



# Identifying and managing common groundsel (*Senecio vulgaris* L.) in nurseries and greenhouses

Debalina Saha and Carolyn Fitzgibbon  
Michigan State University Department of Horticulture



Debalina Saha, MSU Horticulture



Debalina Saha, MSU Horticulture

**Photo 1. Common groundsel (*Senecio vulgaris*) growing along the edges of walkway inside a greenhouse.**

**Photo 2. Erect and branched growth habit of common groundsel (*Senecio vulgaris*).**

Common groundsel (*Senecio vulgaris*) is one of the most common and problematic broadleaf weeds in nurseries and greenhouses. It belongs to the Asteraceae family, which also includes dandelion, thistles and sunflower. It is classified as a winter annual because the seeds germinate in late fall through early spring. Sometimes common groundsel is considered a summer annual since it has the capacity to germinate under shady conditions in summer or fall. In addition to its general weediness, common groundsel can be toxic to cattle, swine and horses if ingested. The toxicity is due to pyrrolizidine alkaloids, which can cause chronic liver damage to these animals (Smith-Fiola and Gill, 2014; Uva et al., 1997).

The success of this weed lies with its ability to produce enormous amount of seeds. Seed development starts early in its life cycle and plants typically produce 1,700 seeds but can produce 25,000 or more seeds under optimal conditions (Wilén, 2006). Several races of common groundsel have developed resistance to triazine herbicides [atrazine and simazine (Princep)], as well as nitriles (bromoxynil) and uracils [terbacil (Sinbar)] (Smith-Fiola and Gill, 2014). In this bulletin, growers will learn how to

identify and manage common groundsel in their nurseries and greenhouse operations.

## Biology of common groundsel

### HABITAT

Common groundsel can be found growing in gardens, lawns, nursery plots, inside greenhouses (under benches and on edges of walkways) (Photo 1), edges of yards, mulched beds around shrubs, fields, areas along railroads, roadsides and waste areas. It is common in highly disturbed areas where ground vegetation is low and scant (Illinois wildflowers, 2020). This plant is native to Eurasia.

### GROWTH HABIT

Plants are branched and erect (Photo 2). The height of common groundsel ranges from 4-20 inches (Uva et al., 1997). Under shady conditions, it has a thin appearance with fewer and smaller leaves.



## SEEDLING

Cotyledons are club-shaped on elongated stalks of less than half an inch long. Young leaves are dark green, grooved and sometimes deeply lobed (0.5-1 inch long). Cotyledons and young leaves are often purplish on the lower surface (Uva et al., 1997).

## ROOTS

Plants may have a shallow taproot with secondary fibrous root system, which is often branched. A taproot is not always evident (Uva et al., 1997).

## SHOOT

Stems are erect and highly branched with frequent rooting at the lower nodes (Uva et al., 1997). Young plants form rosettes until attaining maturity. Leaves are 2-4 inches long with deep, irregular lobes and coarsely toothed margins (Smith-Fiola and Gill, 2014) (Photo 3). Leaves are alternately arranged. Lower leaf blades tapers to the petiole/stalk whereas the upper leaves are sessile (without any stalk).

## FLOWERS

Common groundsel produce flowers from April to October. Flower clusters are surrounded by

green bracts with black tips. This characteristic black tip distinguishes common groundsel from other species in the Asteraceae family (Wilén, 2006). Flowers are bright yellow (Photo 4). On attaining maturity, bracts open to reveal a ball of white-tufted seeds (Wilén, 2006) (Photo 5).



Photo 4. Bright yellow flowers of common groundsel.



Photo 5. Flowers of common groundsel on attaining maturity. The bracts open fully to reveal a ball of white-tufted seeds



Photo 3. Leaves of common groundsel are 2-4 inches long with deep, irregular lobes and coarsely toothed margins.



**Photo 6. Seeds of common groundsel. Each seed is tipped with white fluffy hairs, which aid in wind-dispersal.**

## FRUIT AND SEEDS

Fruits are very tiny, about 2.5 millimeters (1/10 of an inch), light brown, cylindrical with shallow ribs, often hairy and end in a tuft of delicate white hairs that eventually get shed (Photo 5) (University of California IPM, 2020). One seed is present in each fruit (Photo 6). Seeds are present within a single-seeded, wind-disseminated fruit that forms in a white, approximately 0.5-inch wide puffball collection (Michigan State University Plant & Pest Diagnostics, 2020).

