

# Weed Management for Master Gardeners

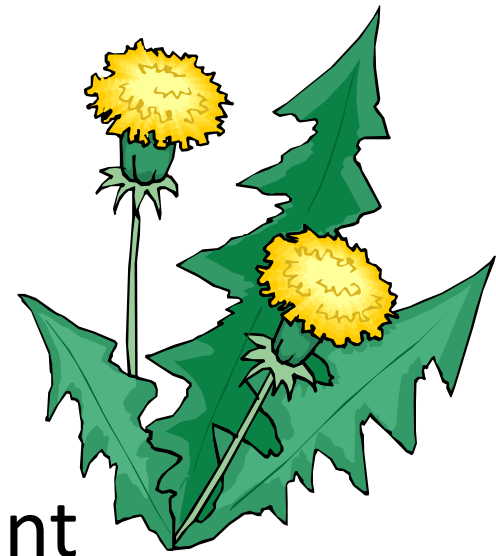
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University of Arizona Cooperative Extension,  
Yavapai County

3/27/2024

# What is a weed?

- A plant without a positive role
- A plant out of place
- A plant that interferes with management objectives
- Usually a non-native plant



## **What is an invasive weed?**

- A plant that adversely affect the habitats they invade economically, environmentally, and/or ecologically

## **What is a noxious weed?**

- An invasive weed that has been designated by law or regulation because of above listed factors



# Overview of Weed Management

- Life Cycles
- Identification
- Non-Chemical Weed Management
- Herbicides
- Weed IPM Examples



# Life Cycles

- **Annuals weeds** complete their life cycle (seed to seed) within one growing season or one calendar year
- **Biennial weeds** complete their life cycle over two growing seasons
- **Perennial weeds** continue to regrow over a few seasons to many seasons
- **Creeping perennial** have vegetative structures (stolons or rhizomes) that permit them to reproduce asexually



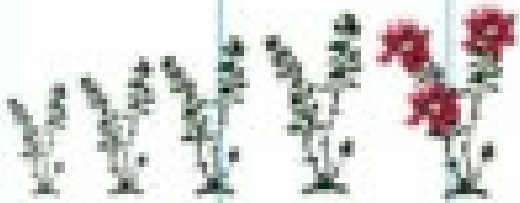
# Life Cycles (cont.)

- **Woody perennials** are perennial weeds that grow into a tree or shrub
- **Cool Season** weeds germinate/grow in the fall through early spring (October to March), when soil temperature and moisture are favorable (may be annual, biennial, or perennial)
- **Warm Season** weeds germinate as temperatures rise in the spring (April to May) through summer, whenever soil moisture is adequate





