



# Mulching and Weed Control

**University of Idaho**  
Extension

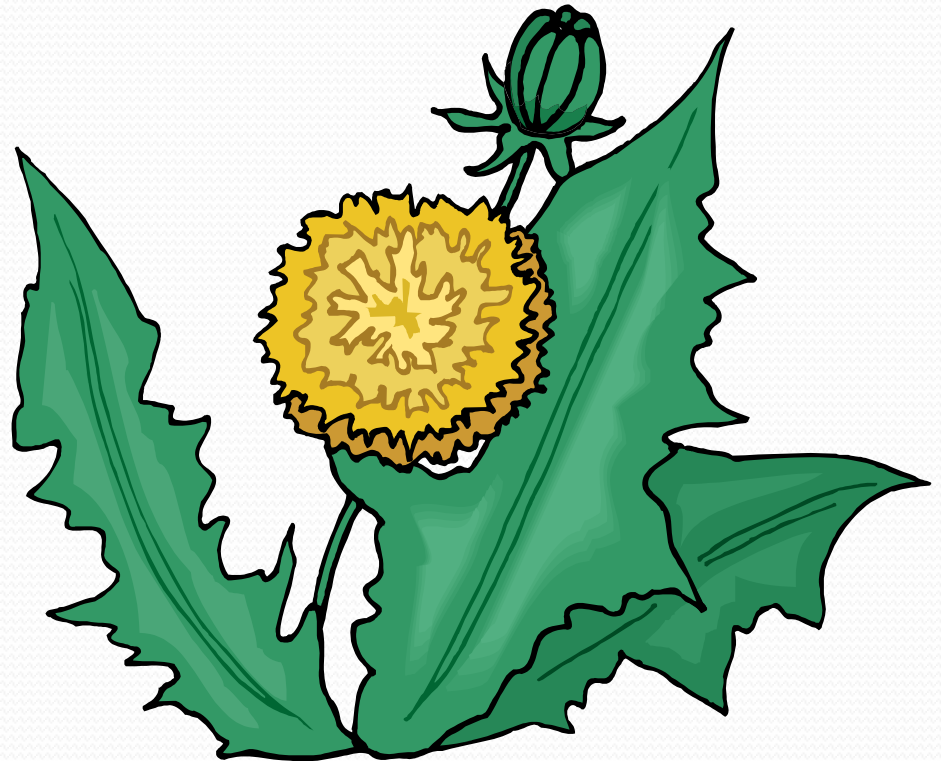
***Boundary County***

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# WEEDS, WEEDS, WEEDS

- Weeds are frequently cited as the most challenging pest problem in both organic and non organic gardens.



# What is a weed?

- A plant that is out of place and/or has the wrong timing.
- A plant considered undesirable, unattractive, or troublesome, especially one growing where it is not wanted, as in a garden.



# What weeds are in your garden?



# Critical Weed-Free Period

- Minimum length of time a crop must remain nearly weed-free to prevent reduction in yield or quality
- For most vegetables it's the first  $\frac{1}{4}$  to  $\frac{1}{3}$  of their growing season (4-6 weeks after seedlings emerge or less for transplants)
- Weeds after this period have less impact on vegetable yields

# Weed Control

- Pre emergent – controlling weeds before the crop emerges
- Pre emergent Herbicide - one that generally controls ungerminated seeds
- Post emergent – after crop has emerged
- Post emergent Herbicide – one that generally controls emerged plants

# Weed Control

- Exclusion
- Elimination
- Prevent
- Establishment
- Removal
- Amelioration

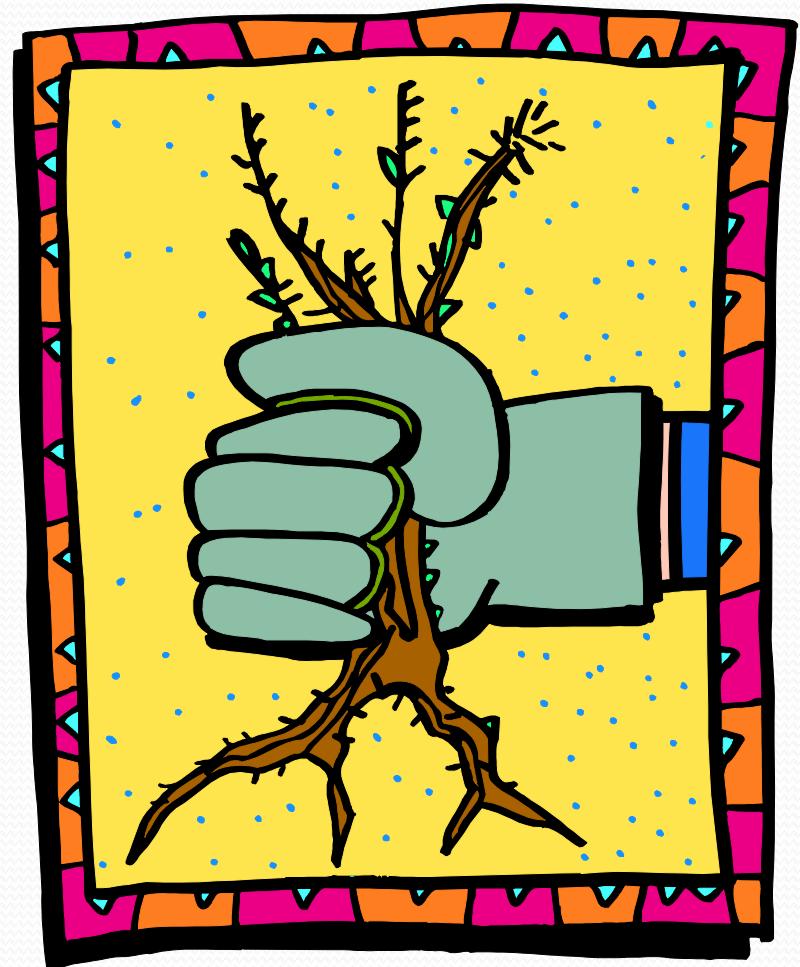
- USDA National Organic Program Standards

