

THURSTON COUNTY NOXIOUS WEED FACT SHEET

Common Fennel *(Foeniculum vulgare)*

Description: Common fennel *(Foeniculum vulgare)* is a very large perennial herb native to the Mediterranean that grows from 4 to 10 feet tall. It has feathery dark green to bronzy leaves and flat topped umbrella shaped clusters of yellow flowers.

Common fennel blooms from July to September, producing large numbers of seeds. The seed, foliage, stems and roots all have a strong licorice scent. It is often used for culinary purposes since the flavor is similar to anise.


Common fennel


Bronze fennel

Impacts: Common fennel readily escapes cultivation. A single one year old plant can produce thousands of seeds in its first year, and over 100,000 seeds on mature plants. The seeds can remain viable in the soil for many years. The large, woody tap root can grow to 10 feet long. It forms dense infestations, crowding and shading out plants that are critical for native wildlife habitat. It has escaped cultivation and become a weed in disturbed waste areas, roadsides and embankments. Fennel seeds, can be spread by water, machinery, animals and agricultural products. Seeds lie dormant in the soil for several years. It can also reproduce from pieces of the root crown, which can be spread during cultivation and by water. Once it is well established, fennel tends to dominate a site, excluding other vegetation.

Bulbing fennel, *F. vulgare* var. *azoricum*, (also known as Florence fennel) does not pose a threat and is not an invasive problem or listed as a noxious weed in Washington state or Thurston County. This is the variety that is often included in gourmet cooking.

Control Options: Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The strategy of Thurston County's IPM policy is to minimize the use of pesticides.


Plant bulbing fennel as an alternative to common fennel

► **Cultural / Habitat**

Purchase only non-invasive, annual varieties of fennel. Also, be very careful when removing plants that have mature seed. Clip and bag the seed heads before you cut the plants, otherwise, you could accidentally make the problem worse by spreading seed into other areas. Always replant whenever soil is disturbed. Fennel germination in bare earth areas will be rapid if the plants were allowed to seed in past seasons. Always follow-up manual removal efforts with a rigorous monitoring plan to remove any newly emerged seedlings.

► **Manual / Mechanical Techniques**



Small seedlings can be hand pulled or dug when soil is soft or loose. Use tools like a trowel or hoe to uproot small plants. Mature fennel plants are difficult to remove due to the large taproot. Dig out individual plants with shovels or picks when the soil is moist. If the root breaks remove the upper portion of the roots (3-6"). Cutting the root before the plant sets seeds reduces the number of re-sprouts. Cutting will not control common fennel unless it is done numerous times throughout the growing season prior to seed set and for at least 4 successive seasons. Mowing too early encourages numerous sprouts as well.

► **Biological**

There are currently no biological control methods available for con-

► Chemical

Spot spraying with ***triclopyr*** (example: Lilly Miller® "Blackberry & Brush Killer" or Ortho® "Brush-B-Gon Poison Ivy Killer Concentrate") is effective in controlling common fennel. Triclopyr is a selective herbicide that will not kill grass when used according to label instructions, but may damage or kill other broadleaf plants. Triclopyr products are rated as "moderate in hazard" by Thurston County's pesticide review process because broadcast applications of triclopyr at greater than 2 lbs of active ingredient per acre can result in contaminating the food supply for birds and small animals. Since this prescription recommends only spraying individual plants or small patches, risk to birds and small animals is greatly reduced.

Imazapyr (example: Polaris® or Alligare™ Imazapyr 2SL) is also effective in controlling infestations of common fennel. Imazapyr is a non-selective herbicide and may damage or kill any other plants that it contacts, including grass. It may also leave persistent bare ground in the treatment area. This can be minimized by using only as directed, spraying at the recommended strength and no more than necessary to wet the surface of the leaves and stems. Products containing the active ingredient imazapyr are considered "moderate in hazard" by Thurston County's pesticide review process for the potential for chemical mobility and persistence.

Spot spraying with an herbicide containing the active ingredient ***glyphosate*** (example: Roundup Pro®, Eliminator Weed and Grass Killer®, etc.) can also be used to treat common fennel effectively. Due to recent health reviews, Thurston County recognized some scientific studies have concluded the use of glyphosate products have carcinogenic potential. The risk of spot spraying with these products is considered to be low provided the applicator uses personal protection equipment which includes chemically resistant gloves in addition to long sleeve shirt, long pants, socks and shoes and all other label precautions are followed.

Foliar applications:



- Using a spot application, spray plants thoroughly on the stems and leaves, enough to be wet but not to the point of dripping. Spot application means the herbicide is applied only to the target plants, and not on the surrounding plants or soil.
- Addition of a methylated seed oil or a non-ionic surfactant to some tank mixes may assist the herbicide in penetrating the waxy coating on the leaves and stems. Follow label recommendations for type and amount to use.
- Keep people and pets off treated areas until spray solution has dried.

Timing: Apply when plants are actively growing but before blooming, and thereafter as needed. Treating plants in mid to late spring results in the greatest initial control rate. Late summer or fall treatments will not be effective and are not advised if there is insufficient leaf surface remaining. In that case, remove and dispose of as much above ground material as possible, then wait until the following spring to treat the regrowth.

Pollinator Protection: To minimize negative impacts to bees and other pollinators, treatment prior to blooming is recommended. Removal of flowers before treatment can be an option in some situations. If treatment must occur during the blooming period, try to spray early or late in the day or on cloudy, cool days when pollinators are least active.

READ AND FOLLOW ALL LABEL DIRECTIONS AND RESTRICTIONS. Obey all label precautions including site specific and safety measures. Always use personal protective equipment that includes coveralls, chemical resistant gloves, shoes plus socks, and protective eyewear. Use of brand names does not connote endorsement and is for reference only; other formulations of the same herbicides may be available under other names. Information provided is current as of the date of the fact sheet. Pesticide product registration is renewed annually. Product names and formulations may vary from year to year.

Product/Method	Rates	Mix
Triclopyr Lilly Miller® "Blackberry & Brush Killer" or Ortho® "Brush-B-Gon Poison Ivy Killer Concentrate"	4 oz. (1/2 cup) per 500 ft²	To determine the amount of mix needed, first measure the area to be treated, then measure the amount of plain water needed to spray the area using a backpack or tank sprayer. Allow sufficient time for the area to dry completely before treatment. Then add 4 oz. (1/2 cup) of product to enough water for each 500 sq. ft of area that needs to be treated. Spray plants until they are wet but not dripping.
Imazapyr Polaris® *Alligare™ Imazapyr 2SL*	2%	Add 2.6 oz (5.2 Tablespoons) concentrated product per gallon of water.
Glyphosate Roundup Pro® Eliminator Weed & Grass Killer®	2%	Add 2.6 oz (5.2 Tablespoons) concentrated product per gallon of water.

REFERENCES:

California Invasive Plant Council, Invasive Plants of California's Wildland http://www.cal-ipc.org/ip/management/ipcw/pages/detailreport.cfm@usernumber=51&surveynumber=182.php

The Weed Workers' Handbook, The Watershed Project and California Invasive Plant Council, 2004.

Written Findings of the Washington State Noxious Weed Control Board

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