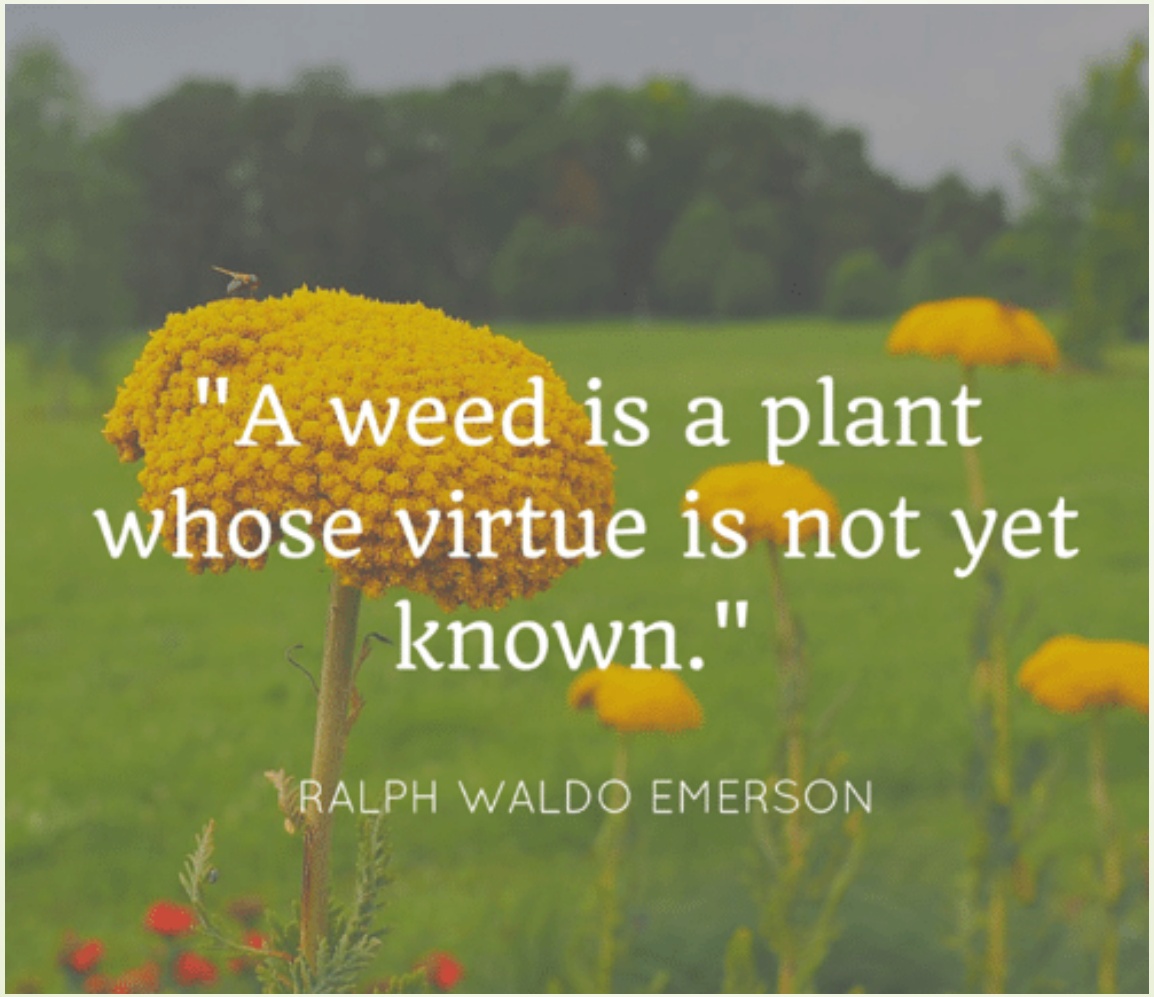
Managing Weeds

Master Gardener Training

What is considered a weed?



What is considered a weed?

- Definition: a plant that is a hazard or a nuisance or one that causes injury to people, animals, or a desired crop.
- Weeds have extended their range due to a myriad of practices
- Plants that may be tame in their native environment, can become invasive in new locations

Himalayan blackberry was imported for fruit and live fencing…

Weeds can cause some headaches...

- Compete with desirable crops
- Reduce aesthetic qualities of a landscape
- Obstruct sight lines on roadways
- Interfere with water drainage
- Create fire hazards
- Cost a lot of $$ to manage

Keys to Weed Management

A systems approach can help us manage weeds. What are you goals?

