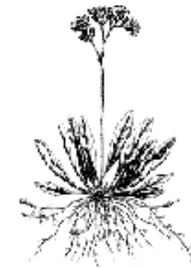


# Controlling Noxious Weeds on the Farm

## Agriculture and Natural Resources Fact Sheet #534

Noxious weeds are non-native plants that are highly destructive, competitive, and difficult to control or eliminate. These invasive species are introduced intentionally or accidentally through human actions. They may have appeared in the Northwest as ornamental garden plants, in wildflower seed mixes, agricultural crops, contaminated hay or seed, or aquariums and water gardens. Noxious weeds can reduce crop yields, destroy native plant and animal habitat, damage recreational opportunities, clog waterways, lower land values and poison humans and livestock. They should be controlled wherever they occur and should not be introduced to new sites. This publication provides a brief overview of several noxious weeds in King County and some possible control strategies. For weed identification refer to Fact Sheet #535 or the King County Noxious Weed Program (see Sources & Resources section).



### Weed Management

Prevention means avoiding weed establishment and eliminating individual survivors.

Biological control involves managing other organisms at the expense of weeds.

Cultural control means integrating various growing techniques to minimize impacts of weeds.

Mechanical methods include things like tillage, flaming, mulching, and water management.

Chemical control requires precise calculations, equipment, and application, as well as extreme caution.

### General tips

You can control most pasture weeds by practicing responsible pasture management, using controlled grazing, clipping, dragging, and fertilizing. Some weed seeds remain viable in the soil for decades, so any control program must include repeated treatments to control newly emerging weeds. **Correct use of herbicides is vital to water quality maintenance.**

Be adaptive. If one method doesn't work try another, change the timing, or modify the technique.

Be persistent. Flowers that go to seed will prolong the infestation problem. When plants become mature, they need to be removed or controlled before they go to seed.

Be smart. Combine methods intelligently. Pay attention to seasonal timing and unexpected results. Different methods bring different results depending on site conditions, soil, water, competing vegetation, and disturbance. Removing one weed opens the site up for new ones, so be prepared to act against new infestations.

Be forward thinking. Consider the long-term health of the site. Overuse of herbicides and fertilizer can damage soil organisms needed for healthy soil. Always consider the long-term goals of the site and community.

### Sources & Resources

#### King County Noxious Weed Control Program

201 S. Jackson, Ste 600, Seattle, WA 98104; (206) 296-0290; email: [noxious.weeds@metrokc.gov](mailto:noxious.weeds@metrokc.gov); web: [dnr.metrokc.gov/wlr/LANDS/Weeds/](http://dnr.metrokc.gov/wlr/LANDS/Weeds/) Provides consultations, identification, informational handouts, educational presentations, information on alternatives to herbicides, safety education, and advice on herbicide use. Also has a weed identification web page.

*Pacific Northwest Weed Control Handbook*. 1999. By R. William et al. Extension Service of Oregon State University, Washington State University, and University of Idaho.

*Weeds of the West*. 1992. Whitson et al. Western Society of Weed Scientists. Newark, CA.

## BMPs for Weed Control

- Identify the weed(s) to be controlled.
- Pick an appropriate control method (mechanical, biological, chemical, or a combination).

If you choose chemical control:

- Select a herbicide suitable for the specific weed(s).
- Read, study, and follow the label instructions.
- Select a spraying system—spot or broadcast spraying, depending on the percentage of weeds and the size of the site.
- Select spray equipment—from backpack sprayer to spray booms on a tractor or all-terrain vehicle.
- Be cautious—spray drift or runoff can contaminate surface water. Herbicides carried off target by wind or runoff pose major threats to water quality.
- Avoid spraying before, during or immediately after a rainfall.

Weed	Noxiousness	Toxicity	Dispersal	Biological/Cultural Control	Mechanical Control	Chemical Control
<b>Bull thistle</b> ( <i>Cirsium vulgare</i> )	Has become a major problem in pastures or other places improved with fertilizers because it responds favorably to increased soil fertility, especially nitrogen.	—	An average plant produces several thousand seeds which are dispersed by wind. The “thistle down” of the seed helps to carry it long distances.	In combination, the seed head fly ( <i>Urophora stylata</i> ) F. and the weevil, <i>Rhynocyllus conicus</i> , can destroy more seed than either one alone.	Hand hoeing is effective against isolated plants if most of the root is removed. Repeated tillage is very effective against established stands. Mowing is most effective if done as the first flowers are opening. Prevention requires providing dense perennial pastures or cover crops so seedlings will not survive.	Chemical control is effective with the use of 2, 4-D, or 2, 4-DB. Requires caution and follow-up measures. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i> .
<b>Canada thistle</b> ( <i>Cirsium arvense</i> )	A serious agricultural pest that has crowded out forage grasses in many pastures. Can be found in cultivated fields, pastures, waste areas, and in lawns and gardens.	—	Spreads by creeping underground rhizomes. Seeds can also spread great distances by wind.	Beneficial insects have been released on Canada thistle with limited success. Shade from a vigorous crop often provides much of the control needed to keep Canada thistle in check during the growing season. Conditions which favor rapid closure of crop canopies (good stands, adequate fertility and narrower row spacing) maximize the control provided from a competing crop and complements other control practices.	In pastures avoid overgrazing, mow weeds after grazing, fertilize, and irrigate to promote vigorous grass stand growth. Plastic mulch with bark will suppress top growth.	Canada thistle cannot be controlled with one herbicide application. Various herbicides can be applied during early bud stage or to top growth. Requires caution and follow-up measures. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i> .

