

Carrot seed

Daucus carota (Umbelliferae)

Fast Facts:

Acres in Washington:	2500 acres; 500 hybrid, 2000 open pollinated
Percent Acre Value:	\$800-\$1000 open pollinated \$2500-\$8000 hybrid
Value of Production in Washington:	\$1.5-\$5 Million

Description of crop:

Carrot seed typically is a seed-to-seed biennial crop that is planted in August. The carrot seed crop remains in the ground until it is harvested in August or September of the following year. Carrots are generally direct seeded; however, stecklings are used to supplement crops when there is significant winter kill of a certain variety or if sales indicate additional production is necessary. A steckling is a carrot grown under special conditions for use as a transplant. Stecklings are grown in western Washington and California. The steckling crop in western Washington is planted in late June or early July in seed beds. Stecklings are dug in October and stored or left in the ground and dug when needed. The carrot seed field is hand-hoed as necessary to remove weeds and rogued to remove plants not displaying true varietal characteristics. At harvest, the crop is cut, windrowed and dried in the field for 10 to 14 days. After drying, the crop is threshed, and the seed is sent to a conditioning plant where it is cleaned to 99 percent purity. Carrot seed must have an 85 percent germination rate to be used commercially.

Hybrid carrots are planted in a pattern of two rows of pollinators and six rows of female plants. In early May the growers take advantage of a two week window which allows them to 'nick' (generally the pollinator) blossoms. Nick is removal of blossoms, generally the male flowers, to ensure synchronization of pollen production with receptivity of the female flowers. Nicking shortens the window during which pollination can take place. If nicking is done too late it can reduce the seed crop by not having enough pollen available for the female flowers or by allowing them to self-fertilize because no pollen is available.

Key pests:

Lygus bugs are the most severe insect pest, because they feed on the developing seeds, causing reducing germination. Occasional insect pests include loopers, redbacked cutworm, variegated cutworm, European spider mite and twospotted spider mite. Weed pests included Canada thistle, nightshades, pigweeds, lambsquarter, wild buckwheat, volunteer crops, foxtail and barnyardgrass. The dry climate discourages most diseases. Outbreaks of bacterial blight, aster yellows, *Sclerotinia*, powdery mildew and *Alternaria* are possible but infrequent; however, BLTVA has caused significant losses since 1990. BLTVA is beet leafhopper transmitted virescens agent and is phytoplasma vectored by the beet leafhopper. *Xanthomonas* has not been a significant problem in this state.

Key pesticides:

Bifenthrin and chlorpyrifos are applied for lygus bug control. Trifluralin, linuron, pendimethalin, Fluazifop-butyl and sethoxydim are used for weed control; however, hoeing is still necessary to supplement control. Iprodione is applied as a seed treatment to control *Alternaria* and *Sclerotinia*.

Critical pest control issues:

Hybrid carrots offer a relatively high return per acre but also have a very high startup cost. It is critical that growers maintain efficacious and economical herbicides. The profit margin is quite narrow on small seeded crops. If the margin is reduced by higher weed control costs, higher sorting costs or lower value due to weed seed contamination the result could be economic loss to the grower.

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Location

of production: Grant, Adams and Benton counties.