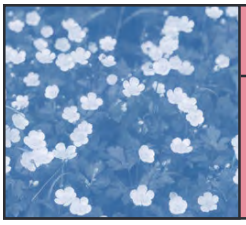

INTEGRATED PEST MANAGEMENT PRESCRIPTION

Creeping buttercup *(Ranunculus repens)*

Description:

Creeping buttercup is a short perennial plant (about 6-12 inches tall) with bright yellow flowers that shoot up to 24 inches high. The long stems grow along the ground and take root at the leaf nodes. The three-part leaves are dark green, often with pale spots, and have deeply toothed margins. Both the leaves and stems are hairy. The flowers, usually with 5 petals, are born on long erect stems spring through summer. Though creeping buttercup is capable of surviving in many soil types and exposures, it is notably problematic in wet, acidic soils with poor drainage.

John Cardina, Ohio State University, Bugwood.org

Richard Old, XID Services, Inc., Bugwood.org

Impacts:

Creeping buttercup spreads easily from seed and by their long stems which root and form new plants at every leaf joint. It commonly invades areas where the vegetation has been removed and wet pastures, where it displaces more desirable forage. The sap of creeping buttercup contains a toxic compound that can taint milk or cause cattle to become ill. Most often, livestock will try to avoid eating buttercup because the sap is very irritating and can cause blistering on skin and mucous membranes, but occasionally, cattle develop a taste for buttercup and consume fatal quantities.

The toxic compound in creeping buttercup (protoanemonin) is not stable, and does not retain its toxicity when dried in hay. However, hay cut from infested pastures and moved to another site can easily spread seed into new areas. Stability of the toxin in high-moisture hay and silage hasn't been determined.

Difficulty in controlling creeping buttercup is compounded by several factors:

- Most livestock owners seem unaware that buttercup is an undesirable plant. It's commonly allowed to increase until livestock become ill or die.
- Most pasture management techniques such as competitive planting, close mowing, or controlled grazing aren't effective against creeping buttercup.
- Repeated tilling, though effective for controlling creeping buttercup in some areas of the country, is not an option for western Washington, since the ground moisture stays too high to allow enough repetitions, and is rarely dry enough to kill plants before they are able to establish new roots.
- Because it's a creeping perennial, it grows low enough to escape control by mowing. The continual spread and rooting of stems allows it to gradually invade even the densest pasture.
- Buttercup is so irritating that it's avoided by grazing animals; so it has an advantage over pasture plants that are closely grazed.

Control Options:

Thurston County's Integrated Pest Management emphasizes cultural, biological, and manual control methods to keep pests and vegetation problems low enough to prevent damage. The goal of Thurston County's pesticide use policy is to minimize the use of pesticides by utilizing and providing information about the most effective control options that are available and practical.

John Cardina, Ohio State University, Bugwood.org

► Cultural / Habitat

The most important factor in creeping buttercup management is to correct the conditions that are favorable to buttercup: poor drainage, soil compaction, low fertility, and low soil ph (acidic). While these conditions are favorable to buttercup, they are very damaging to grasses; which require better drainage, aeration, fairly neutral soil ph levels, and good fertility in order to maintain a healthy, dense cover. Improved drainage through trenching or grading, soil amendments, mechanical aeration, and addition of fertilizer and lime, should be included in any buttercup control plan. Often, herbicide application is not necessary if these methods are employed. Hay harvested from infested pastures should be fed out on site, rather than transported to an uninfested area.

Bare ground can encourage buttercup seeds to germinate. Replanting desirable grass or other vegetation will help reduce the amount of weeds that germinate in those areas.

► Biological

There are currently no known biological control agents available for creeping buttercup.

► Manual / Mechanical

Manual control is only effective for small numbers of plants, and then only if care is taken to remove all the roots and plant parts. Buttercup will take root and create new plants very quickly and easily from root fragments and pieces of stems left on the ground. Because of this ability to grow from plant pieces, rototilling infested areas may actually increase the number of plants, and the long creeping stems tend to bind up around the tiller blades, making rototilling very frustrating. After manual removal, be certain to clean all equipment thoroughly, in order to prevent starting new infestations in other areas. Be sure to wear gloves and protective clothing, as the sap from buttercups can cause irritation and blistering in some people.

► Chemical

Control of creeping buttercup with the use of herbicides, should always include a plan for correcting the habitat conditions that allow buttercup to thrive (poor drainage, soil compaction, low fertility, and low soil ph). Spot spraying herbicides containing the active ingredient glyphosate (example: Roundup® Pro, Glyfos®, etc.) is effective in controlling buttercup. A spot treatment is when you spray each plant enough so that they are wet, but not dripping, and not onto the surrounding soil or other vegetation.

Ohio State Weed Lab Archive, Ohio State University, Bugwood.org

Many glyphosate products have an initial glyphosate concentration of 41% and are recommended for diluting to exact percentage solutions. Herbicides labeled for spot treatment generally recommend mixing the product with water to create a specified percentage solution. For example, the Roundup® Pro label recommends mixing a 1–2% solution for hand-held or spot applications for control of perennial weeds. Glyphosate is non-selective, and will injure any plants that it comes in contact with, including grass. Thurston County rates glyphosate products high in hazard for carcinogenic potential. The risk from spot spraying creeping buttercup is considered low provided the applicator wears a long sleeved shirt, pants and chemically resistant gloves.

For selective control of creeping buttercup in agricultural settings (pastures, hayfields, etc.), an herbicide containing the active ingredient aminopyralid (example: Milestone®, Milestone® VM, etc.) may be a better choice. Aminopyralid products will not harm grass and can be used around livestock (provided all label precautions are followed). Aminopyralid is currently sold in agricultural labeled herbicides that are only to be used in areas listed on the label, and are available in farm supply stores. Aminopyralid products are considered moderate in hazard by Thurston County's review process for the potential for chemical mobility and persistence

Timing:

Herbicide treatments using either glyphosate or aminopyralid products can be made any time the plants are green and actively growing. Best overall control is achieved if plants are treated before flowers set seed.

Pollinator Protection:

To minimize negative impacts to bees and other pollinators, treatment prior to blooming is recommended. Removal of flowers before treating can be an option. If treatment must occur during blooming period, try to spray early or late in the day or on cloudy cool days.

Herbicide & Method	Product Rates	Mix
RoundUp® Pro Spot/Foliar	2%	To 1 gallon of water add 2.66 oz. RoundUp® Pro, apply to foliage at or beyond bud stage.
Milestone™ Spot/Foliar	1 tsp per 1000 ft²	To treat a 1,000 sq. ft. area: Using a 2 to 4 gallon backpack or tank sprayer, add half of the water needed to cover all plants with one teaspoon, agitate, then add water to reach desired amount (0.5 - 2.5 gallons total volume, depending on quantity and size of plants). Lightly spray all thistle plants in 1,000 sq. ft. area, then continue lightly spraying the thistle until the tank is empty and all plants have been thoroughly covered. The addition of a non-ionic surfactant (at least 80% active ingredient) is recommended to enhance herbicide activity.

READ AND FOLLOW ALL PESTICIDE LABEL DIRECTIONS AND RESTRICTIONS. Obey all label precautions, safety measures, and wear all recommended personal protective equipment. Use of brand names does not connote endorsement and is for reference only; other products with the same active ingredients may be available under other names. Pesticide product registration is renewed annually and product names and formulations may vary from year to year.

REFERENCES:

Pacific Northwest Extension Publication #399, Creeping Buttercup (Ranunculus repens L.) LC Burrill
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