## PROPAGATION

Propagation is by seed. Three to four generations can be produced in one season. Germination generally begins in early spring and can continue to late autumn (Uva et al., 1997).

## SIMILAR SPECIES

Mugwort (*Artemisia vulgaris*) seedlings are similar to that of common groundsel seedlings. The only difference is the young leaves of mugwort are bristly-hairy and have white, woolly hairs beneath (Uva et al., 1997). Seedlings of common ragweed (*Ambrosia artemisiifolia*) also resemble common groundsel. The lobes of the young leaves of common ragweed are much more deeply dissected than common groundsel (Uva et al., 1997).

# Common groundsel management

## CULTURAL/MECHANICAL CONTROL

Prevention is the first step to controlling common groundsel in ornamental crop production. Try to control common groundsel outside greenhouses and at the edges of nursery

boundaries. Use clean, weed-free soil/substrate, clean nursery stock plants and always check incoming plant materials. Frequently scout inside greenhouses and nurseries and immediately hand weed common groundsel whenever it is found. Organic mulch material such as pine bark and hardwood chips can be applied on top of container media to prevent common groundsel from emerging and growing by acting as a physical barrier. Avoid topdressing with control release fertilizer; instead, apply control release fertilizer in the form of subdressing or dibbling.

## BIOLOGICAL CONTROL

The cinnabar moth larvae (*Tyria jacobaeae*) can feed on groundsel in the summertime (Frantzen and Hatcher, 2002). The ragwort seed fly and ragwort flea beetle have also been released for common groundsel control in California (California Department of Food and Agriculture, State of California, 2008). Two fungal species, *Erysiphe fischeri* and *Puccinia lagenophorae*, have been tested as biological control agents for common groundsel. Plants infected with *E. fischeri* continued growing to develop seeds even when 75-100% of the aerial plant parts were colonized; however, dry matter production of the common groundsel was remarkably reduced (Clarke et al., 1979).

## Chemical control

### PREEMERGENCE HERBICIDES

Apply preemergence herbicides when the weed seeds have just germinated, are relatively very small and actively growing. Timing and rate of applications are extremely important to consider. Research conducted by James Altland at Oregon State University showed that Broadstar and Rout provided the most effective control, reducing common groundsel growth by 97%. OH2, Ronstar O-O and Snapshot reduced groundsel growth by about 55-70%. Gallery (isoxaben) can provide excellent control in container production while Surflan (oryzalin) alone provides poor control. Research in Florida also showed that Gallery can provide excellent control of common groundsel. Devrinol along with Snapshot may have a synergetic impact in preventing groundsel seed germination (Smith-Fiola and Gill, 2014).

Table 1 lists preemergence herbicides that are labeled for use in and around ornamental crop production and that have shown some degree of common groundsel control.



**Table1. Preemergence herbicides labeled for use in ornamental crop production and have shown some degree of common groundsel control.**

Common name (active ingredient)	Trade name	WSSA herbicide group <sup>1</sup>	Efficacy <sup>2</sup>	Container production	Field production	Greenhouse or fully enclosed structures
flumioxazin	Broadstar™	14	C	Yes	Yes	No
pendimethalin	Pendulum®	3	P	Yes	Yes	No
oryzalin	Surflan®	3	F	Yes	Yes	No
prodiamine	Barricade®	3	P-F	Yes	Yes	No
trifluralin	Treflan™	3	P	Yes	Yes	No
oxadiazon	Ronstar®	14	P-F	Yes	Yes	No
isoxaben	Gallery®	21	F	Yes	Yes	No
s-metolachlor	Pennant Magnum®	15	P-F	Yes	Yes	No
trifluralin + isoxaben	Snapshot®	3 + 21	F-C	Yes	Yes	No
oxyfluorfen + oryzalin	Rout®	14 + 3	C	Yes	Yes	No
oxyfluorfen + pendimethalin	OH2®	14 + 3	C	Yes	Yes	No
<sup>1</sup> Herbicide groups are based according to primary sites of action and can be used to select herbicides that have differing sites of action (Mallory-Smith and Retzinger, 2003) so as to minimize the potential for the development of herbicide resistant weeds.						
<sup>2</sup> P = poor control; F = fair; C = good control						

## POSTEMERGENCE HERBICIDES

Postemergence herbicides that can control common groundsel and are labeled for use in ornamental crop production include glyphosate formulations, diquat dibromide (Reward), flumioxazin (SureGuard) and oxyfluorfen (Goal 2XL) (Smith-Fiola and Gill, 2014).