Crop pests, weeds, and diseases will be controlled primarily through management practices including physical, mechanical, and biological controls

- When these practices are not sufficient, a biological, botanical, or synthetic substance approved for use on the National List may be used

# Weed Control

- Solarization
- Hand Weeding
- Mulches
- Herbicides
- Organic Herbicides
- Flame Weeding
- Steam and Hot Water



# Solarization

- Till soil
- Moisten
- Place clear plastic



# Hand Weeding

- Hand weeding and cultivation are the most important weed management options in the home garden and landscape plantings and should be included in all weed management programs.



# Flame Weeding

- Stale Seedbed Technique
  - Till up planting area, then wait for weed seeds to germinate before you flame weed, then plant seeds or transplants
- Peak Emergence Technique
  - Till up planting area, plant seeds, flame weed just before vegetable seedlings emerge.

# Steam and Hot Water Weed Control

- High temperature water provides a form of thermal weed control without the danger of an open flame in arid regions.



# Herbicides – Last Resort

- Pre emergent Herbicide - one that generally controls ungerminated seeds
- Post emergent Herbicide – one that generally controls emerged plants

# Organic Herbicide

- USDA National Organic Program has The National List of Allowed and Prohibited Substances
  - Herbicides, soap-based
    - For use in farmstead maintenance (roadways, ditches, right of ways) and ornamental crops.
  - Mulches
    - Newspaper or other recycled paper, without glossy or colored inks
    - Plastic mulch and covers (petroleum-based other than polyvinyl chloride (PVC))
- Organic Materials Review Institute (OMRI)
  - The OMRI listing does not imply product approval by any federal or state government agency. It is the user's responsibility to determine the compliance of a particular product.

# Organic Herbicides

- Corn Gluten
  - Use as pre-emergent
  - Reduces seed germination
  - Does not affect transplants or lawns



# Organic Herbicides

- Vinegar
  - 10-20% Strength
  - Household is 5%
  - Can cause burns and eye damage



# Mulches

- Aluminum Foil or Aluminum Painted Mulch
- Plastic Mulches
- Degradable Mulches
- Organic Mulches

# Aluminum Mulches



# Aluminum Mulches

## Advantages

- Increased yields for numerous vegetable crops compared to bare soil (more noticeable increases in years with less-than-adequate rainfall).
- In most studies, aluminum mulches repelled aphids and thrips.
  - The reflecting light on the undersides of leaves may repel the aphids.
  - When vector insects are repelled, transmission of viruses is also reduces.

# Aluminum Mulches

## Disadvantages

- Experimented with as early as the 1950's, but was found not to be economical on a large scale.
- Hard to lay
- Expensive
- Sometimes caused physical damage to the plants that came in contact with it.

# Plastic Mulches



# Plastic Mulches

## Advantages

- Black plastic can warm the soil 4-5°F and eliminate weed problems since light transmission is drastically reduced.
- Red mulch has been shown to increase early tomato yields, but not overall yields in all studies.

# Plastic Mulches

## Disadvantages

- Some insects like aphids, thrips, and whiteflies may be attracted to black plastic.
- Influence of mulch color on crops is highly specific and may vary with plant type, climate, seasonal conditions, etc.
- Shredded newspaper had better weed control than hay, but news paper sheets did not.

# Paper Mulches



# Paper Mulches

## Advantages

- Paper mulches were used in the first half of the century, before plastics were developed.
- Can be turned into soil at end of season
- Renewable resource that would otherwise end up in landfill.

# Paper Mulches

## Disadvantages

- Paper mulches may degrade too quickly (this may be advantageous for some purposes).
- Tend to degrade early especially around edges that are held down with soil.
- Windy conditions hinder complicate installation.
- Mixed results in terms of yields

# Organic Mulches



# Organic Mulches

## Advantages

- Can be incorporated in to the soil at the end of the season as a soil amendment
  - Materials too high in carbon may tie up nitrogen in soil, but in the long run may add immobilized organic nitrogen and increase the ability of the soil to hold on to other nutrients
  - May help increase water-holding capacity of soil

# Organic Mulches

## Disadvantages

- Tend to keep soil cooler, which can delay early season growth.
- Some studies have found that organic mulches are cost-effective in increasing yields or controlling insects.

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**“Ted, could you speed it up a bit?  
Some of this is turning into compost.”**

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