



## CRESSLEAF GROUNDSEL



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Recently, county agents and others have been asking questions about a yellow-flowered weed called cressleaf groundsel, *Senecio glabellus*, and its potential toxicity to livestock. It is weed species relatively new to Ohio, having been recorded in OSU herbarium samples from only four counties prior to 1990. Since that time cressleaf groundsel has spread to other parts of Ohio. Cressleaf groundsel appears to have entered Ohio from the south, where it is more prevalent, but it has now been reported as far east as Coshocton and Perry Counties and as far north as Hancock and Putnam Counties. Cressleaf groundsel is currently included in Ohio's Noxious Weed List due to its poisonous characteristics.

### BIOLOGY/IDENTIFICATION

Cressleaf groundsel is a member of the Aster/Composite family. It goes by many other names, including butterweed, yellowtop, golden ragwort, and yellow ragwort. It has a winter annual life cycle, meaning that it emerges in the fall and flowers in the spring (after the 10<sup>th</sup> of May). Cressleaf groundsel reproduces only from seeds. Each plant produces many (probably 100's of thousands) seeds that are readily moved by wind currents. It grows well in many different environments including saturated soils.

As a seedling in the fall, cressleaf groundsel appears very similar to yellow rocket, having rounded-tipped leaves with no lobes at first. Lobes become apparent as the later leaves emerge. Lobes of cressleaf groundsel leaves have an opposite orientation, compared to the smaller size and alternate orientation of yellow rocket leaves. The lobes have serrated to toothed margins. Cressleaf groundsel leaves and stems are usually quite purple in color. The stems of cressleaf groundsel are hollow and grooved, and the entire plant is hairless. The flowers are similar to those of other species in the Aster family, having ray (outside) and disk (center) petals. Both petals are bright yellow in color, and the ray petals being 0.33 to 0.75 inches in length. Individual flowers are grouped together in clusters, and there are usually several branches of flowers.



rosette in early spring



individual flowers in a cluster

## TOXICITY

Nearly all species of *Senecio* are considered potentially toxic plants because they contain compounds called pyrrolizidine alkaloids (PAs). These are metabolized in the liver to other compounds that are toxic, primarily to the liver cells. *Senecio glabellus* is considered nearly as toxic as some of the more troublesome plants in this genus, but fortunately, it does not appear to be very palatable to grazing livestock. The PAs are found in the plant throughout the growing season but appear to be at their highest levels when the plant is in the bud to flower stage. The flowering portions of the plant and the youngest tissues generally contain the highest concentrations. PAs are not destroyed by the hay-making and curing process. Ensiling of forages may reduce the concentration of PAs, but will not entirely eliminate them. Sheep are considered more resistant to the effects of PAs than cattle and horses, and have been used in some areas to control the plant. However, sheep are susceptible to poisoning if they consume sufficient amounts.

Under typical grazing conditions in Ohio, it is unlikely that animals will consume significant quantities of the *S. glabellus* because of the availability of higher quality, more palatable forages. Poisoning could result under unusual conditions, such as drought, where good quality forage is not available. Hay containing significant amounts of the plant may pose a greater risk. Poisoning usually occurs as a result of consumption of the plants over several days to several months. Because the effect on the liver is cumulative, signs of poisoning can occur weeks to months after consumption of the plant ceases. The signs are directly attributable to liver degeneration and failure. Affected animals usually show depression and loss of appetite initially, and progress to neurological signs with head pressing, aimless walking, incoordination, and rectal straining. At post mortem examination, the liver will usually be shrunken and fibrotic with grayish blue to yellowish discoloration. Treatment is only symptomatic and not usually successful once signs appear.

Historically, no confirmed cases of poisoning by *S. glabellus* have been reported by the Ohio Department of Agriculture's Animal Disease Diagnostic Laboratory, although liver lesions suggestive of PA poisoning have been observed on rare occasions. However, the plant appears to be expanding in its distribution in Ohio and, in some cases, its concentration in fields. Although the presence of the occasional plant in a hay field is probably not cause for concern, producers are advised to avoid harvesting areas of the field that have high concentrations of the plants. Subsequent cuttings during that growing season may be safe, although the plant may be present again in the fall.

