

Beet Seed (Table Beet)

Beta vulgaris (Chenopodiaceae)

Fast Facts:

Acres in Washington: 500
Percent: U.S. Acreage: 95% of U.S. production; 50% of world
Per Acre Value: \$1,000
Value of Production in Washington: \$5.5 million
Number of Growers: 10 to 20

Description of crop:

Beet seed is a biennial crop. The average field size for table beet seed production is 20 acres and fields are scheduled for 4- to 5-year rotation periods to mitigate disease problems. Typically, the crop is planted in seed beds on Whidby Island in mid-June. In October, the beets are mechanically topped, dug, and placed in windrows and covered with one foot of soil to protect against freezing. In late March to early April, the young plants are transplanted into fields on the mainland in Skagit or Whatcom Counties. These transplanted beets are called stecklings. Beet seeds can be produced also by direct-seeding and over-wintering in the field, but this practice is no longer permitted under the rules of the Puget Sound Seed Growers' Association to prevent aphid borne beet viruses from causing significant losses in these biennial seed crops (break the green bridge between biennial seasons). In the seed beds, plants not displaying true varietal characteristics are removed by hand. In the field, mechanical cultivation and hand-hoeing help control weeds. Harvest occurs in late fall. The crop is cut, windrowed, dried 10 to 14 days in the field and then threshed. While the crop is curing in the field, it is turned by hand to prevent molding. Hand turning prevents damage to the seed. Finally, the seed is taken to a conditioning plant, where it is cleaned to 99% purity. Companies control the location of seed crop fields in order to prevent cross-pollination of different cultivars of the same crops and of cross-compatible crops. Isolation distances can range from one-quarter mile to 3 miles or more as beet seed crops are wind pollinated. It is worth mentioning that the increased urbanization and the presence of hobby farmers have made it more difficult to control pollen flow and ensure the isolation necessary for hybrid seed production.

Key pests:

Cabbage aphid and turnip aphid are the most critical. Other insect pests include armyworms, wireworms, cutworms, thrips and leafminers. Weed pests include shepherdspurse, mustards, lambsquarter, pigweeds, smartweed, henbit, groundsel, chickweed, wild turnip, quackgrass, wildoat, Canada thistle, bolt thistle, vetch, nightshades and bed straw. Lambsquarter is especially difficult to control, because it is a member of the same family as beet. Henbit and pineapple weed also are particular problems. Powdery mildew, downy mildew, seedling blights, *Phoma betae*, *Rhizoctonia*

root rot are the primary disease problems in beet seed production.

Key pesticides:

In Washington State, small -seeded vegetable seed crops are considered non-food and non-feed sites for pesticides use. No biological controls are available to control aphids. Because infestations are spotty and difficult to detect, all fields are inspected at least twice a week for aphid outbreaks. Pirimor has a Section 18 in Washington and is used to control aphids. Armyworms and cutworms are controlled with diazinon which also controls thrips. Phenmedipham and Ro-Neet are used for weed control; however, hand-hoeing is necessary to achieve adequate control. Beet seed is treated with mefenoxam and thiram and sometimes fludioxonil to help control seedling blight and *Phoma betae*. Cymoxanil, mefenoxam or metalaxyl and copper hydroxide are used to control downy mildew. Powdery mildew is controlled with sulfur and azoxystrobin or pyraclostrobin. The cultivar “Red Ace” has reported tolerance to powdery mildew. Chlorothalonil and mancozeb are used for general disease control.

Critical pest control issues:

Efficacious herbicides are critical for beet seed production. Weeds are not only an issue in competing with the beets but they also act as hosts for insects and diseases. Weed seeds, if they cannot be easily sorted out from the beet seed, will cause the value of the seed crop to drop or even cause the crop to be unmarketable.

Experts contacts:

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Location

of production: Skagit, Island, Snohomish, and Lewis Counties in western Washington.