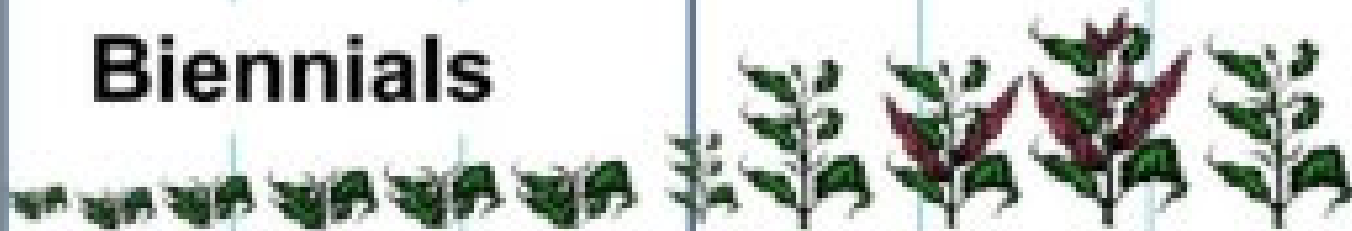
## Summer Annuals



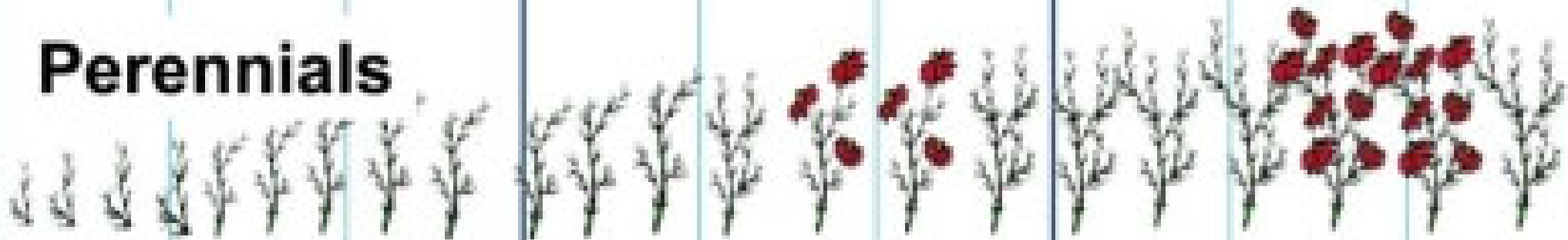
## Winter Annuals



## Biennials



## Perennials



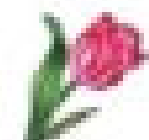
Spring



Summer



Fall



Spring



Summer



Fall



Spring



Summer



Fall



**Purslane, (*Portulaca oleracea*), annual,  
warm.**





# Filaree, (*Erodium cicutarium*), annual, cool.





# London rocket, (*Sisymbrium irio*), annual, cool.





# Sowthistle, (*Sonchus oleraceus*), annual, warm.





# Common Weeds: Annual brome grasses, (*Bromus* sp.), annual, cool.



Red brome



Ripgut brome



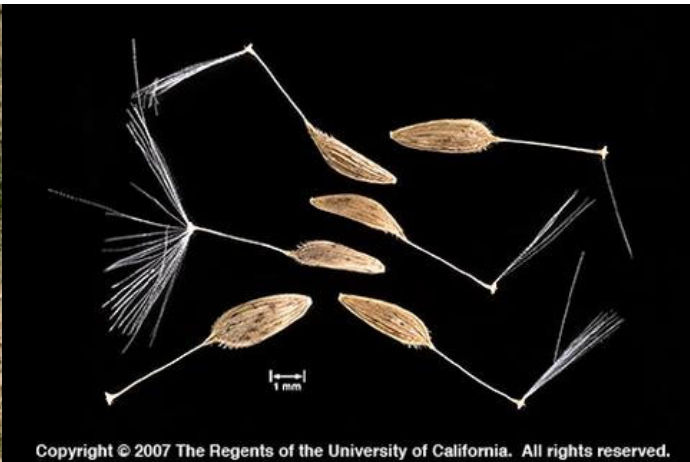
Downy brome



1 cm



# Prickly lettuce, (*Lactuca serriola*), annual, cool.





# Hare barley, (*Hordeum murinum* ssp. *leporinum*), annual, cool.



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# Puncturevine, (*Tribulus terrestris*), annual, warm.