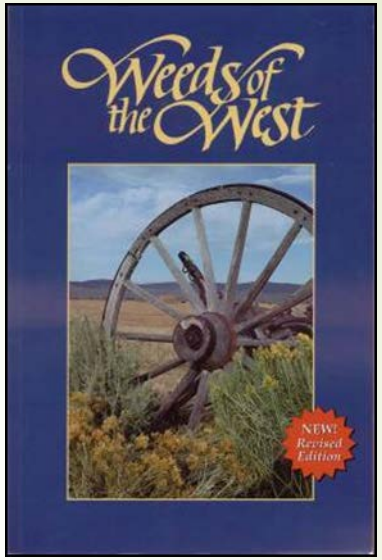
- Garden
- Pasture
- Farm or field
- Water ways
- Community spaces

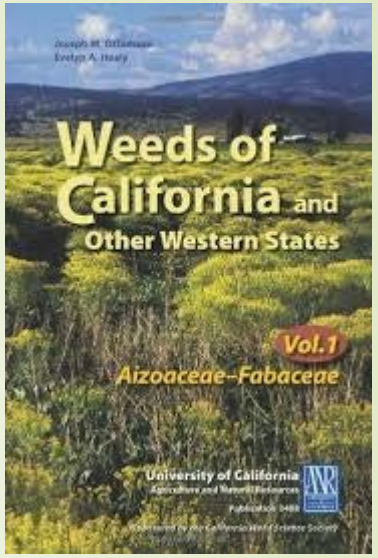
Keys to Weed Management

- ID weed, understand biology of weed and growth habit
- Prevent the introduction of new weeds
- Discourage new weeds so they can't compete with desirable plants
- Stop weeds from going to seed in order to reduce the weed seed bank in soil
- Understand your tolerance for weeds and undesirable plants

Weed Identification

- Broadleaf, grasses, sedges, aquatics
- Lifecycles: Perennials, annuals (winter and summer), biennials





Integrated Weed Management

- Prevention
- Cultural Control
- Physical Control
- Chemical Control
- Biological Control

Prevention

- The EASIEST method of weed control
- Get to know really tough weeds in the seedling stage and look for them

- Beware of what you bring in to your garden…
  - Potting soil: nutsedge & oxalis
  - Landscape soil: bindweed, creeping bentgrass
  - Compost: wild onion

- Limit “friendship spreading”or trading of invasive plants with your neighbor

Mechanical Control

- Mowing
- Plowing
- Digging
- Mulching

Manual Control

- Hoeing
- Pulling
- For Small populations
- Biennials and some perennials
- Caution: Disturbance can lead to new flush

Weed competition

- Cultivation and tilling can be effective on younger weeds. . . but can also bring seeds to soil surface.
- Weed seed bank remains viable in soil for a long time
- Weeds germinate quickly, reproduce rapidly, disperse seeds efficiently, thrive in disturbed soil

Prevention and Physical Control

- Organic Mulch:
  - Can build soil quality
  - Conserves water
  - Minimizes erosion
  - Prevents emergence
  - Must be weed seed free

For – Annuals,
Doesn't work well for –
Perennials, Biennials

Prevention and Physical Control

- Plastic or Fabric Mulches:
  - Landscape fabric

    Cost: high Durability: Long, up to 5 years

    Advantages: Very effective, long lasting, allows air and water penetration. Disadvantages: Expense, installation somewhat more complicated. Special uses: Excellent mulch for permanent plantings of woody landscape plants. Usually topped with organic mulch or rock to make it attractive and long lasting.

Cultural Control

- Create environment for maximum competition against weeds
  - Soil Fertility
  - Crop Rotation
  - Competitive Varieties
  - Cover Crops
  - Consider Planting Date and Rate
  - Composting

Interplant crops, or plant at close spacing to encourage competition with weeds

Use drip irrigation and precise fertilizer application to avoid “feeding weeds”

Clean grounds/beds before planting

Choose vigorous crops to plant (transplants)

Intercrop short-seasoned plants with longer-seasoned ones

Specific Examples
Ecological Approaches to Weed Control

- **Manage colonization and competition by limiting access to resources**
  - mulch, transplant
- **Manage colonization and competition for space by filling the space with manageable species**

  cover crops, complementary plantings
- **Managing competition through planting arrangement**
  - Dense plantings outcompete weeds, succession planting

Think Succession!

Early Spring	Early Summer	Fall
Radish	Tomato	Beets
Kohlrabi	Pepper	Spinach
Turnip	Eggplant	Chard
Greens	Summer squash	Broccoli/Cabbage
Peas	Beans	

Chemical Control

What to know about herbicides…

- Terminology
- Systemic vs. Contact Herbicides
- Selective vs. non-selective
- Another tool in the tool box

Chemical Control

- First: Read the entire label
- Effective for specific spot treatments
- Effective on stubborn perennial weeds
- Recognize potential unintended effects…in a garden setting drift is a very real danger. Spray generally in the morning, not too early, no inversion, not rainy, not windy. Careful where you walk!
- Most labels: the minimum PPE is long sleeves etc…

Herbicide Types

- **Selective** – controls certain plants and not others. For example, most lawn herbicides control broadleaf plants, without damaging grasses. Other effect only sprouting seeds, not established plants
- **Non selective** – can potentially damage any plant. Some last a long time (residual effect) others do not.

