

Cranberries

Vaccinium macrocarpon (Ericaceae)

Fast Facts:

Acres in Washington: 1700
Percent of U.S. Acreage: 3% of total and 15 to 20% of fresh market production
Per Acre Value: \$4,000
Value of Production in Washington: \$6.1 million
Percent of U.S. Production: 1.4 %
*Statistics Provided by the Washington Agriculture Statistics Service (NASS).

Cranberries are the 40th most valuable commodity in the state

Description of crop:

Cranberries are shallow-rooted (4 inches), perennial evergreen vines that grow low to the ground and prefer wet climates. Selected vine cuttings are trimmed six to eight inches in length then in spring plantings are uniformly scattered over a prepared peat bog bed that is covered with one to two inches of sand overlaid onto a well-drained, leveled bed. The vine cuttings are disked to a depth of three to four inches. The sand layer over a natural peat bog provides a better rooting zone for cranberries than the peat itself, and helps reduce weed seed germination. Cranberry establishment costs can reach \$40,000 per acre and then take four years to produce the first crop and up to several years to reach full production. A bed can remain productive for 50+ years if protected from pests. Plants will not produce unless pollinated by bumble bees or honey bees. Bumble bees, native to Washington, are efficient pollinators but in order to ensure optimal production, honey bees are introduced to pollinate the crop. There are three growing regions in Washington. The Long Beach Peninsula (Pacific County), Grayland (Pacific and Grays Harbor Counties), and Lynden (Whatcom County) regions. About 50% of Washington cranberries are dry harvested and 50% are wet harvested. Cranberries are harvested in two ways, depending on the area and intended crop use. Dry harvest utilizes a picking machine that combs the berries off the vines, and may also prune the runners that come in touch with multiple knives. In the Grayland area, dry harvesting is done and these berries are most often sold for the fresh market. In the Long Beach area water harvest is used and these berries are processed. Beds are flooded just prior to harvesting. A water-reel, commonly called a beater, knocks the berries off the vines and the buoyant berries rise to the water surface. The floating berries are moved with floating booms to one corner of the flooded bed and loaded onto trucks by conveyor belts or pumps. Although water harvesting is much more economical than mechanical dry picking machines, water harvesting affects the keeping quality of the berries. The current price for cranberry is about \$25 per barrel which is below the cost of production. (2009)

Key pests:

Weeds account for 15 to 20% of crop losses annually. Problematic weeds include silverleaf, false lily-of-the-valley, birdsfoot trefoil, asters and clover. Perennial weeds silverleaf and lily are the most difficult to control due to resistance by all herbicides registered on cranberries. Weeds are a problem because they compete for water, sunlight and nutrients. Under wet harvest conditions, the beater on the harvester can spread weed seeds throughout the bog, increasing weed problems. Under dry harvest conditions, weeds clog the harvester and increase berry damage and rots. With time (5 to 15 years), a severe infestation of perennial weeds will totally destroy a commercial cranberry bed. Insect pests such as the black-headed fireworm, cranberry girdler, and black vine weevil can cause serious economic losses with incidental losses also caused by cranberry fruitworm and tipworm. Black vine weevil can account for 5 to 10 percent crop loss, especially in dry harvested cranberries. Common disease problems include rosebloom, twig blight, *Phytophthora* root rot and the most critical disease problem is caused by fruit rots that occur postharvest. Fruit rots collectively are caused by many fungal pathogens some of which cause preharvest infections in the fields that are expressed in storage after harvest. Twig blight (*Lophodermium oxycocci*), is common in Washington and left uncontrolled can completely destroy a bed within a few years.

