being sold commercially.

Any year a fully approved variety is not planted on at least 5% of total acreage it will not be included in the average for RWST and RWSA.

A high level of resistance to Cercospora leafspot is also required in our current program. In the early 80's, before this requirement, cercospora was widespread in many fields. We feel it is a real benefit that our growers do not have to spray for control. Comparing our climate to other beet growing areas, we would have a problem with Cercospora leafspot without our level of resistance.

In 1988, Monitor Sugar Company initiated our current variety testing program. In 1990, there was three years of accumulated data available to our committee. Chart 1 lists the varieties that have been disapproved. All three main factors -- RWST, RWST + RWSA and leafspot -- have been the cause of at least one variety losing approval. A variety can not get full approval until a minimum of 1,500 acres has been planted by growers.

CHART 1

Varieties Disapproved

<u>Year</u>	<u>Variety</u>	<u>Reason</u>
1990	USH-23	All 3 Factors
	ACH-176	Leafspot
1991	Beta 5435	RWST + RWSA
1992	HMI E-4	RWST + RWSA
1994	HMI E-9	RWST

After Limited Approval & Sales

1993	SX 1101	RWST
	SX 1103	RWST

Since growers have experienced some very low yielding crop years, they have asked whether we are sacrificing yield to obtain a higher sugar content. Charts 2, 3 and 4 give some answers. USH-23 was used as a comparison because it was the last public variety, and the growers remember it as a variety with better yield and vigor. HMI E-4 was separated out because it was the first private variety with large sales and was sold for many years.

Chart 2 compares RWST. There have been large increases in RWST which is based on the percent sugar adjusted for purity.

CHART 2

Recoverable White Sugar per Ton

Compared to USH-23

Percent

HMI E-4	104.2
1994 Varieties	109.2
Future 7 Varieties	112.0

Tons per acre, which was in question, (Chart 3) has decreased some but is back to the level of USH-23 for the seven future varieties.

CHART 3

Tons per Acre

Compared to USH-23

Percent

HMI E-4	99.5
1994 Varieties	96.5
Future 7 Varieties	100.1

RWSA (Chart 4) has increased by over 12 percent for the future varieties, and this is mainly from increases in sugar content.

CHART 4

Recoverable White Sugar per Acre

Compared to USH-23

	<u>Percent</u>
HMI E-4	103.7
1994 Varieties	105.5
Future 7 Varieties	112.2

The concern about lower yields has some merit, but varietal differences only explain a small part of the decrease in yield our growers have experienced. The growers are also questioning the lack of vigor because of poor emergence. We will need an increase in tonnage and vigor in future varieties.

We do not need to change our Variety Approval System to accomplish our goal of better yields and higher RWSA. All seed companies are aware of the need to increase the present vigor of our new varieties, and once approved, demand will be generated by the results obtained through the Variety Approval System of Monitor Sugar Company.

CHART 3

Tons per Acre

Compared to USH-23

	<u>Percent</u>
HMI E-4	99.5
1994 Varieties	98.8
Future 7 Varieties	100.1