



(C) 2015 Zeynel Cebeci



(C) 2014 Krzysztof Ziarnek



(C) 2009 Eugene Zelenko

Thistles: Identification and Management

Rebecca Ozeran

1 May 2018

Common thistles in the San Joaquin Valley

<i>Carduus</i>	<i>Centaurea</i>	<i>Cirsium</i>	<i>Silybum</i>	<i>Onopordum</i>
Italian thistle	Yellow starthistle	Bull thistle	(Blessed) milkthistle	Scotch thistle
				
	Tocalote (Malta starthistle)	Canada thistle		All of these species are found at least one of Fresno, Kern, Kings, Madera, or Tulare Counties
				

Identification

- Many species start as a basal rosette in fall
- Mature plants can have dense & bushy or tall & stemmy appearance
- Purple/pink or yellow-flowered



Identification

- Why does thistle species matter?
 - Varying levels of risk to animals
 - Varying competition with forage
 - Varying susceptibility to control options



Identification – 1. Italian thistle

- *Carduus pycnocephalus*
 - narrow, spiky flower heads
 - winged, spiny stems branching above the base
 - found in Fresno, Kern, Madera, Tulare



Identification –

2. *Centaurea* thistles

- YELLOW STARHISTLE (*C. solstitialis*)
 - long, yellow/white spines on phyllaries
 - can get a bushy structure
 - found in Fresno, Kern, Madera, Tulare
- TOCALOTE (MALTA STARHISTLE, *C. melitensis*)
 - stouter flower heads and shorter, redder spines on phyllaries
 - found in all 5 counties



Identification –

3. *Cirsium* thistles

- Canada thistle (*C. arvense*)
 - smooth stems, non-spiny flowerheads
 - flowers Jun-Oct
 - found in Fresno, Kern, Tulare
- Bull thistle (*C. vulgare*)
 - large spiky looking flowerheads
 - lots of branching, dense plant
 - flowers Jun-Oct
 - found in all 5 counties



Identification – 4. Blessed milk thistle



- *Silybum marianum*
 - Distinct, thick white veins
 - large, broad leaves without deep lobes
 - dense plant with multiple, wingless stems
 - long perpendicular phyllaries on large heads
 - found in Fresno, Kern, Madera, Tulare



Identification – 5. Scotch thistle

- *Onopordum acanthium*
 - many stems and branching
 - large “globe-shaped” flowerheads
 - whitish woolly leaves and winged stems
 - flowers July-Sep
 - found in Fresno, Kern, Tulare



Control methods

Carduus

Italian thistle

- Hand-pull, cut or mow when flowering, before seeds mature
 - Herbicides most effective during rosette and rapid growth
 - Targeted grazing?
- * May need to sever the root belowground to prevent regrowth from hand pulling



Control methods

Centaurea

Yellow starthistle

- Hand-pull individual plants, cut or mow (early flowering, spiny stage)
- Targeted goat grazing

- Herbicides most effective during rosette or pre-bolting stages

Tocalote (Malta starthistle)

- Similar to yellow starthistle control, slightly earlier



Control methods



Cirsium

Bull thistle

- Hand pull, till, or mow at early flowering
- Sheep, goats, horses may graze it

- Herbicides most effective during rosette and rapid growth

Canada thistle

- Mowing (repeat after 3-4 weeks)

- Herbicides effective on young plants, variable timing



Control methods



Silybum

(Blessed) milkthistle

- Mowing before flowers open
- Tilling to control seedlings, young plants

- Herbicides most effective during rosette and rapid growth



Control methods



Onopordum

Scotch thistle

- Dig up individual plants
- Sheep, goats, horses may graze it
- Herbicides most effective during rosette

Control methods

Carduus



Centaurea



Cirsium



Silybum



Onopordum



ALL

- Maintain vigorous competitors (strategic grazing, seeding) – especially grasses
- Burning not likely to be effective

