

SMBSC Official Variety Trials



Overview

At SMBSC, we conduct annual Official Variety Trials in an effort to gain knowledge about new beet varieties while also testing current commercial varieties. Through this process we are able to determine which varieties will stand up best against the issues our growers face and will provide the best yield.

Variety Trial Entries

The seed companies select varieties to enter into the trial each year. These include both commercial and non-commercial varieties. These entries will be planted at four yield sites and six disease nurseries.

Trial Set Up

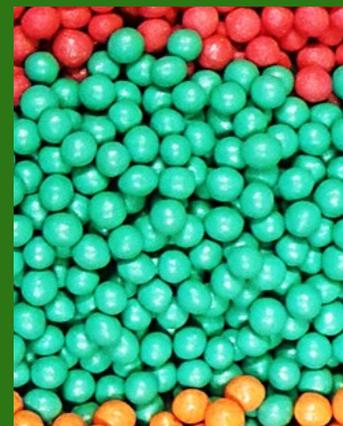
Trial sites are selected based on topography, location, and cooperator input. Once the entries have been submitted by the seed companies, they are assigned randomized plot numbers and trial maps are developed.

Coding

A third party assigns a code and measures out the seed for each entry. This is done to ensure the objectivity of the research. Research staff do not know which variety is planted in each plot.

Preparing For Planting

The coded seed packages are then split into planting packets. Each plot will have its own packet of seed labeled with the plot number and entry number. The packets are placed onto rods in the order they will be planted. This helps to ensure that each plot is planted correctly.



Trial Site Preparation

Before planting, the trial area is measured out and flagged. The alleys are marked by a four wheeler with a stinger to indicate where planting one entry should stop and a new entry should start.

Planting

Planting is done with a 12 row research planter. Plots for the yield trials are four rows, while the disease nurseries have two row plots. Each person on the planter is responsible for checking that their seed packets are correct for rows being planted.

Stand Counts

Stand counts stations are set up at each site to help track emergence. Twenty-eight day emergence stand counts are taken on ten feet of row in the center two rows of each plot. This data is published with the yield data.

Thinning

The plots get thinned to an even population to reduce variability in trial.

Maintenance

Throughout the season, crop protection products are applied to manage weeds, insects, and diseases.



Disease Nurseries

Inoculating

At the Rhizoctonia and Cercospora leaf spot (CLS) nurseries, the beets are inoculated with their respective diseases to ensure uniform disease pressure.

Rating Disease Nurseries

At the CLS nursery, once signs of disease start to appear each member of the research staff takes a disease rating on each plot every two to four days. At the Rhizoctonia and Aphanomyces nurseries, the rating is done after the beets are dug and laid out on the surface of the soil. These ratings determine the disease tolerance or susceptibility of each variety.

Row Lengths

At the yield sites, the lengths of the center two rows of each plot are measured as well as any gaps in the row. These measurements are used to calculate the final yield of each plot.

Defoliation

The plots are defoliated with a four row defoliator.

Harvest

The center two rows of each plot are harvested with the SMBSC research harvester. A quality sample of roughly 15 lbs is taken from each plot and a weight for the plot is recorded. The samples are sent to the SMBSC tare lab for analysis.

Data Analysis

The yield data is compiled and statistically analyzed for each individual site. A combined statistical analysis is then completed of all the trials sites. The data from each disease nursery is also compiled and statistically analyzed. Once the statistical analyses are complete, the code is broken to identify the variety names. After the codes are identified, data is combined with the previous two seasons and prepared for the variety approval process.