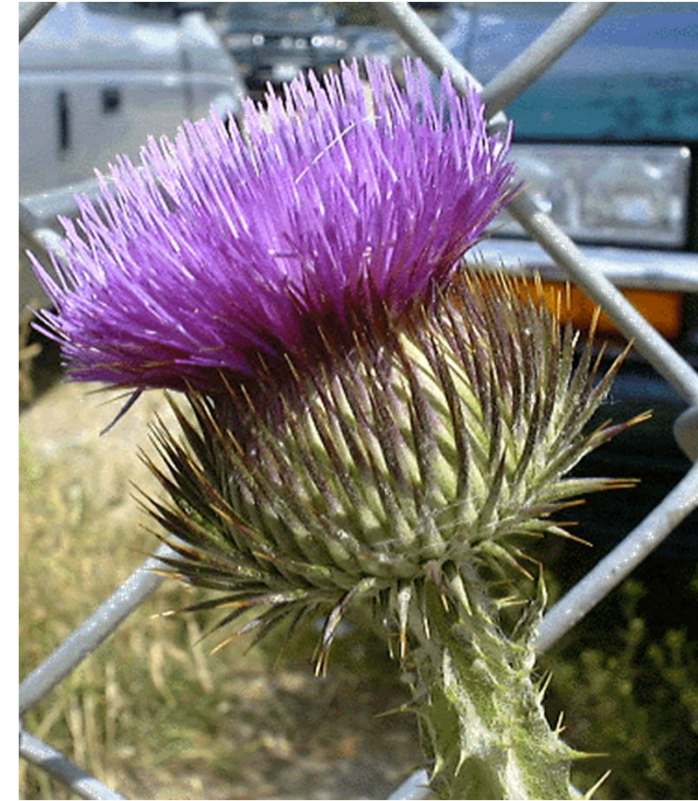


# Field sandbur, (*Cenchrus echinatus*), annual, warm.





**Scotch thistle (*Onopordum acanthium*),  
biennial, cool.**



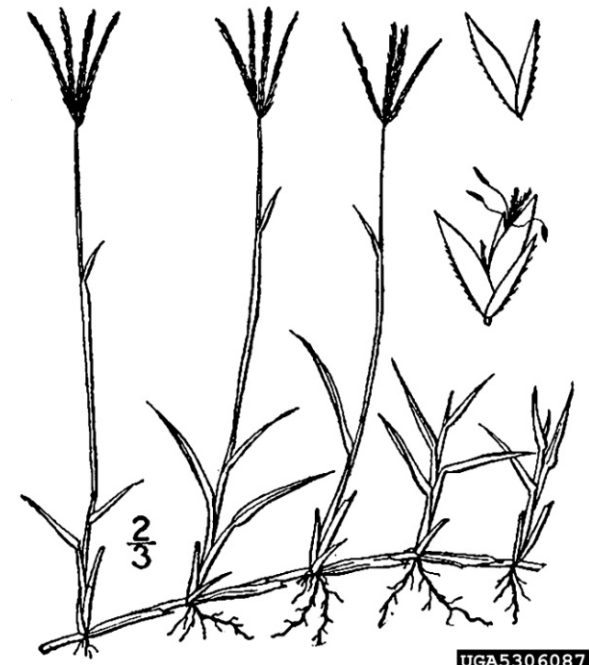


**Diffuse knapweed (*Centaurea diffusa*),**  
biennial/perennial, cool.





# Bermudagrass (*Cynodon dactylon*), perennial, warm.





# Johnsongrass (*Sorghum halapense*), perennial, warm.





# Field Bindweed (*Convolvulus arvensis*), perennial, warm.





# Silverleaf nightshade (*Solanum elaeagnifolium*), perennial, warm.





# Salt cedar (*Tamarix parviflora*), woody perennial.





# Russian olive (*Elaeagnus angustifolia*), woody perennial.





# Tree of heaven (*Ailanthus altissima*), woody perennial.





# Siberian elm (*Ulmus pumila*), woody perennial.





# Non-Chemical Weed Management

- Prevention (be aware of weed propagules)
- Competition/restoration/planting density
- Solarization
- Mulching
- Mechanical control (pulling, mowing, etc.)
- Biological control (grazing/herbivory/fungi/bact)





# NCWM: Prevention

- Clean equipment before going to a site
- Be suspicious of horse manure, imported soil, other materials or objects
- Buy certified weed-free seed
- Minimize unnecessary disturbance
- Learn to recognize weed seedlings
- Early detection and removal



**CERTIFIED SEED**

KIND RUSSIAN WILDRYE

VARIETY BOZOISKY SELECT

CERT. NO. G-1386; LOT: 06010

**UTAH CERTIFIED SEED**

The seed in this container, with label properly affixed thereto, was produced in compliance with the Seed Certification Requirements and Standards established by the Utah Crop Improvement Association for the Certified class of certified seed. Compliance (and any warranty, expressed or implied) is based on and limited to the identification of seed source, and the results of representative field inspections and seed sample analysis.

