

RUSSIAN KNAPWEED: Options for control

Russian Knapweed (*Acroptilon repens*), a **class-B designate** noxious weed in Lincoln County, Washington. Russian knapweed is a member of the Aster family introduced from Europe. It is a creeping perennial that reproduces by seed and creeping, horizontal roots. The ridged stems are stiff and 1 to 3 feet high, with thistle-like flowers that are lavender to white.

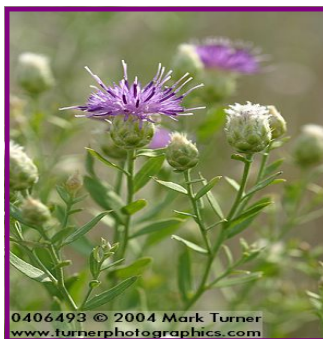
Russian knapweed emerges in early spring, bolts in May to June and flowers through the summer into fall. The plant reproduces by root and seed, although the seeds are too heavy to be wind-borne. It produces seeds sparingly, approximately 50 to 500 per shoot. Seeds are viable two to three years in the soil. It's primary method of reproduction is from vegetative propagation,



Russian knapweed rosette. Leaves are blue-green, toothed and covered with fine hair.



Russian knapweed spreads mainly by its root stalks.



Russian knapweed bracts are egg-shaped, light green at the base, and have a papery tip.

Plants **spread mainly** by underground **root stalks**. It is common on heavier, often saline soils of bottom lands and grows in pastures, hayfields, grain fields and irrigation ditches. Stands may survive 75 years or longer.



Like other creeping perennials, the key to Russian knapweed control is to stress the weed and cause it to expend nutrient stores in its root system. An integrated management plan should be developed that places continual stress on the weed. Currently, the best management plan includes cultural control combined with mechanical and/or chemical control techniques. A single control strategy, such as mowing or an herbicide, usually is not sufficient.

Russian knapweed is **toxic to horses**, however they must consume it over a period of time before poisoning will occur. Once poisoning occurs horses

are unable to chew and advance food to the back of their mouths, swallowing is impaired and horses may drink only if they immerse their head in water far enough to



Flowers range in color from pink, or lavender to white and are surrounded by pearly, rounded bracts with papery margins that are smooth to the touch.



An aggressive perennial, which is toxic to horses.



Dense colonies are formed by

with seed of secondary importance. Roots from a recently established plant expand rapidly and may cover up to 12 square yards in two growing seasons. Long-distance transport is typically as a contaminant in hay or seed lots.

Key identifying traits

- **Upper leaves** are small, narrow and have a smooth edge.
- **Basal leaves** are deeply notched.
- **Stem leaves** are intermediate in size, slightly toothed on the edge.
- **Stems** are erect and multi-branched.
- **Flowers** are pink to purple in color, thistle like and grow in solitary heads, with **papery bracts**, at the tips of leafy branches.
- Ivory-colored **seeds** are tipped by plumes that fall off at maturity.
- **Roots** are scaly, and dark brown to black.

Biology and ecology

- Bushy, branched **perennial**, grows one to three feet tall and **forms clones or colonies** from vigorous spreading root system.
- **Poisonous to horses**, causing irreversible chewing disease.
- **Prefers** areas where the **water table** is **within 20 feet** of the **surface**, where its deep roots penetrate to free water.
- Exudes **allelopath**, inhibiting growth of desirable plants.

CONTROL MEASURES:

For this and other publications, see our website at: www.co.lincoln.wa.us/weedboard

Prevention:

- Minimizing soil disturbances from vehicles, machinery and over grazing will reduce areas where the weed might become established. **Early detection** is vital to prevent invasion.

Biological:

- There is a gall forming nematode, however its effectiveness in Washington, is not yet known.

Cultural:

As a stand alone treatment it is almost useless, as Russian Knapweed has a complex system of adventitious roots that cause the plant to re sprout. Best method of control is to chemically or mechanically remove the above ground portion of the plant, then introduce competitive plant species to replace the bare ground once occupied by the weed.

Mechanical:

- Mowing, pulling and cultivation are ineffective forms of control, due to rootstocks.
- Because **root** systems are brittle and can extend so deep in the soil most **mechanical techniques**, such as disking, **can spread** the weed and **increase the density**.

Chemical:

- Aminopyralid (Milestone) works great. Apply 4-6 oz. per acre in bud to flowering stage and dormant plants in fall.
- Picloram (Tordon, restricted use product) should be applied after the first killing frost, then till the following spring to remove leaves, then treat again as needed with picloram. Control may be achieved in two to four years.
- Clopyralid works well during the flowering stage.

Russian knapweed is a serious noxious weed and is very difficult to control or eradicate once it becomes established. It grows in cultivated fields, along ditch banks, fence rows, roadsides, and in waste places. Russian knapweed roots can reach depths of over 24 feet.

An integrated management plan should be developed that places stress on the weed. Currently, the best management plan includes cultural control combined with me-



chanical and/or chemical techniques.

Seeding competitive, perennial grass species (cultural control) after Russian knapweed has been stressed by chemical control measures, is essential.

When integrating chemical and cultural control, avoid using herbicide rates that injure grasses, because effective competition will be reduced.

Russian knapweed is **toxic to horses**, with irreversible damage, causing the inability of the horse to pick up and chew food, resulting in starvation.



Russian knapweed is **allelopathic**, which means it exudes toxins into the soil so that no other plant species can grow around it, as shown at left, allowing dense colonies to form and rapidly dominate the land.



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