## CONTROL

The goals of a cressleaf groundsel management program should be to minimize its occurrence in areas where it could poison livestock, and prevent seed production to reduce future infestations. This can be accomplished through mowing in the spring, where size of the field or groundsel patches allows. To minimize the risk to grazing livestock or reduce the amount of groundsel in hay, mow often enough to prevent the plant from becoming more than several inches tall. This strategy can also minimize seed production, although small groundsel can still flower and produce seed. Delaying the mowing until the plant is in the bud to flower stage will most effectively prevent seed production, but may not minimize the risk of poisoning. The groundsel is not likely to regrow after the first cutting of hay in the spring, but a goal of control strategies should be to prevent it from contaminating the first cutting.

Cressleaf groundsel is most easily controlled with herbicides in the late fall or early spring. Most of the plants will have emerged by late October, and will be small enough in fall or early spring to be controlled with 2,4-D or other low-cost treatments. Plants become considerably more difficult to control once they have started to grow in the spring and are more than several inches in diameter. Control of groundsel in pastures and hayfields directly reduces the risk of livestock poisoning. Cressleaf groundsel should also be controlled by the flower stage in roadsides and fallow areas, and neighboring corn, soybean, and wheat fields. Movement of seed from mature groundsel plants in these areas can be a source of new infestations in nearby pasture and hayfields.

#### CONTROL IN GRASS PASTURES

Apply 2,4-D (1 qt/A) in late October or early November. Low-volatile ester formulations can be more effective than amine formulations, but the latter are less likely to volatilize and injure nearby sensitive broadleaf vegetation. This treatment can also be effective in spring if applied in late March or early April when the rosettes of groundsel are less than several inches in diameter. Larger plants are more tolerant of 2,4-D, and effective control will require a mixture of dicamba (e.g. Banvel, Clarity, Sterling) and 2,4-D. Desirable legumes in the pasture will be injured or killed by any of these treatments. Some examples of 2,4-D products available at agrichemical outlets and farm supply stores:

##### Amine

Weedar 64

2,4-D Amine

Amine 400 2,4-D Weedkiller

##### Ester

Weedone LV4, LV6, or 650

2,4-D LV4 or LV6

LV 400 2,4-D Weedkiller

Hi-Dep Broadleaf Herbicide

#### CONTROL IN ALFALFA OR GRASS/ALFALFA HAYFIELDS

Herbicide options are less numerous and more costly than in grass pastures, and many herbicides effective on cressleaf groundsel can injure legumes. In alfalfa fields, the most effective treatments are:

- Sencor 75DF (1.3 lbs/A) or Velpar (2 to 3 qts/A) applied in late February when alfalfa is still dormant. These herbicides can be applied to established alfalfa only (more than one year old). Sencor can be used in fields that have established grasses in addition to the alfalfa. Do not use Velpar in fields with desirable grasses or fields that will be rotated to another crop within the next two years.
- Pursuit (2.16 oz/A) may suppress groundsel when applied in late fall or early spring. Fall applications are likely to be most effective. Plants should still be in the rosette stage and less than 3 inches tall at the time of application. In the spring, apply during periods of relatively warm weather – daytime temperatures above 60 degrees F and nighttime temperatures above 50 degrees F. Include the appropriate spray adjuvants per the herbicide label. Pursuit can be used in seedling or established alfalfa, but alfalfa seedlings must have at least two trifoliate leaves at the time of application. Do not use this treatment where desirable grasses are present.
- Glyphosate (Roundup Ultra Max, Touchdown, etc) can be applied as a spot treatment in the spring in any legume or legume/grass hay field. This treatment will injure or kill all vegetation in the treated area, and should be used only when all other control measures have failed.

## CONTROL IN NO-TILLAGE CORN AND SOYBEANS

Apply 2,4-D ester (1 qt/A) in late October or early November. This treatment can also be effective in late March or early April when applied to small plants not more than several inches in diameter. Control of larger plants will require a mixture of 2,4-D with glyphosate (26 oz/A of Roundup UltraMax or 32 oz/A of other glyphosate formulations) or Canopy XL. The rate of most 2,4-D ester products should not exceed 1 pint per acre when applied within 30 days of soybean planting.

## CONTROL IN WINTER WHEAT

Apply a mixture of 2,4-D plus either dicamba (Banvel, Sterling, etc) or Harmony Extra in early spring when groundsel rosettes are less than several inches in diameter. In no-tillage wheat consider an application of glyphosate before wheat emerges in the fall to reduce the population.



whole plant



stem leaf



hollow stem



grooved and purple-colored stem