Weed	Noxiousness	Toxicity	Dispersal	Biological/Cultural Control	Mechanical Control	Chemical Control
<b>Creeping buttercup</b> <i>(Ranunculus repens L.)</i>	Found most often in lowland pastures and wet areas. Grows low enough to escape control by mowing. Continual movement and rooting of stems allows buttercup to gradually invade even the densest pasture.	Toxic to livestock. Cattle usually avoid eating it when adequate feed is available but on poor pasture or heavily infested pasture they may eat enough to taint their milk or become ill. Sometimes cattle develop a taste for buttercup and eat fatal quantities. Sheep seem to tolerate it better. Sap irritates skin and mucous membranes.	It is commonly dispersed via movement in hay. Spreads by creeping stems that root at nodes. Buttercup is so irritating it is avoided by grazing animals; thus, it's given an advantage over pasture species that are closely grazed.	—	Easy to kill by cultivation if the ground can be worked up and tilled several times during a fallow period. Most pasture management techniques such as competitive planting, close mowing or controlled grazing aren't effective against creeping buttercup.	Selective herbicides can be effective in pastures containing grasses or clovers. Requires caution and follow-up measures. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i> .
<b>Hawkweeds</b> (Orange <i>Hieracium aurantiacum</i> and Yellows <i>H. atratum</i> , <i>H. caespitosum</i> , <i>H. floribundum</i> , <i>H. laevigatum</i> , <i>H. pilosella</i> , <i>H. piloselloides</i> , <i>H. pratense</i> )	Once established, quickly develops into a patch that continues to expand until it covers the site with a solid mat of rosettes. Forage species in pastures are choked out. Hawkweeds can pose a serious threat to native plant diversity.	—	Reproduces by seeds, stolons, rhizomes, and in some cases, buds on the roots. Barbs allow seeds to stick to hair, fur, feathers, clothing, and vehicles enabling them to be carried long distances.	Not currently available but research is underway.	Early detection and eradication are key for preventing new infestations. For small patches, dig out the shallow-rooted rosettes being careful not to scatter stolons, rhizomes, or roots. Mowing is not effective because it misses the low lying leaves and it encourages faster spread. Crops can successfully out compete hawkweeds.	Selective herbicides are available but using herbicides requires caution and follow-up measures. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i> .

Weed	Noxiousness	Toxicity	Dispersal	Biological/Cultural Control	Mechanical Control	Chemical Control
<b>Japanese Knotweed</b> <i>(Polygonum cuspidatum)</i>	Rhizomes can be 30 ft. long or more and develop into deep, thick mats obstructing root removal. Shoots can generate from rhizomes even when buried up to 6 ft. This plant shades out other plants. It is also considered a flood hazard because it can completely clog waterways and displace all other stream vegetation.	—	Rhizome fragments are caused and spread by natural runoff, and by machinery used in mowing or grading. Fragments are also spread via contaminated yard clippings. Seeds are dispersed by wind.	After removal, re-vegetate areas of infestation with fast-growing woody plants or perennials and use mulch over the disturbed soil.	Small infestations should be dug up and removed from the site. Be sure to completely dig up rhizomes so shoots don't sprout from them. Cutting several times during the growing season will prevent flowering and will weaken roots and rhizomes.	Combining mechanical methods with chemical treatment can be effective. Care must be taken in applying herbicides anywhere near wet areas or streams. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i> .
<b>Knapweeds</b> (Diffuse, Spotted, and Meadow) <i>(Centaurea spp.)</i>	Highly aggressive and can infest large areas quickly. Numerous seeds survive in soil for several years. Control is difficult because of high seed production, long life of seeds, rapid growth of new seedlings, quick regrowth following mowing, and the hardiness of the plants. Can seriously reduce the productive potential of infested rangelands. Can even invade pasture areas that are in excellent condition.	—	Vehicles, gravel and other fill material, hay contaminated with seeds, spreading from roadside stands, seeds carried by wind or vehicles.	Planting a competitive crop such as a perennial grass will increase control of new seedlings and regrowth. Fertilizer can increase the competitiveness of the perennial grass. In the West, sheep effectively control spotted knapweed ( <i>Centaurea maculosa</i> ) (ASI).	Small infestations can be hand pulled. Mowing may not prevent plants from flowering since knapweed will grow back and flower later in the season. Frequent and regular mowing will reduce flowering but is not as effective as pulling and may not prevent all seed production.	Selective herbicides are available but using herbicides requires caution and follow-up measures. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i> .

