

Producing Sugarbeet Seed

The Willamette Valley is the primary source for sugarbeet seed used in North America. Mild winters, low disease pressure and dry harvest weather makes the area desirable for growing seed. During World War I and II, the supply of seed from Europe was insufficient, which required seed companies to find a growing area in North America. West Coast Beet Seed (WCBS) is jointly owned by a group of sugarbeet seed and sugar companies (American Crystal Sugar Co, Hillesehög, and SESVanderHave).

WCBS grows sugarbeet hybrid seed and parental stocks. Stock seed productions often are grown in plots from 0.1 to 5 acres and need isolation from commercial productions and other stock seed productions. Appropriate isolation may be several miles from the nearest commercial seed production field. Much of the work is done by hand including roguing to remove undesirable and off type plants. The goal is to produce uniform seed for the variety planted for eventual commercial hybrid production.



The majority of commercial seed is produced through the transplant method where seed, supplied by member seed companies, is planted in beds for four months to produce stecks (small beets). The stecks are moved into commercial fields (typically 10 to 50 acres) in Jan to Mar. The crop will be in the ground for 12 months. A rotation of 5 different crops between sugarbeet seed production is used, to ensure trait purity.

Planter for steckling beds.



Steckling beds prior to winter.



Steckling beds may be covered to protect against freezing temperatures.



Stecklings are harvested and placed in bags to move to the final fields for commercial seed production.



Mechanical steckling harvest



If fields are too wet, nursery is undercut and beets are pulled, topped and trimmed by hand.



When fields are wet, the stecklings may be planted by hand, but holes are made in the field to facilitate steckling placement.



Stecklings being planted.



The typical planting arrangement has a series of 4 row pollinator (male) strips adjacent to 8 to 16 row female strips. Seed harvested from the female is the hybrid seed that will be grown for sugarbeet production and sugar processing. (The slightly lighter green 4 rows of plants in the center of the photo is one pollinator strip. These plants will be destroyed prior to seed maturation.)



The male plants have multigermling flowers (bottom) which produce fused seeds capable of producing more than one seedling. The female plant (right side) has monogerm flowers (produce one germ per seed) which will produce only one plant per seed when planted by the grower. This greatly aids in planting to a final stand or thinning.



In the spring, the plants begin to grow out of dormancy to produce a seed stalk or bolt. Manipulation (clipping) of some plants may be done to facilitate matching (nicking) of flowering time between the male and female plants.



By mid June plants have reached full height (4 to 5 feet) with flowers starting to open. Special machines are used to separate (untangle) the pollinator strips from the female strips. These separators push the branches back to minimize tangling of branches between the strips.



The pollen shedding plants (planted in 4 row strips) often are removed as soon as pollination of the female strips is completed.



Fields are ready to harvest in late July to early August. Swathing of the plants is done with equipment outfitted with both horizontal and vertical cutting bars to minimize dragging of plants which could result in additional seed shattering and loss. Swathing is done best during periods of high humidity, often at night, to reduce shattering.



After the seed stalks have dried, 7-10 days later, a combine with a pickup head is used to separate the seed from the plant material. Combining is a slow process due to the bulky plant material that needs to be processed.



Combine run seed is loaded into wooden tote boxes. Boxes are labeled with variety and field information. Seed is moved into warehouses where it awaits cleaning prior to shipping to seed companies.



Seed is run across round-hole screens to remove sticks and other undesirable material. It is then run across a draper (machine with cloth belts) with additional small sticks carried up the inclined belt while the seeds roll down the belt. All seed cleaning equipment must be cleaned between varieties.



Seed is transported to seed companies by shipping in bulk boxes or bags.



Seed companies clean, grade, size, treat and prepare the seed into pellets for planting.