Control methods

<i>Carduus</i>	<i>Centaurea</i>	<i>Cirsium</i>	<i>Silybum</i>	<i>Onopordum</i>
Italian thistle	Yellow starthistle	Bull thistle	(Blessed) milkthistle	Scotch thistle
<ul style="list-style-type: none"> • Hand-pull, cut or mow when flowering, before seeds mature • Herbicides most effective during rosette and rapid growth • Targeted grazing? 	<ul style="list-style-type: none"> • Hand-pull individual plants, cut or mow (early flowering, spiny stage) • Targeted goat grazing • Herbicides most effective during rosette or pre-bolting stages 	<ul style="list-style-type: none"> • Hand pull, till, or mow at early flowering • Sheep, goats, horses may graze it • Herbicides most effective during rosette and rapid growth 	<ul style="list-style-type: none"> • Mowing before flowers open • Tilling to control seedlings, young plants • Herbicides most effective during rosette and rapid growth 	<ul style="list-style-type: none"> • Dig up individual plants • Sheep, goats, horses may graze it • Herbicides most effective during rosette
	Tocalote (Malta starthistle)	Canada thistle	ALL	
	<ul style="list-style-type: none"> • Similar to yellow starthistle control, slightly earlier 	<ul style="list-style-type: none"> • Repeated mowing (3-4 wks) • Herbicides effective on young plants, variable timing 	<ul style="list-style-type: none"> • Maintain vigorous competitors (strategic grazing, seeding) – especially grasses • Burning not likely to be effective 	

Quiz

- Which thistle is this?
- Based on the picture, what kind of treatment is possible at this stage of growth?



Quiz

- Which thistle is this?
- Based on the picture, what kind of treatment is possible at this stage of growth?



Quiz

- Which thistle is this?
- Based on the picture, what kind of treatment is possible at this stage of growth?



Key reference

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.

Available from ucanr.edu – buy the book here:
<http://anrcatalog.ucanr.edu/Details.aspx?itemNo=3547>

Other weed publications available at
<http://wric.ucdavis.edu/publications/pubs.htm>

Thank you!

Photo credits

- Italian thistle flower head and rosette images © Joe DiTomaso/UC Regents, retrieved from <http://ucanr.edu/repository/>; full plant image © Harry Rose 2014, retrieved from <https://www.flickr.com/photos/macleaygrassman/15376203149/>; additional flower head image © Zeynel Cebeci 2015, retrieved from https://commons.wikimedia.org/wiki/File:Carduus_pycnocephalus_-_Italian_thistle_02.jpg
- Yellow Starthistle flower heads, 1) © Eugene Zelenko 2009, 2) © Joe DiTomaso/UC Regents, retrieved from <http://ucanr.edu/repository/>; totalote flower heads and yellow starthistle full plant photo also © Joe DiTomaso/UC Regents, retrieved from <http://ucanr.edu/repository/>
- Bull thistle plant image © RI 2007, retrieved from https://commons.wikimedia.org/wiki/File:2007_Cirsium_vulgare_leaves.jpg; flower head image © Jonas Bergsten 2005, retrieved from https://commons.wikimedia.org/wiki/File:Thistle_20050725_001.jpg
- Canada Thistle flower head image © Thomas Nugent 2008, retrieved from https://commons.wikimedia.org/wiki/File:Canada_Thistle_-_geograph.org.uk_-_893134.jpg; whole plant image © Wikimedia Commons user 4028mdk09 2010 retrieved from https://commons.wikimedia.org/wiki/File:Bl%C3%BChende_Distel.JPG
- Scotch Thistle plant image © Joe DiTomaso/UC Regents, retrieved from: <http://ucanr.edu/repository/>; flower head image retrieved from <https://commons.wikimedia.org/wiki/File:Eselsdistel.JPG>
- Blessed milkthistle flower head image © Dinesh Valke 2011, retrieved from: [https://commons.wikimedia.org/wiki/File:Blessed_Milk_Thistle_\(6377308057\).jpg](https://commons.wikimedia.org/wiki/File:Blessed_Milk_Thistle_(6377308057).jpg); leaf image © Wikimedia Commons user Valérie75 2006, retrieved from https://commons.wikimedia.org/wiki/File:Silybum_marianum_001.jpg
- “Quiz” photos: Italian thistle © 2018 Rebecca Ozeran; Bull thistle retrieved from http://soilcropandmore.info/crops/Weeds/bull_thistle.htm; Scotch thistle © 2011 Isidre Blanc, retrieved from [https://commons.wikimedia.org/wiki/File:ONOPORDUM_ACANTHIUM_-_AGUDA_-_IB-707_\(Cardot_gros\).JPG](https://commons.wikimedia.org/wiki/File:ONOPORDUM_ACANTHIUM_-_AGUDA_-_IB-707_(Cardot_gros).JPG)