

## Stand Establishment Forum Report

From ASSBT, 1999

Lee Hubbell, leader

The one consensus from this discussion was poor stand establishment is a problem in all growing areas. The causes include; crust, disease, insects, lack of moisture, and planter problems. Our panel consisted of five people.

Leonard Kerbs, The Amalgamated Sugar Company.

Emergence is important because over 50 percent of the beets are planted to stand using a 5-7 inch seed spacing and no thinning. In an irrigated area a crust can be caused by puddling from furrow irrigation or packing of the surface by overhead irrigation. In an irrigated area a crust can also be caused when rainfall does occur.

Solutions: When using overhead irrigation for emergence, light and more frequent applications are recommended. When furrow irrigation is done for emergence, there must be a commitment to repeat applications whenever the soil surface dries out. The growers avoid planting when rain is forecast. A seedbed preparation called bedding helps make use of existing moisture. When the bed is formed in the fall, some soil is scraped off before planting to expose moist soil. If the bed is formed in the spring, scraping allows capillary moisture to be available for germination.

Mark Richard-Molard, French Sugar Beet Institute.

Emergence has improved greatly in recent years. A stand establishment of 85 percent is now average. The seed is spaced 7-7 1/2 inches in 18-20 inch rows.

The seed sold only guaranteed 80 percent germination before the push for improvement. Seed quality has increased because of emergence evaluations and requiring better guaranteed germination. A high correlation between speed of emergence and final stand has been found. Emergence is evaluated when 50 percent of the plants have emerged. The seed used is 100 percent pelleted. Seed treatment using Tachigaren and Gaucho has helped to prevent seedling disease. Seed priming causes quicker emergence and more uniform plant spacing.

Seed placement is an important factor in emergence. This has been improved by the use of specialty, vegetable type, planters that facilitate more even seed spacing and depth of planting. When soil is worked too fine, it is more susceptible to a crust caused by rainfall. Recommendations are to limit tillage to avoid soil crusting.

Tom Babb, Spreckels Sugar Company.

Space planting is increasing, but because of poor emergence, many growers still plant thick and use labor to thin. The cost of labor is the main reason growers want to plant to stand. Many problems are experienced in an

area where planting goes from Oregon to the Mexican border and is done nine months of the year. The elevation varies from 4000 feet to below sea level. The average emergence is 50 percent. The soils often are cloddy, high in salt, and easily form a crust. In California, sugar beets are not the most valuable crop so beets are planted on less desirable soil. This causes more emergence problems. The location and timing of planting is important. Diseases and insects also contribute to poor stands.

Solutions: Irrigation before planting provides moisture for emergence but is not widely accepted and delays planting. Sprinkler irrigation after planting is encouraged to help emergence. Insecticides are used at planting to help prevent seedling disease.

#### Roger Roslund, Monitor Sugar Company.

Less than 55 percent of the seeds planted produce beets at harvest. All acres are planted to stand. Rotations include corn, soybeans, some wheat, and dry edible beans. A high percent of the acres are planted after soybeans and dry beans, and this encourages seedling diseases. Grower stands have increased in recent years but only because of closer seed spacing. The average seed spacing is less than 5 inches. Problems include seedling disease, crust, wind, and adult rhizoctonia. There is virtually no irrigation. It is common to have rainfall after planting before emergence. This provides moisture for emergence but can also cause a crust up to 2 inches thick. Spring tillage usually involves one to two passes using a field cultivator. This tillage is often deeper than ideal, causing lumps and drying the soil.

Solution: Pelleted seed has increased from virtually no use in 1997 to about 50 percent of the seed sold in 1999. Very little tachigaren is used now, but the PAT process is giving quicker emergence. Some growers are helping emergence by doing one secondary tillage operation in the fall. Tillage in the spring then does not need to be as deep. It is recommended to limit the depth and number of tillage passes in the spring to help emergence. In Michigan, a cooperative effort of both sugar companies, the growers, Michigan State University, and industry have formed a Sugar Beet Advancement Committee. Funding for a full time extension position comes from Monitor Sugar Company, Michigan Sugar Company, the growers from both companies, and cooperative extension. This organization is making more research possible.

#### Joe Giles, North Dakota State University.

Expected emergence is about 66 percent in the Red River Valley. Lack of moisture is the main problem and irrigation is not used. *Aphanomyces* is an important problem. It is more prevalent in the southern valley where it is warmer and there is more rainfall. It is made worse because most land is chisel plowed and not buried by moldboard plowing.

Solution: It is recommended to plant into moisture soon after tillage. The best speed for planting is four miles per hour. At a faster speed there are more skips which affects quality and increases weeds. Thicker stands are encouraged, and mechanical thinners are used if the stand is too thick. Stands

will be less if beets follow soybeans in the rotation. To deal with the aphanomyces problem growers are using pelleted seed treated with Tachigaren. In the Southern Minnesota growing area most acres are planted using tachigaren. Up to 40 percent residue is left on the surface to prevent wind erosion and seedling loss. Testing grower planter units has made large improvements in stand establishment. An example was given by Joe of one farmer that had a problem with broken seed in his planter. The seed had been in the planter since the previous year and had been eaten by mice. A test stand, run by knowledgeable people, is made available to all growers. Many problems were solved by servicing planters before use each spring. Slower planting speed and cut off adjustment are very important in plate planters.

A few questions centered on what can be done to improve the quality of the seed being sold. There was no answer. Planter problems can be blamed on the seed.

Specialty planters can improve stands. An explanation was given that planters designed for small seeds that are built close to the ground are not constructed heavy enough to take our stony field conditions.

The amount of replanting by area; American Crystal - less than .5 percent, Southern Minnesota - 2 percent, Amalgamated Sugar - 10 percent, Michigan - 12 percent, California - 3.5 percent, and France - less than 2 percent.