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Yellow Starthistle

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Invasive weeds pose many problems throughout our foothills. They deplete the limited water in soils thus out-competing our native grasses and other plantings that support biological diversity. Forage for wildlife as well as domestic animals is reduced, and they can increase wildfire and flood danger. Yellow starthistle is an invasive weed high on the California Invasive Plant Council (Cal-IPC) list; Cal-IPC works to protect state natural wildlands by public education on invasive weed identification and management. Eradicating yellow starthistle is an urgent priority to prevent further severe damage to our environment.

Yellow starthistle (YST) is a long-lived, winter annual that can start germinating with the first fall rains and continue to germinate through late spring. Over the winter the plant develops a deep taproot (sometimes as long as six feet allowing it to tap deep soil moisture. It is in the sunflower family (Asteraceae), but is far different from those lovely “sunny faced” blooms. YST grows during the summer months with mature plants reaching from four inches to five feet in height. The YST leaves are gray-green to bluish green in color with sharp spines on the flower buds. The young stems are pliable and winged, which act like fins of a radiator allowing the plant to be better suited for a hot, dry Mediterranean climate. As the plant ages, the stems become rigid with spreading branches that end with bright, thistle-like yellow flowers. It flourishes in brightly lit, exposed areas with drier soils including pastures, rangelands, and roadsides.

Yellow starthistle reproduces entirely by seeds. Although many members of the sunflower family have dandelion-like flowers that blow in the wind, YST seeds are actually quite heavy and fall near the parent plant. The majority of seeds can live for about five years in the soil with some seeds living longer. There are two primary keys to YST control. The first and most important is to prevent it from going to seed. YST only reproduces by seed and each plant only lives for a single growing season, so if you can prevent seed production you can prevent YST! The other main focus is prevention and keeping YST from coming onto your property. The main sources of introduction are from contaminated seed or hay, vehicles, equipment, animals that

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may carry it on the fur or in manure, and through construction materials including rock and gravel. There are several methods to control Yellow starthistle, and if it's established, controls must be repeated for a number of consecutive years until all seeds in the soil have germinated or died.

Hand-pulling YST before it sets flowers is one of the most effective ways to control this invasive annual. Hand pulling can be done any time after germination, but often it is easiest to wait till late spring when the plants have started to form a stem and the ground is still moist. Unlike other plants like dandelions that can regrow from the roots, YST is not able to resprout, so severing the stem from the roots is sufficient. For many homeowners trying to rid their property of YST, hand pulling can be a daunting task as they may live on more than half an acre, which makes hand pulling very labor intensive.

Grazing or mowing yellow starthistle before the flowers set seed is performed on larger areas (YST isn't poisonous to cattle, sheep, burros, or goats, but is poisonous to horses). As with all methods, timing is important. Mowing or grazing is most effective when the soil is drier and rain or irrigation will not occur in the following days. When YST is in the late spiny or early flowering state, mowing or grazing is most successful. If it's cut or eaten back before the last rains or if it hasn't "branched," then seeds will continue to germinate and a second grazing or mowing will be needed that year.

There are a number of herbicides that can be used to control YST. The best time to treat will depend upon the product being used. Herbicides such as *glyphosate* and *clopyralid* can provide acceptable control of yellow starthistle if they are applied at the proper rate and time. Glyphosate is a post emergent herbicide that only kills plants that are actively growing and has no soil activity. It is best to apply glyphosate late in the spring after the last rains or multiple applications will be necessary to kill newly germinated seedlings. Clopyralid is effective at killing both emergent plants and newly germinating seeds. Due to the soil activity, clopyralid is applied as a single application in the winter months (February-April) and will provide season long control. Read and follow the label. Additional information on herbicide use is found at: <http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7402.html>.

Several natural enemies have been imported from Europe and established in California to help control YST. The hairy weevil and the false peacock fly are currently the most effective at helping battle YST. Both of these insects lay eggs in the developing seed head and the newly hatched larvae feed on the developing seeds of YST. Although they don't fully control or eradicate YST, they are one of many tools that landowners can use to help stop the spread of this invasive plant. They will need additional assistance outlined above, and these insects don't attack valuable crops or native plants. If using these insects for control, don't mow while YST is flowering.

Management also includes replanting with desirable plants to fill in where YST was removed. What the land is being used for will determine what vegetation is planted. Perennial bunchgrasses or wildflowers may be used in many applications. Fast-growing forages for pastures are an additional option. Lastly, YST fails to thrive in shade so a planting of trees can also help prevent the reintroduction of yellow starthistle.

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There is hope! Join Master Gardener Steve Savage this Saturday to learn the latest management techniques and procedures at the free Master Gardener class on Starthistle Control. Class is October 17th, from 9:00 a.m. to noon at the Government Center Hearing Room, Building C, 2850 Fairlane Court in Placerville.

Also on October 17th, from 1:00 p.m. to 4:00 p.m. is a free class, Putting Your Garden to Bed. Master Gardeners Cindy Young and Cheryl Turner show how easy efforts now can pay big dividends next year: clean-up, cool-season plants, composting and mulching. Class is in classroom A101 and the Sherwood Demonstration Garden, 6699 Campus Drive (behind Folsom Lake College – El Dorado Center) in Placerville.

Visit the Sherwood Demonstration Garden Wednesdays, Fridays and Saturdays from 10:00 a.m. to 3:00 p.m., during the month of October.

UCCE Master Gardeners are available to answer home gardening questions Tuesday through Friday, 9:00 a.m. to noon, by calling (530) 621-5512. Walk-ins are welcome at our office, located at 311 Fair Lane in Placerville. For more information about our public education classes and activities, go to our UCCE Master Gardeners of El Dorado County website at <http://ucanr.edu/edmg>. Sign up to receive our online notices and e-newsletter at <http://ucanr.edu/mgenews/>. You can also find us on Facebook.