

UCCE Amador County Master Gardeners

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Yellow Starthistle

Brief Homeowner Information Sheet - February 2011

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In the California foothills, Yellow Starthistle is perhaps the most common and concerning "invasive" plant. It is impacting much of our open space, agricultural and rangelands as well as intruding into our neighborhood landscapes. The impact to large range and agricultural lands is primarily the concern and responsibility of ranchers, large property owners and the County Agriculture Department. But more and more the individual homeowner is becoming the key to containing and eliminating this invasive plant, wherever it exists.

IF YOU SEE YELLOW STARHISTLE, TAKE STEPS TO GET RID OF IT! Talk to your neighbors and anyone else you come in contact with. Let 2011 be the year we stop the spread and begin to eliminate Yellow Starthistle.

WHAT DOES IS LOOK LIKE?: Yellow Starthistle is a gray-green to blue-green annual plant with a vigorous taproot. The stems of mature plants are rigid, wing shaped, spreading and branching from the base. The plant has deeply lobed basal leaves (2 to 3 inches long), and short, narrow, sharply pointed upper leaves (0.5 to 1 inch), which allow the plant to catch lots of water. The leaves are covered with loose, cottony hairs that gives them a whitish appearance. Yellow Starthistle produces bright yellow flowers with sharp spines surrounding the base of the seed head. The plant grows to heights varying from 6 inches to 5 feet, depending on sun exposure and moisture availability.

WHY DO WE CARE?: Yellow Starthistle currently infests more than 15 million acres of land in California and has a huge impact to recreational and agricultural lands. Not only does it prevent recreational use, like walking or hiking, but it chokes out the native grass and wildflowers. It is also poisonous to horses, causing a neurological disorder called "chewing disease" which can be fatal once symptoms develop. It provides minimal nutrition to livestock compared to native or other grazing grasses.

For those of us who are concerned with water, Yellow Starthistle steals great quantities of water from other plant life, and its deep roots greatly diminish our ground water. It is reported that this invasive plant accounts for a loss of 15 to 25% of annual precipitation. It is estimated that in 2004 approximately 46,000 acre feet (1.5 billion gallons), of water was lost to the Yellow Starthistle within the Sacramento River watershed alone.

PLANT GROWTH CYCLE: Yellow Starthistle is an annual which flowers from mid to late summer and can produce up to 10,000 seeds per plant. Approximately 95% of those seeds are viable as soon as they disperse. Most seeds germinate within a year, but some can remain viable in the soil for more than three years. Yellow Starthistle seeds begin to germinate in the fall with the first rains. Seeds continue to germinate through late spring as long as there is adequate soil moisture. The first few months of growth is known as the seedling stage. During this period the plant focuses its growth on root development. As the plant continues to grow it begins to develop leaves (rosette stage), but can be hard to identify from other plants. By late spring to early summer, the plant will initiate the bolting stage of rapid growth and fluted stalk. This bolting stage is followed by the flowering stage, usually late summer, when the plant produces its spiny head and yellow flowering seed head. The flowering seed head produces the seeds for the next year.

HOW DO WE CONTROL IT?: So how do we control it? There are several methods, including: 1.

Mechanical: Hand pulling, hoeing, tilling and mowing.

2. Cultural: Grazing, burning and re-vegetation.

3. Biological: Releasing various insects and/or pathogens.

4. Chemical: Application of pre-emergence or post-emergence herbicides.

Of the above four methods available, many are not practical for the homeowner. It is not likely that most homeowners can apply grazing, burning and re-vegetation or purchase and release specialty insects and pathogens. Even large scale tilling is more appropriate for the large commercial agricultural farmers.

So, the best control methods for the homeowner are Mechanical and Chemical.

Mechanical Control: Is most effective for small patches and correct timing is critical.

- Hand pull or hoe (cut off the roots), after bolting (May), but before flowering (June-July).
- Tilling can be done to detach the roots and is best done in May-June, before flowering and viable seeds are produced. This method may not give the best results because soil disturbance may bring new seeds to the surface.
- Mowing or weed wacking is best done after bolting (May), but before flowering (June- July). Cutting twice per year is recommended for best results.

Chemical Control: There are several herbicides available to the commercial agricultural operator, which are only applied under registration and not available to homeowners. These herbicides include active ingredients of either *Aminopyralid* (under brand name Milestone), *Triclopyr* (brand name Garlon), *Clopyralid* (brand name Transline), and several others.

There are currently only a few herbicide products which homeowners can obtain right off the retail shelves to kill Yellow Starthistle. The active ingredients to look for are *Glyphosate* found in many brand names including "Remuda" by Monterey, and "Round-Up" by Monsanto; or *Clopyralid* found in recently available "Star Thistle Killer" by Monterey.

Glyphosate is a post-emergent herbicide, meaning that it is applied to green growing plants. This herbicide is "non-selective", meaning that it will kill most plants that it comes in contact with. Follow the manufacturer's instructions but generally application is recommended at the bolting, spiny and early flowering stage. Apply spot treatments (individual plants), after the last spring rain (March-April). Apply broadcast / wide-spread treatment after annual grasses and other desirable annuals have died, but before the Yellow Starthistle flowers (June-July).