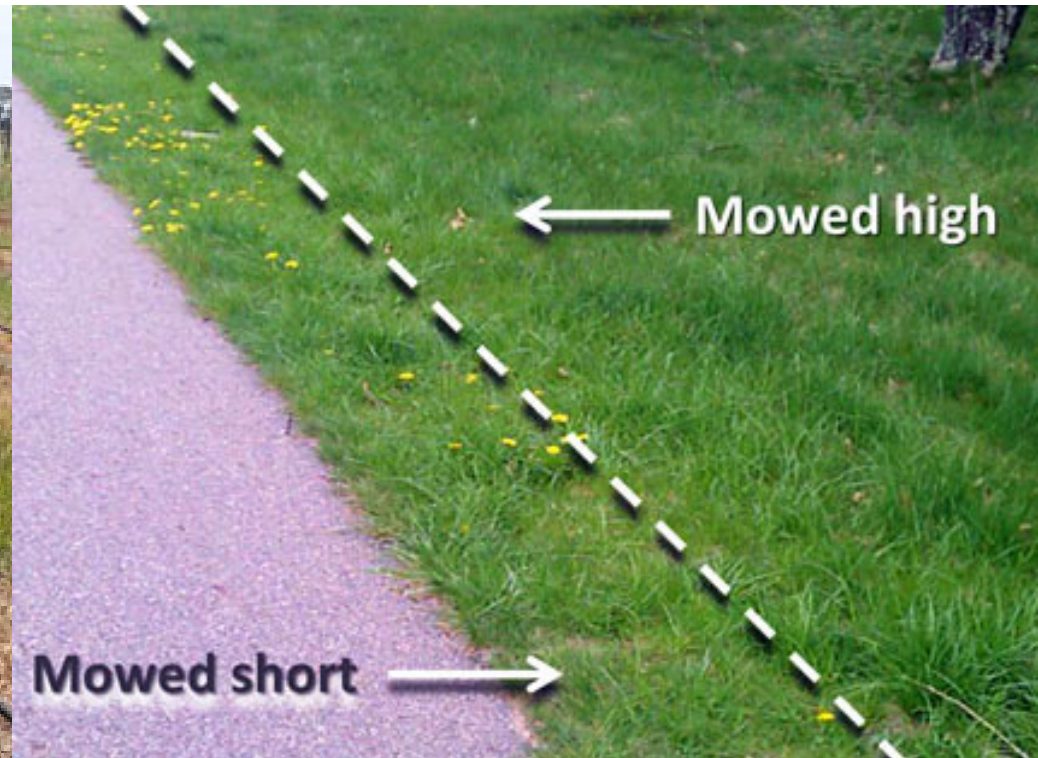
This tag must be accompanied by a seed analysis label to comply with state and federal seed laws.

UTAH CROP IMPROVEMENT ASSOCIATION, Utah Agricultural Experiment Station, Logan, Utah 84322-4855

**MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES**

# NCWM: Competition

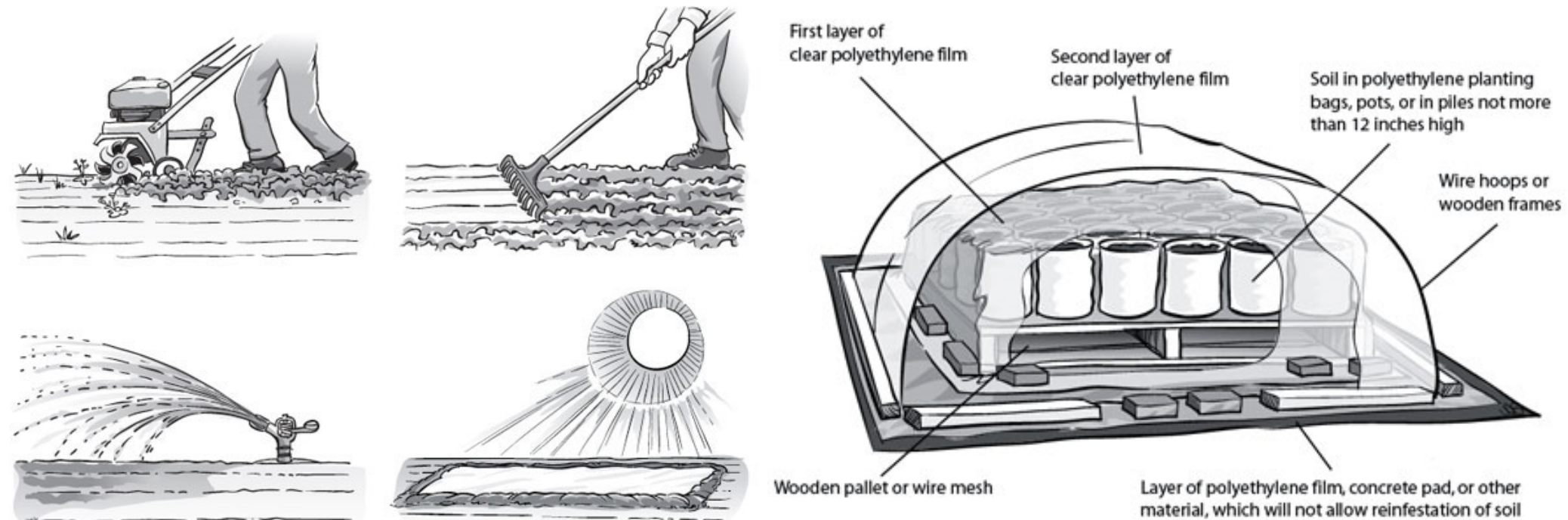
- Mow lawns taller (deeper roots more canopy)
- Plant densely to crowd out weeds
- Restore disturbed areas with desirable plants
- Think about warm and cool season competitors





