

# Daikon Seed

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*Raphanus sativus* (Cruciferae)

## Fast Facts:

Acres in Washington: 400-500
Percent: U.S. Acreage: 10%
Per Acre Value: \$900-\$1000
Value of Production in Washington: \$400,000-\$500,000
Number of Growers: Between 20 and 30 growers

## Description of crop:

Daikon radish seed acreage has decreased significantly due to the inability to control beet leafhopper transmitted virescence agent (BLTVA), a leafhopper vectored phytoplasma. This is particularly true in the southern Columbia Basin where leafhoppers are more abundant compared to the northern Basin. Whereas most of the seed crops grown in Washington State have a non-food non-feed status which allows access to a broader range of chemicals, daikon seed is also used in sprouts production so this crop does not qualify for this designation. As a result, the acreage of daikon seed has dropped dramatically. In 1990 3,875 acres, representing 80% of the U.S production, were grown in Washington.

Daikon radish cultivars are divided into two categories, grown either for root crops or for sprouts, called kaiware. Depending on the year 90% to 100% of the daikon radish seed produced in Washington is exported to Asian countries, where it is used to produce kaiware. Kaiware is consumed like alfalfa sprouts. Seed for both the root crop and the sprout crop is hand-hoed to remove weeds and rogued during the growing season to remove plants not displaying true varietal characteristics. At harvest, the crop is swathed, dried for 10 to 14 days and threshed. Final cleaning occurs at a seed conditioning plant, where the seed is processed to 99% purity. Daikon seeds are long lived in the soil and so present problems for successive crops in the rotations.

## Key pests:

In eastern Washington, beet leafhopper is the most severe pest, because it vectors (BLTVA). Cabbage maggot, cabbage aphid, turnip aphid, cabbage looper and cutworms also are common insect pests. Weed pests include Canada thistle, nightshades, pigweeds, lambsquarter, wild buckwheat, volunteer crops, foxtail and barnyard grass. Weeds are serious pests due to two issues. The seeds that the weeds produce are often very difficult to sort out of the seed crop. If the contaminating seeds are too costly or impossible to sort out, the seed crop is considerably lowered in value or rendered unmarketable.

Weeds also serve as a host for insects and diseases. Diseases that infect radish seed crops include viruses, white rust, BLTV and Fusarium wilt. The latter two are serious problems.

Radish seed cops are also occasionally affected by white mold (*Sclerotinia sclerotiorum*), *Pythium* and *Phytophthora*.

**Key pesticides:**

In eastern Washington, Di-syston, Orthene and diazinon are used to control aphids. Cabbage maggot is controlled with Lorsban before planting. Treflan and Dacthal are used in weed control. Poast controls grass weeds. Radish stock seed is treated with thiram and mefenxam or metalaxyl prior to planting to help manage soilborne seedling blight pathogens. Mefenoxam or metalaxyl is also used to control white rust. There are no fungicides effective against Fusarium wilt, although some cultivars are more resistant to this disease. Fusarium wilt appears to be more problematic on soils in central Washington that have been rendered acid as a result of >50 years of irrigation and use of acidifying fertilizers (ammonium), so application of limestone to raise soil pH might help reduce the severity of Fusarium wilt.

**Critical pest control issues:**

There are very limited options for management of Fusarium wilt of radish other than selecting more resistant parent lines. However, seed growers are contracted to produce seed of specific cultivars, and typically have no choice of the particular parent lines they may be asked to grow. Di-syston is being removed from the market by the registrant. The loss of dimethoate was significant. Mitigation to comply with urbanization, salmon and water buffer issues are expensive. Efficacious herbicides are critical for seed production. Weeds not only compete with the seed crop but act as host for insects and diseases. Weed seeds, if they cannot be easily sorted out from the seed crop, will cause the value of the seed crop to drop or even to be unmarketable.

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**Location**

**of production:** Daikon seed is grown in Grant and Adams Counties.