Spring Management of Biennial and Perennial Noxious Weeds

Plants have three main life cycles: perennial, biennial and annual. Perennial plants persist for many growing seasons. Aboveground growth will be dormant in the winter and spring develops from the root system which lives through winter. Biennial plants take two years to complete their life cycle from seed germination to seed production. Annual plants complete the life cycle in one growing season and all plant parts including roots, stems and leaves die each year.

Control methods vary depending on the life cycle of each species. Perennial plants typically have extensive root systems and plants move energy reserves accumulated through the growing season into roots for storage over winter. Containing the spread of perennial plants requires minimizing growth from new shoots developing from the roots and also preventing seed production. Tillage can be effective depending on the species and will largely depend on the frequency and duration. Spring-applied herbicides can prevent new shoots from emerging or reduce flowering and seed production. Since biennial and annual plants mainly rely on seed production and dispersal for future success, these species can release thousands to millions of seed from one plant each year. Reducing seed production is a primary goal to control annual and biennial plants. If areas are treated in the spring, certain species may not emerge and others can be injured enough to reduce viable seed production.

Noxious weed species, such as scotch, musk and Canada thistles and leafy spurge, can be difficult to control and are moderately to severely invasive. Identification is essential to management goals. Scotch thistle is a biennial weed which can grow up to 12 feet tall. Flower heads are violet to reddish and leaves are densely covered with fine hairs giving it a grayish appearance. Leaves extend from the stem all the way up to the seed head making the plant look “winged.” Rosettes appear in the spring, may be 1-3 feet in diameter, and also look grayish. Musk thistle is a biennial weed but typically smaller, growing to about 6 feet tall. Flower heads are a deep rose, violet, or purple and have dark purple to brown bracts under the flower that resemble a pine cone. Flower heads are typically bent at a 90 degree angle in late summer and early fall. Rosettes are large, typically hairless and waxy when compared to scotch thistle rosettes. Canada thistle is a colony-forming plant which has small, compact flower heads that are usually purple. This plant requires a 14-16 hour photoperiod to bolt and flower but growth may cease above 85 degrees. Canada thistle roots can be 10 feet deep and can develop 12-15 feet of lateral roots per year. As a perennial, the root system remains alive throughout the winter while the aboveground plant overwinters as rosette. Leafy spurge is also a perennial, growing in thickly clustered groups with woody-like stems. Below the small yellow-green flowers are paired heart-shaped yellow-green bracts. As a member of the spurge family, this species contains a milky substance in the entire plant. Leafy spurge is poisonous to cattle and horses.

Biennial thistles can be effectively controlled in the spring and early summer. If the infestation is small, mechanical control by completely severing the main root by digging can be practical. If the plant has bolted, slashing/mowing the tops prior to flowering will prevent seed set. Do not mow after seed set as it increases dispersal opportunities. If plants have gone to seed, collecting and burning seed heads may be an option to prevent spread. If relying on mowing, several events may be required due to plant regrowth and various growth stages within a single stand. Control can also be increased after mowing with chemical application. Chemical control is most effective when spraying rosettes. Several herbicides are labeled for spring application non-crop sites including, but not limited to, aminocyclopyrachlor, chlorsulfuron (Telar), aminopyralid (Milestone), clopyralid (Stinger, Transline, Pyramid), and metsulfuron (Escort). Spraying can occur during bolting and before the bud stage yet may not be as effective.

Canada thistle and leafy spurge management is different since perennial plants have extensive root systems and stored energy reserves allow it to recover from various types of stress. Tillage is not recommended, especially for Canada thistle, as roots can be moved throughout the site and new shoots will develop from severed roots. Prior to flowering, repeated mowing within and over several seasons may impact energy reserves enough to be a control option. Similar spring-applied herbicides can be used for Canada thistle as musk and scotch thistle at similar growth stages. Chemical control for small infestations of leafy spurge can include picloram (Tordon, restricted use) in the spring to early summer or picloram combined with diflufenzopyr plus dicamba (Overdrive) during flowering. Applying a 25-ft strip around the infestation can prevent establishment of seeds dispersed from infested area. Large infestations may not be economical to eradicate, yet containment is still critical to prevent the spread of leafy spurge. This is achieved by repeated annual applications of various herbicides depending on the time of year and plant growth stage. Reducing seed production and decreasing stand density are common goals for containment.

Proper grazing management in pastures can help prevent the invasion of noxious weeds as healthy, native vegetation cover provides adequate competition. It is thus important to revegetate after control of dense weed stands to minimize possibilities of reinvasion. Non-target effects should be considered when using any control method for noxious weed species. Herbicide application may have the desired effect on the weed, yet also kill desired vegetation. Choosing a different herbicide, a different control option (i.e. biological vs. chemical), or revegetation are considerations for non-target effects. Also consider grazing restrictions if livestock are present in pastures where herbicides are used. Always read and follow label directions when applying herbicides. The key to any effective control program is understanding the problem and creating an attainable goal.

For more information, contact your local weed and pest control office or Goshen County Weed and Pest at: (307) 532-3713, gocoweeds@embarqmail.com, or <https://www.facebook.com/gocoweeds>.