

Weed Management Area

16th Annual Continuing Education Seminar for Ranchers

Control Methods for Yellow Starthistle, Tocalote, Purple Starthistle and Milk Thistle



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Most information in this presentation comes from
DiTomaso, J.M., G.B. Kyser et al. 2013. **Weed Control in Natural Areas in the Western United States**. Weed Research and Information Center, University of California. 544 p.



Weed Control in Natural Areas in the Western United States

Weed Research & Information Center • University of California



Yellow Starthistle



Herbicide
Grazing
Mowing
Burning

Yellow Starthistle - Herbicide



Seedling stage



Rosette stage



Bolting. Bolting is a stage of vigorous shoot growth during the time of greatest light availability.

Photo: <http://www.cal-ipc.org/docs/ip/management/pdf/YSTMgmtweb.pdf>

Aminopyralid (Milestone) is the best option to control yellow starthistle. Spray from seedling to mid-rosette stage.
Clopyralid (Transline) is also very effective. Spray from seedling to mid-bolting stage.

Yellow Starthistle– Some Herbicide Options

Product Name	Chemical Name	Rate per acre	When to Spray
Milestone	Aminopyralid	3 to 5 oz	<ul style="list-style-type: none"> • Seedling to mid-rosette stage • Fall, before plants emerge • Post-emergence applications are more effective • Aminopyralid is very effective on all starthistles
Transline	Clopyralid	0.25 to 0.67 pint	<ul style="list-style-type: none"> • Seedling to mid-bolting stage, most effective during late rosette stage (but before bolting) • Fall, before plants emerge • Clopyralid is very effective on all starthistles
Roundup	Glyphosate	1.33 to 2.67 quarts (broadcast treatment)/1% to 2% v/v solution (spot treatment)	<ul style="list-style-type: none"> • From bolting to beginning of flowering • Effective for late season control

Presentation with herbicide tables will be on website



CONTACT US

Agricultural Commissioner & Sealer of Weights and Measures

Address: 3224 Southside Road, Hollister, California 95023
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Our office is open from 8:00 am to 12:00 noon, and from 1:00 pm to 5:00 pm, Monday through Friday. For after hours messages, please leave a message on extension 10 or on the phone extension of the person you are trying to reach. Your call will be answered on the next business day.

For information on phytosanitary inspection services on Saturdays and Holidays, [Click Here](#).

For information on submitting pesticide Notice of Intents, go to our [Pesticide Forms](#) page.

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LINKS

Depts & Agencies

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Quicklinks

- 2018 Health Care Open Enrollment
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- FY17-18 ADOPTED BUDGET
- General Plan Update

When using herbicides, remember to always

- Report Pesticide Use to Your County Ag Department (get operator ID)
- Read Herbicide Labels
- Follow Federal, State & Local Regulations

Yellow Starthistle - Grazing



Bolting. Bolting is a stage of vigorous shoot growth during the time of greatest light availability.

Photo <http://cal-ipc.org/ip/management/pdf/YSTBiology.pdf>



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Spiny stage – too late to graze!

Graze from time when plant has bolted to right before the spines come out on the heads.

Yellow starthistle - Mowing Spiny Stage Versus Flowering Stage



Spiny stage – you could mow when all plants are in this stage, but it's safer if you wait to mow until you see flowers.



Flower initiation, flower expansion, and full bloom stage – mow now!

Mow when 2-5% of the flowerheads are blooming.

Yellow Starthistle - Burning



Prescribed fire. California Department of Forestry & Fire Protection conducts a prescribed burn at Sugarloaf Ridge State Park in California.

Image from: DiTomaso, J.M, G. B. Kyser, and M. J. Pitcairn. 2006. Yellow starthistle management guide. Cal-IPC Publication 2006-03. California Invasive Plant Council: Berkeley, CA. 78 pp. Available: www.cal-ipc.org.

Burn when yellow starthistle is just starting to flower.

Tocalote/Maltese Starthistle/Malta Starthistle

Yellow Starthistle



Photo by J. Zylstra, SBNF



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Tocalote/Maltese Starthistle/Malta Starthistle



Photo by J. Zylstra, SBNF

Burning – effectiveness not known, but probably NOT practical
Grazing – effectiveness not known, but probably effective (same timing as YST – bolting to before spiny stage)
Mowing – same as for yellow starthistle
Herbicide



Tocalote – Some Herbicide Options

Product Name	Chemical Name	Rate per acre	When to Spray
Milestone	Aminopyralid	4 to 5 oz	<ul style="list-style-type: none"> • Before plants emerge • From seedling to mid-rosette stage • Aminopyralid is very effective on all starthistles
Transline	Clopyralid	0.25 to 0.67 pint	<ul style="list-style-type: none"> • Before plants emerge • Seedling to mid-bolting, but best right before bolting • Clopyralid is very effective on all starthistles
Roundup	Glyphosate	1.33 to 2.67 quarts (broadcast treatment)/1% -2% v/v solution (spot treatment)	<ul style="list-style-type: none"> • Bolting to beginning of flowering • Very effective for late season control • No soil residual • Non-selective, so be careful if there are plants you want in the field.

Purple Starthistle



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Grazing – not effective

Burning – not effective

Mowing – full bloom – won't kill plants, but will reduce seed production

Herbicide

http://wric.ucdavis.edu/information/natural%20areas/wr_C/Centaurea_calcitrapa-iberica.pdf

Purple Starthistle – Some Herbicide Options

Product Name	Chemical Name	Rate per acre	When to Spray
Milestone	Aminopyralid	4 to 7 oz	<ul style="list-style-type: none"> • Fall from emergence through rapid growth • Spring from rosette to bolting • Residual control of seedlings if sprayed in late winter to early spring
Transline	Clopyralid	0.67 to 1.33 pint	<ul style="list-style-type: none"> • From emergence to rosette stage (before bolting)
Roundup	Glyphosate	3 quarts (broadcast treatment)/1.5% v/v solution (spot treatment)	<ul style="list-style-type: none"> • From emergence to when most individuals are at bud stage • No soil residual • Non-selective, so be careful if there are plants you want in the field.

Milk Thistle



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Purple starthistle



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Milk Thistle



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Grazing – not effective
Burning – not effective
Mowing – just before flowers open
Herbicide

Milk Thistle – Some Herbicide Options

Product Name	Chemical Name	Rate per acre	When to Spray
Milestone	Aminopyralid	3 to 5 oz	<ul style="list-style-type: none">• Fall – seedling and rosette stages• Spring/early summer – rosette and bolting stages
Transline	Clopyralid	0.25 to 1 pint	<ul style="list-style-type: none">• Seedling to bud stages

Thank You

