Weed Control Methods

Remember this:

Every weed can be controlled by hand…

All it takes is time and money…

WHY CONTROL WEEDS?

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- Competition

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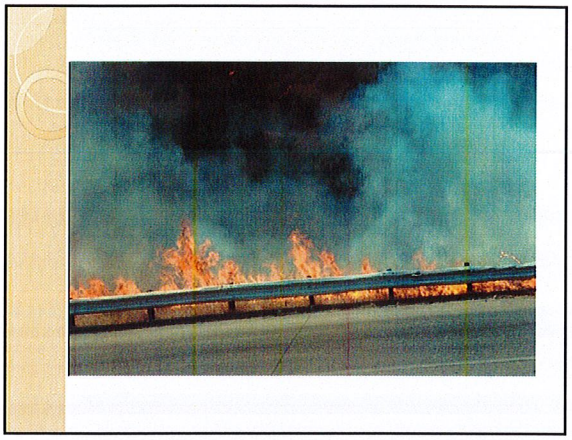

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- Other- Camps

Why are weeds invading?

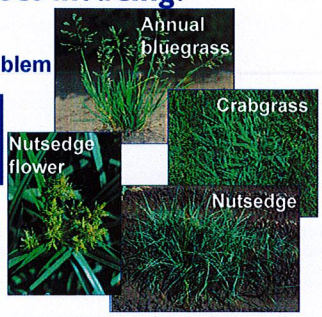
- **Poorly maintained areas**
- **Underlying problem**

IPM for Weeds

Why are weeds invading?

Maintenance problem

Overwatered or waterlogged areas



IPM for Weeds

Why are weeds invading?

Maintenance problem

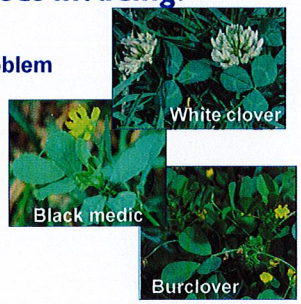
Compacted soils or bare areas

IPM for Weeds

Why are weeds invading?

Maintenance problem

Lawns low in nitrogen fertilizer



IPM for Weeds

Why are weeds invading?

Maintenance problem

Thin areas in lawns

IPM for Weeds

Principles of IPM Weed Control

- Prevent weed introduction

Prevent Weed Introduction

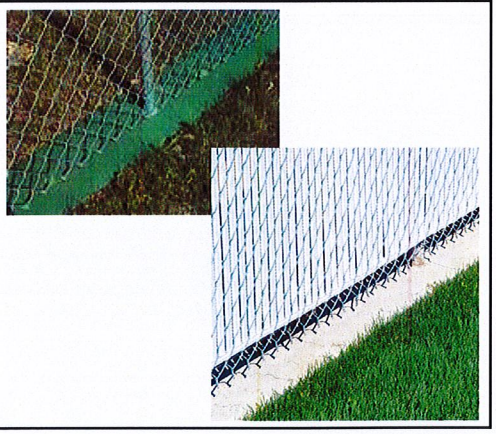
Clean mower between lawns-or after each use

Prevent Weed Introduction

Know your soil source

Principles of IPM Weed Control

- Prevent weed introduction
- Limit area for weeds to grow



Utilize Dense Plantings

Use available resources – or weeds will

	Row #	willowherb	fluvellin	bindweed	oxtounge	sow/prec let	bur clover	
Glyphosate Only	7	40.1%	21.8% *	0.8%	2.0%	1.6%	0.0%	*73% in first 1/3 of plot
	16	36.1%	15.5%*	1.2%	2.8%	1.2%	0.0%	*99% in first 1/3 of plot
	22	33.3%	3.6%	8.7%	0.0%	0.8%	0.0%	
	37	30.2%	1.6%	1.6%	29.8%	11.5%	0.0%	
Glyphosate + Pre-emergence	4	1.2%	0.4%	0.8%	0.0%	0.0%	0.0%	
	19	1.2%	0.0%	9.1% *	0.0%	0.0%	0.0%	*50% in first 1/6 of plot
	28	9.5% *	0.0%	5.2%	0.0%	0.0%	0.0%	*75% in first 1/3 of plot
	34	0.0%	0.0%	6.3% *	0.0%	0.0%	0.0%	*70% in first 1/3 of plot
								dry grass
Cultivation	10	3.2%	0.0%	4.4%	2.4%	0.0%	4.4%	92.9%
	13	1.2%	0.0%	1.2%	0.0%	0.0%	5.6%	87.3%
	25	1.6%	0.0%	5.2%	0.0%	0.0%	1.2%	85.7%
	31	0.0%	0.0%	4.0%	2.8%	0.0%	2.0%	96.4%

Transects 126 ft. long/ 252 points

Cultivation

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Transects 126 ft. long/ 252 points

Prevent weeds with mulches

Mulch: layer of material put on the soil surface around plants to prevent weed growth

- Block light and suppress weed growth
- Hold moisture in; reduce soil compaction and erosion
- Improve soil