Always read herbicide labels very carefully before applying herbicides to achieve effective control of weeds and to avoid ornamental crop injuries.



## References

Altland, J. Effect of herbicide on common groundsel growth. Weed Management in Nursery Crops. Oregon State University. [http://oregonstate.edu/dept/nursery-weeds/research/container\\_trials/cg.htm](http://oregonstate.edu/dept/nursery-weeds/research/container_trials/cg.htm). Accessed May 29, 2020.

California Department of Food and Agriculture online Encyclopedea. Common groundsel [*Senecio vulgaris* L.] control methods. State of California. Retrieved 2008-01-31. <http://www.cdffa.ca.gov/plant/ipc/weedinfo/senecio.htm>

Clarke, D.D., V.D. Ben Kalio, and I. Harry. 1979. Studies on the physiological basis of tolerance using the wild host plant/parasite system, *Senecio vulgaris*, *Erysiphe fischeri*. Abstracts of Papers, IX International Congress of Plant Protection and 71st Annual Meeting of the American Phytopathological Society. Washington, D.C.: USA, 781.

Frantzen, J. and P.E. Hatcher. 2002. Integration of biological control of common groundsel. *Weed Science* 50:787-793.

Illinois wildflower. 2020. Common Groundsel. [https://www.illinoiswildflowers.info/weeds/plants/cm\\_groundsel.htm](https://www.illinoiswildflowers.info/weeds/plants/cm_groundsel.htm). Accessed May 26, 2020.

This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned. These recommendations are not intended to replace the specific product labels; the pesticide label is the legal document on pesticide use. Read the label carefully, as they change often and follow all instructions closely. Some products listed in this bulletin may be dropped by the manufacturer or distributor after the publication of this bulletin. The use of a pesticide in a manner not consistent with the label can lead to the injury of crops, humans, animals, and the environment. The use of a pesticide inconsistent with the label directions can also lead to civil or criminal fines and/or condemnation of the crop. Pesticides are good management tools for the control of pests on crops, but only when they are used in a safe, effective and prudent manner according to the label.

June 2020. WCAG 2.0AA

Mallory-Smith, C. A. and E. J. Retzinger Jr. 2003. Revised classification of herbicides by site of action for weed resistance management strategies. *Weed Technology* 17:605-619.

Michigan State University Plant & Pest Diagnostics. 2020. Common groundsel- *Senecio vulgaris*. <https://www.canr.msu.edu/resources/common-groundsel-senecio-vulgaris>. Accessed May 27, 2020.

Smith-Fiola, D. and S. Gill. 2014. Common groundsel: Identification and management in nursery and landscape settings. University of Maryland Extension, Commercial Horticulture Information. <https://extension.umd.edu/sites/extension.umd.edu/files/docs/programs/ipmnet/CommonGroundsel-UMD%20IPMnet.pdf>. Accessed May 27, 2020.

University of California IPM. 2020. Common groundsel (*Senecio vulgaris*). [http://ipm.ucanr.edu/PMG/WEEDS/common\\_groundsel.html](http://ipm.ucanr.edu/PMG/WEEDS/common_groundsel.html). Accessed May 27, 2020.

Uva, R.H., J.C. Neal, and J.M. DiTomaso. 1997. Common groundsel (*Senecio vulgaris* L.). *Weeds of The Northeast*, Cornell University Press 210-211.

Wilens, C.A. 2006. Common Groundsel. University of California Agriculture and Natural Resources. Pest Notes 74130.

MSU is an affirmative-action, equal-opportunity employer, committed to achieving excellence through a diverse workforce and inclusive culture that encourages all people to reach their full potential. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status. Issued in furtherance of MSU Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Jeffrey W. Dwyer, Director, MSU Extension, East Lansing, MI 48824. This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by MSU Extension or bias against those not mentioned.