Herbicide Types

Systemic – travel through plant's vascular system to reach site of action

- interfere with the plant's physiological and metabolic processes
- glyphosate (Roundup type products)

Contact – penetrate the cuticle and act in leaves and shoots

- kill by acute toxicity
- acetic acid
- Very few products available to homeowners

Herbicide Types

- **Pre-emergent** – put on weeds before they sprout. Prevent germination of weed seeds.
- **Post-emergent** – product is used after weeds have sprouted above ground.

Specific Example Glyphosate (Roundup)

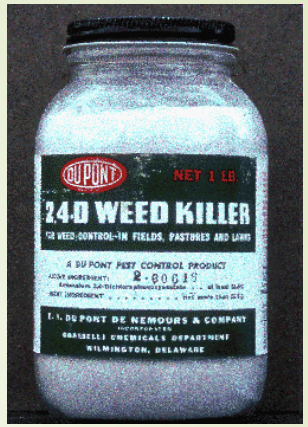
- Broad spectrum herbicide
- Systemic
- Post emergence/foliar active
- Weeds/trees/shrubs/bark
- Concentration varies by product
- Wind drift hazard/droplet size
- No residual or pre-emergent activity, use before planting but weeds will re-germinate
- The sap (plant-sugar) or phloem carries the herbicide from the leaves, down to the roots.

Examples of Herbicide drift damage

Specific Example Phenoxy Herbicides (2,4-D , Dicamba, Crossbow)

- “Weed and Feed” for Lawns
- Brush Killer
- Post emergence/foliar active
- Systemic (sugar flow)
- Volatilization hazard (air temperature)

2,4-D



- Weed B Gon MAX, PAR III, Trillion, Tri-Kil, Killex
- Mimics the effect of plant hormones and causes the plant to grow uncontrollably which leads to abnormal growth and in some plants death.
- Only effective on broadleaf (dicot) weeds
  - Will not affect lawns
- In the soil 2,4-D has a half life of less than 7 days and in water it is broken down in one to several weeks

Contact Herbicides

- Contact herbicides destroy cell membranes or interfere with cell division.
- Because a contact herbicide only affects tissue to which it is applied, complete coverage is essential.
- Not as effective on perennial weeds or grasses and most effective on SMALL broadleaf weeds

Home made weed killers

Check out what is available to use and on what in the Pacific Northwest Weed Management Handbook

Vinegar/Soap mixes as a home made “weed killer”

- Not recommended
- No label = no safety or rate applications
- Can add elevated levels of salt to soil
- Only affects top growth of weeds, not roots “burns” plants
- There are some horticultural vinegars now made with acetic acid.

Biological Control

- Use of other living organisms for the management of certain weed species
  - Insects
  - Diseases
  - Livestock
- Long-term approach

Weeds can have benefits

- Erosion control, hold top soil
- Provide habitat
- Pollinator resources
  - Best early spring wildflower

  is the **dandelion**.

What is your tolerance?

Summary

Learn

Learn to recognize common weed species in your garden or on your property

- Familiarize yourself with biology of that plant

Utilize

Utilize adaptive management strategy

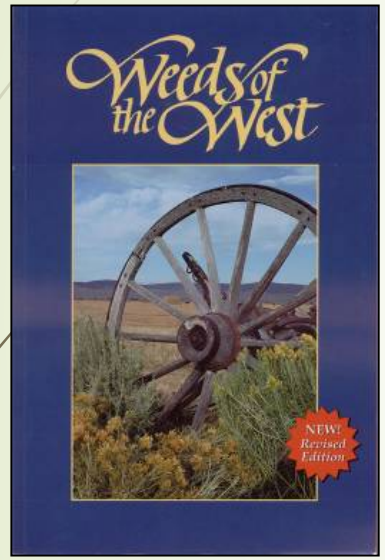
- Prevention is key
- Integrated strategy that suits your goals and lifestyle

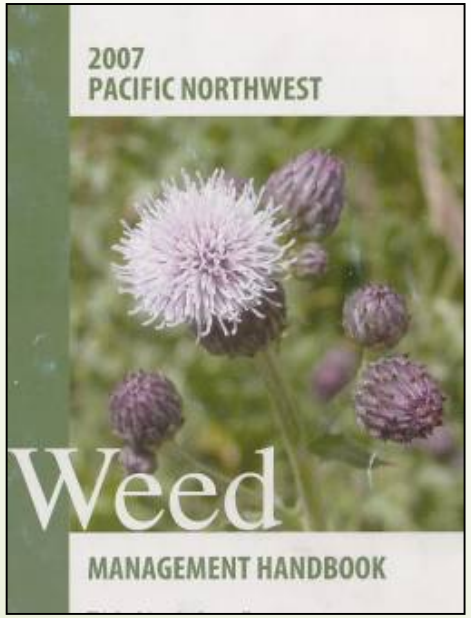
Adopt

Adopt a long-term strategy/outlook

- Learn to accept presence of some weeds
- On-going holistic management approach may be best

Resource Recommendations





PNW Handbook
http://pnwpest.org/pnw/weeds
https://pnwhandbooks.org/weed