



Utah County Public Works Control Standard Procedure for Squarrose Knapweed, Russian Knapweed, Spotted Knapweed, Diffuse Knapweed, and Yellow Starthistle Treatment

1. Herbicide Treatment.

- a. Herbicide treatment should take place in spring up through fall.
- b. Herbicide treatments are can be made with:
 - i. Glyphosate—Non-selective herbicide.
 - ii. 2,4-D—Selective herbicide. Kills broadleaf plants but not grasses if used according to label directions.
 - iii. Aminopyralid (Milestone) —Selective herbicide. Kills broadleaf plants but not grasses if used according to label directions. Utah County Weed Control preferred choice of herbicide for spraying these noxious weeds.
 - iv. There are various other herbicides that can be used to treat these noxious weeds but are not used by Utah County Weed Control.
- c. Read chosen herbicide label for application rate. Some herbicide labels have specific instructions for Squarrose Knapweed, Russian Knapweed, Spotted Knapweed, Diffuse Knapweed, and Yellow Starthistle.
- d. A surfactant is recommended to be added to the herbicide spray mixture.
- e. After herbicide application, allow the area treated to sit undisturbed for a minimum of two weeks.

Note: The information contained herein represents the standard procedures only for treatment of noxious weeds for Utah County. Utah County does not warrant the procedures contained herein. All legal responsibility for herbicide application is the responsibility of the applicator. If you apply an herbicide, make sure you are not violating any laws and/or restriction specified on the label. If applications are in or around water, verify the herbicide carries an aquatic label. If you have any questions regarding treatment of noxious weeds, please contact your local county public works office or Utah State University Extension office.

2. Additional Treatments (optional)

- a. Mowing/ Cutting
- b. Cultivation
 - i. Disturbing of the soil through agricultural practices like tilling, chaining, or disc work.
 - ii. Disturbance and moving of soil has potential of spreading noxious weed seeds.
- c. Biological Agents
 - i. Biological agents for Spotted, Diffuse, and Squarrose Knapweed in Utah
 1. *Larinus minutus* (seed head weevil)
 2. *Cyphoclenous achates* (root weevil)
 3. *Urophora affinis* (seed head fly)
 - ii. Biological Agents for Russian Knapweed in Utah:
 1. *Jaapiella ivannikovi* (gall midge)
 2. *Aulacidea acroptolonica* (gall wasp)
 - iii. Biological agents for Yellow Starthistle in Utah:
 1. *Eustenopus villosus* (seed head weevil)



d. Hand pulling

- i. Great for small infestations
- ii. Pull plant before flower develops into mature seed head
- iii. When pulling, try to pull as much of root system as possible; any roots remaining may later grow into full size plant.
- iv. Rosettes can be removed with use of shovel

Note: An intergraded control effort of more than one treatment type is recommended for noxious weed control. Herbicide application to noxious weeds should take place before any mowing/cutting, or cultivation treatments to help prevent potential spread of noxious weeds. While biological control is a great tool to combat an infestation, Utah County advises that, if possible, biological control agents be used as an additional tool to help with control efforts of an infestation rather than being the primary or only treatment.

3. Repeat Control Efforts

Complete control is not expected in one year's time. For control/eradication of an infestation, it will take years of consecutive monitoring and treatments. In general, you should have a decrease of noxious weeds every year of treatment and over time you might accomplish your goal.



Squarrose Knapweed



Russian Knapweed



Yellow Starthistle



Diffuse Knapweed