Clopyralid is a pre-emergent and post-emergent herbicide, meaning that it can be applied before the seedling emerges as well as when the plant is in the growing stages. This herbicide is "selective" meaning that it will kill only specific broadleaf plants, and not affect most grasses. Follow the manufacturer's instructions but generally application is recommended at the seed, seedling, and until early bolting stages (January-April).

Attention when using herbicides:

- Remember to read the label and follow all requirements.
- Wear personal protective equipment when applying.
- Avoid sensitive areas (water bodies, non-target plants).
- Avoid drift.

References:

- "Yellow Starthistle Management Guide", by the California Invasive Plant Council, Sept. 2006.
- <http://www.cal-ipc.org/liplmanagement/pdf/NSTBiology.pdf>
- <http://danr.ucop.edu/ucce/rr/range0'l.htm>
- www.ipm.ucdavis.edu

Yellow Starthistle Growth Cycle



Seedling stage



Rosette stage



Early bolting stage



Winged stems



Late bolting stage



Flowering stage

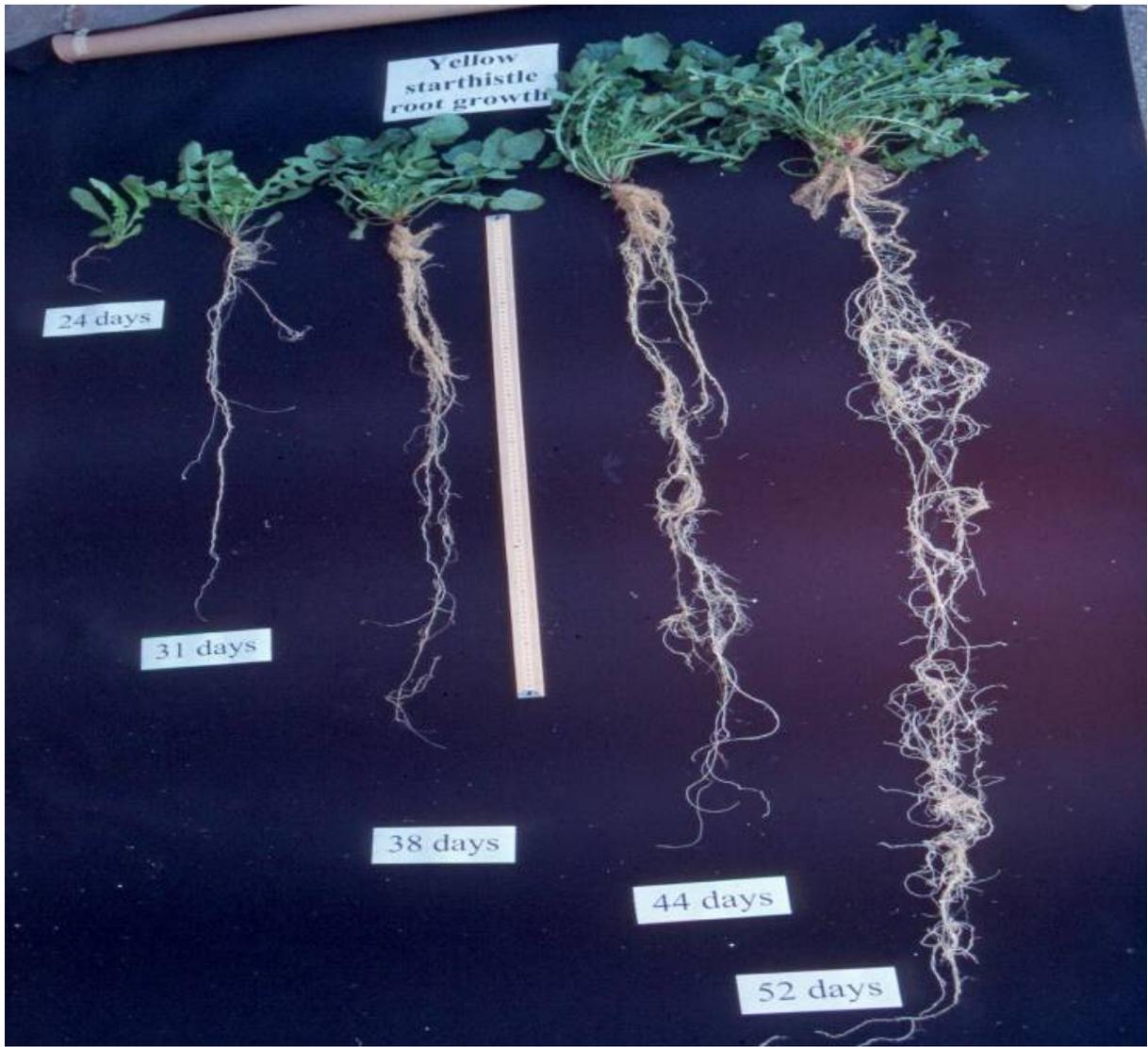


Flowering stage – seed head



Full flowering stage

Yellow Starthistle Root System



Roots go deep. Huge water user.



Root system



How is Yellow Starthistle spread?