

## Invasive thistles of Bay Area counties

Species	Life habit	Reproduction	Mowing?
Woolly daisy thistle	Annual weed	Germinates throughout winter, maybe into summer	Mow right before flowering
Yellow starthistle			
Stinkwort			
Purple starthistle	Perennial weed	Germinates with rainfall <i>and</i> <i>also</i> sprouts from the roots	Mow right before flowering – will have to repeat
Artichoke thistle			

## Some common purple-flowered thistles (annuals found on disturbed sites)

Italian thistle  
Milk thistle  
Bull thistle

## Herbicides for controlling thistles

Product	Chemical	Rate per acre	Soil residual	Good for	Best timing
Selective soil-residual chemicals for emerged plants and seedlings					
<i>Milestone</i>	aminopyralid	3 to 7 oz	3-6 months	Most thistles (not stinkwort)	Mid to late winter
<i>Transline</i>	clopyralid	2/3 pint to 1 1/3 pint	2-3 months	Annual thistles; also good for purple starthistle	Late winter to early spring
Short or no residual; for emerged plants					
<i>Milestone VM+</i>	triclopyr + aminopyralid	2 to 3 qts	1-2 months	Most thistles	Spring
<i>Garlon</i>	triclopyr	up to 2 qts	None	Most broadleaf plants	Late spring to summer
<i>Roundup</i> and others	glyphosate	up to 2 qts	None	Almost anything green	Late spring to summer (NOT in winter)

## Timing for soil-residual herbicides

*Milestone* and *Transline* have both foliar activity and some soil residual, so they will control green plants at the time of application as well as new seeds which germinate after application. They are generally safe for grasses, but will control most legumes as well as thistles.

Based on our studies, the best time of application for these herbicides, for both woolly distaff thistle and purple starthistle, is February to March. Too much earlier, and the soil residual won't last through the rainy season. By late spring, the plants grow large and are harder to control. In our trials, *Transline* worked almost as well as *Milestone* but you have to use 3 times as much. *Transline* (clopyralid) is available in a generic form, so depending on the price it may be the better deal.

## Integrated management

Integrated management is the use of several control techniques which work together to give better results. For example, we have found that summer burning (before flowering) followed by winter application of *Milestone* or *Transline* is the best treatment for yellow starthistle. This might be a good treatment for woolly distaff thistle, but has not been tested.

## Information sites

### wric.ucdavis.edu

- Training videos
- Herbicide susceptibility charts
- Weed Blog
- Weed identification tool
- Eventually, pages from the "Weed Control in Natural Areas" book

### ipm.ucdavis.edu

- Pest control notes and fact sheets
- Weather data
- Free online training courses

### cal-ipc.org

- Invasive plants information and impacts
- Maps of invasive plants
- Weed management areas
- Order "Weed Control in Natural Areas"

### genericherbicides.com

- Inexpensive source for clopyralid, triclopyr, glyphosate, and surfactants