Weed	Noxiousness	Toxicity	Dispersal	Biological/Cultural Control	Mechanical Management	Chemical Management
<p><b>Scotch Broom</b> (<i>Cytisus scoparius</i> L. Link.)</p>	<p>Class B Spreads at the expense of desirable forbes, grasses, and young trees.</p>	<p>Toxic to livestock</p>	<p>Seed disperses easily by tires, heavy equipment, and infested gravel. Spreads slowly but persistently. Ants and birds help spread seeds.</p>	<p>Domestic goats will browse without ill effects and can control patches if not too tall. Seed weevil, <i>Apion fuscirostrem</i>, larvae consume seeds which helps slow the spread of the plant but does not reduce existing stands.</p>	<p>Repeated cultivation after grubbing out crowns will destroy seedlings. Rotation of pastures to cultivated crops for 1 or 2 years reduces problems. Periodic mowing reduces seeds but encourages branching until a meadow of plants is formed. Fire is not very effective because brooms do not carry a fire unless previously desiccated.</p>	<p>Selective herbicides are available but using herbicides requires follow-up measures. For specific herbicide use instructions consult the <i>Pacific Northwest Weed Control Handbook</i>.</p>
<p><b>Tansy ragwort</b> (<i>Senecio jacobaea</i> L.)</p>	<p>Greatest infestations occur west of the Cascades. One of the most common causes of livestock poisoning. Stock does not reject or avoid it in hay or silage. Even honey from tansy ragwort contains the poisonous alkaloids.</p>	<p>Toxic to livestock; all parts of the plant are poisonous. Consumption of the weed found in pasture, hay, or silage can cause poisoning. Young animals are more susceptible.</p>	<p>Small adventitious shoots spread from roots when stimulated by mechanical destruction or pulling.</p>	<p>Reseeding with beneficial or native species is recommended if surfaces are disturbed. Use of beneficial insects such as cinnibar moth can be effective in reducing plant density to a level that is economically inconsequential. Other beneficial insects are the ragwort seed fly and the tansy ragwort flea beetle. Contact the Weed Control Board for information on these insects. West of the Cascade Mountains in Washington, Oregon and Northern California, sheep - in combination with the Cinnabar moth - control tansy ragwort (ASI).</p>	<p>Cutting is recommended only where plants are soon to be eradicated. Cutting actually encourages development of the plant by stimulating the growth of side shoots. Cut plants often produce a second crop of flowering heads that is more difficult to cut a second time. Also, cut plants lying in the field are a poisoning risk to livestock. Initial, small infestations should be pulled and the roots carefully removed. Remove and burn all flower heads. Thorough plowing can kill most established plants. Monitoring of the site for newly emerging seedlings and overlooked plants is essential.</p>	<p>Certain herbicides are effective if used at the right time of year. Control with herbicides is erratic even at maximum doses labeled for tansy ragwort, when plants are flowering and most visible. Without follow-up measures, including improved grassland management, a single application of herbicide cannot be expected to control tansy ragwort.</p>

Weed	Noxiousness	Toxicity	Dispersal	Biological/Cultural Control	Mechanical Control	Chemical Control
<b>Yellow nutsedge</b> <i>(Cyperus esculentus L.)</i>	Reduces crop yield because it competes with crops for water, light, and nutrients and may produce chemicals that are toxic to crops.	May be toxic to crops.	Reproduces by rhizomes and tubers. Tubers, which form in the upper 18 inches of soil, readily detach from rhizomes when the plants are pulled or disturbed by tillage.	Crops that shade out yellow nutsedge are a good choice for infested fields. Management that encourages row closure and dense canopies such as irrigation and fertilization help.	Frequent tillage can be effective. Tillage soon after shoot emergence will severely weaken the tubers, leaving them more susceptible to subsequent control measures. Shallow tillage brings tubers to the soil surface where they may dry out or freeze. Cultivation in row crops will suppress yellow nutsedge growing in furrows and between rows before row closure. Thoroughly clean implements used in infested fields before using them in uninfested areas.	Nonselective and selective herbicides can be effective. Control in headlands and field margins is important because these have conditions (like high moisture and absence of competition) favored by yellow nutsedge.

**Alternate formats available upon request.**  
**206-205-3100 (TTY 711)**

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