Key pesticides:

Callisto controls rushes, sedges, St. John's wort and silverleaf. Post-emergent herbicides such as glyphosate and 2, 4-D are commonly applied as wipes to weeds that grow above the cranberry canopy. Select and Poast are used for grass control. Stinger provides opportunity for control of legumes and asters. Herbicides such as napropamide, and Casoron help control weeds seedling weeds but do not provide adequate control of established weeds. Admire, Assail and Avaunt controls Black vine weevil. Parasitic nematodes have been used for control with poor results. Asana is used under a Section 18 for weevil control. Delegate, Othene and Sevin are registered for black-headed fireworm control and diazinon for cranberry girdler control. Metalaxyl 2E and 5G are registered for control of soil-borne diseases caused by *Phytophthora* spp. Copper compounds are registered for control of fruit rots and upright dieback disease, with no harvest restrictions. Abound and Bravo 720F or 500 is a broad spectrum fungicide registered for fruit rots, *Lophodermium* leaf/twig blight. Indar and Orbit also controls fruit rots. Prophylactic application of one of several fungicides (Dithane, Ferbam Granuflo, Kocide, Bravo or Mancozeb, Maneb (prebloom and postbloom) will suppress most diseases, including fruit rot. Timing of applications needs to correspond to the susceptible stages of development of the particular fungus.

Critical pest control issues:

Hand weeding is used extensively on new and young beds. Cost of \$3000/A is common on new plantings for hand weeding. Most perennial weeds are only temporarily suppressed by hand pulling in beds. IPM programs that feature

alternatives from current chemical pesticides, cultural controls, close monitoring and establishment of economic loss pest population thresholds would further increase the expense of pest management. As long as the price of cranberries remains low (<\$35/barrel), it is unlikely that growers will be able to afford to fully implement alternative pest management programs. Losses to fruit rots in both the field and in storage can be very high. Foliar diseases are also generally controlled by the same fungicides used for fruit rot control. If chlorothalonil were not available, mancozeb, ferbam and copper compounds would be used as alternatives. If the two most important fungicides, chlorothalonil and mancozeb, were not available, overall yield reductions of 20 percent would be common, with losses of up to 100 percent occurring in individual beds. For some diseases (twig blight), permanent loss of the bed could occur in some areas within 3 years if chlorothalonil was lost. A greater quantity of less-effective fungicides would probably be applied to compensate for this loss of efficacy.

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Sources: Crop Profile for Cranberries in Washington, WSU Extension

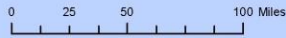
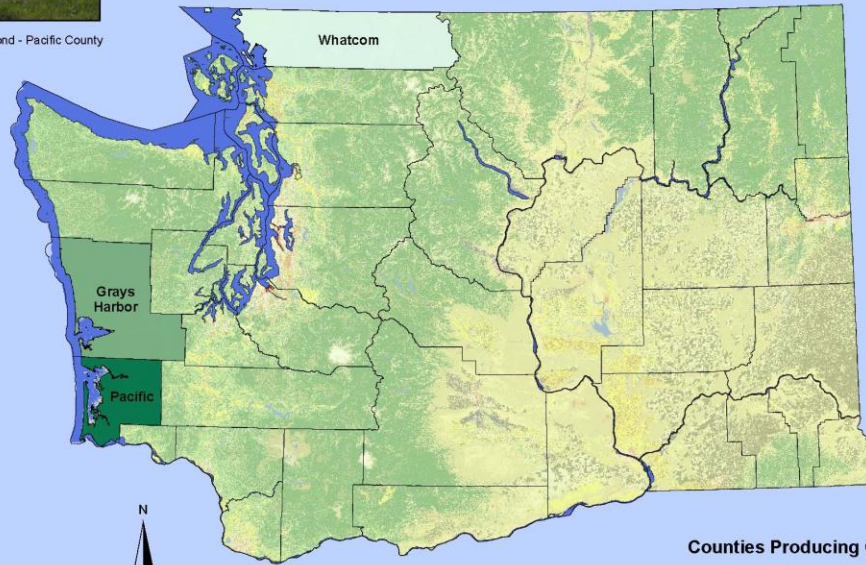
Location

of production: Whatcom, Grays Harbor and Pacific counties



Cranberry Pond - Pacific County

Cranberry Production in Washington State



Deborah Bahs - April 2007

* Includes only those counties with significant crop acres. The crop may also be produced in counties not highlighted on the map.