# NCWM: Solarization

- Clear plastic placed above irrigated soil and sealed at edges
- Allow to solarize





# NCWM: Mulching

Mulches work well for annual weeds

- Inorganic mulches (gravel, rubber, brick chips)
- Synthetic mulches (black plastic, geotextiles, landscape fabric)
- Organic mulches (bark, chips, straw) are preferable to inorganic and synthetic mulches





# NCWM: Mechanical

- Hand pulling/cultivation (sparse populations)
- Mowing (favors grasses)
- Burning (broadleaf annuals)
- Disking (don't go deeper than necessary)
- String trimmer (best on annual broad leafs)





# NCWM: Biological

- Usually most effective where weeds are well established
- Will never completely eradicate a weed
- Grazing, insects, fungi, bacteria, and other living organisms having an affinity for the weed





# Herbicides

Should be used in combination with as many other appropriate weed management practices as possible

- Preemergent
- Postemergent
  - Systemic
    - Selective
    - Nonselective
  - Contact
- Soil Sterilants





# Herbicides: Preemergent

Used to prevent annual weed seeds from germinating in established landscape areas

- Many types – some are selective
- Some sold in combinations
- Check the label to determine which ornamental species the material can safely be used around and which species of weeds are controlled



# Herbicides: Postemergent

Postemergent herbicides can be used to control established weeds

- Systemic formulations
  - go into plant and translocate to roots
  - Nonselective – kills all plants
  - Selective
    - Broadleaf (Weed B Gon, 2,4-D)
    - Grass Killers (clethodim and fluazifop)
- Contact – for annuals only – kills leaves only
  - Glufosinate and diquat
  - Some are considered “least toxic” – pelargonic acid, clove oil, acetic acid (for small annuals)





# Herbicides: Soil Sterilants

Used to prevent plant growth in industrial and commercial areas – not appropriate for home use

- When used in landscapes, these products often kill or injure desirable landscape plants



# Herbicides: Killing Woody Plants

- Digging up root system
- Stump grinding
- Black plastic
- Cut Stump Treatment with glyphosate or triclopyr – see publication AZ1401 – *Cut Stump Application of Herbicides to Manage Woody Vegetation*, (<http://cals.arizona.edu/pubs/garden/az1401.pdf>)





# Herbicides: Timing

## Preemergent

- Late summer for cool season annual weeds
- Late winter for warm season annual weeds

## Systemic

- Plant must be actively growing for glyphosate to be effective – summer

## Cut Stump

- Fall is usually when woody plants are moving stored materials into the root system – this is a good time to treat unwanted woody plants



# Recognizing Herbicide Injury

Herbicide injury symptoms vary according to plant species and the herbicide and can include the following:

- yellowing (chlorosis)
- bleaching
- root stunting
- distorted growth
- death of leaves

It takes time for herbicide residues to completely degrade.





# Additional Resources

- University of California IPM Weeds (for home)  
(<http://www.ipm.ucdavis.edu/PMG/menu.weeds.html>)
- Utah State Extension Weed Control (for small farm)  
(<http://extension.usu.edu/smac/html/weed/>)
- Montana State University Cropweed Management (for small farm)  
(<http://www.ipm.montana.edu/CropWeeds/Index.htm>)