IPM for Weeds

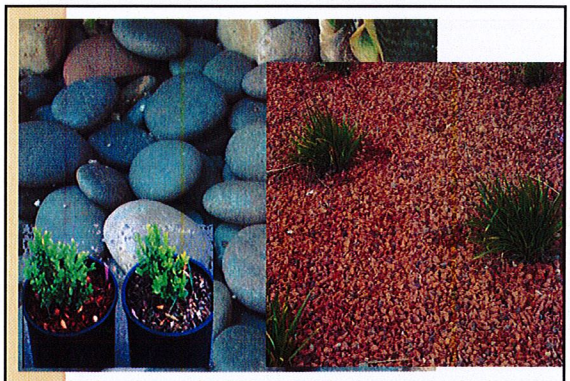
Mulch-Types

Synthetic Mulches -Black Plastic

Geotextiles- landscape fabrics

Inorganic Mulches- gravel, sand or pebbles

Organic Mulches- bark chips, paper, yard or municipal compost, nut or rice hulls



Many materials can be used for mulch

Organic mulches

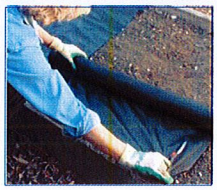
Before applying mulch, make sure the soil is weed-free

- Apply to adequate depth and keep away from base of trees and shrubs
- Break down and need to be replenished
- More effective if applied over fabric

IPM for Weeds

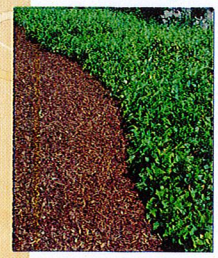
Synthetic mulches

- Used under organic or rock mulches
- Use landscape fabric; avoid plastic mulches-
- Landscape fabrics allow water and air to pass through and last a long time
- Avoid sun exposure



IPM for Weeds

Maintaining mulch



Replenish mulch as needed

Keep mulch at the proper depth

- Remove weeds by hand
- Avoid disrupting the mulch

Some weeds may grow on top of mulches

IPM for Weeds

Decomposed Granite-very low maintenance

Straw Mulch

Sheet Mulching

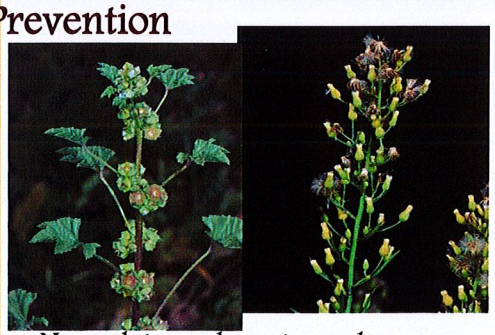
Mulch summary

Remember that the purpose of mulch is to keep plants from growing- the purpose of compost is to help plants grow

Mulches such as gravel, straw or bark must be deep enough to prevent light from reaching the soil surface

Mulches tend to increase soil moisture retention

Prevention



Never let weeds go to seed!
Clean Equipment

Weed Seed Banks

Weed seed banks represent the reservoir of weed seeds in the soil.

The numbers of weed seeds in the soil can range from near 0 to over 1,000,000 per square yard.

Most weed seeds in the soil are between 0 to 5 years old. A small number of seeds can last for decades or more.

Weed seed fundamentals

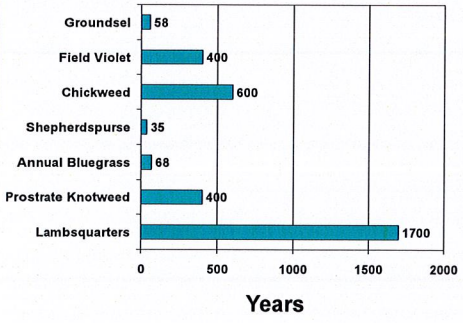
1. There are weed seeds in the soils of most gardens
2. Weed seeds can persist for years in the soil
3. Weed seeds get into the soil from 2 sources:
   1. Your yard- germinate and grow
   2. Your neighbor- or pots, or outside equipment

Weed Seed Production

Weed species	No. seed/plant
Lambsquarters	72,450
Purslane	52,300
Ragweed	3,380
Smartweed	19,300
Prickly lettuce	27,900
RR pigweed	117,400
Shepherdspurse	38,500
Wild oat	250
Yellow foxtail	6,420

Stevens 1954, 1957

Longevity of Weed Seeds in Soil



Control Methods

Mechanical weed control

- ✓Cultivation or tillage
- ✓Hoeing and pulling
- ✓Flaming
- ✓Mowing

Cultivation*

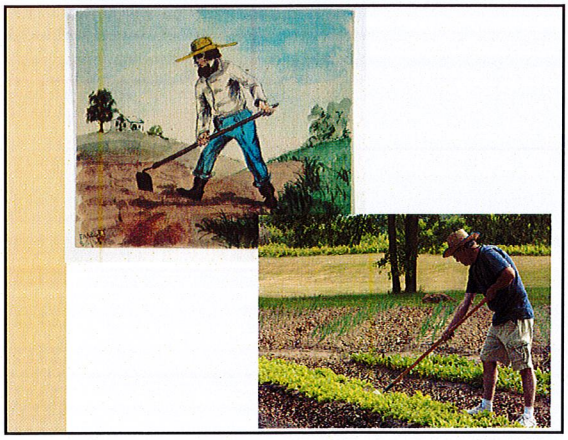
- Best when weeds are small
- Dry conditions after cultivation help to prevent re-rooting
- Shallow cultivation reduces the quantity of new seeds brought to the surface

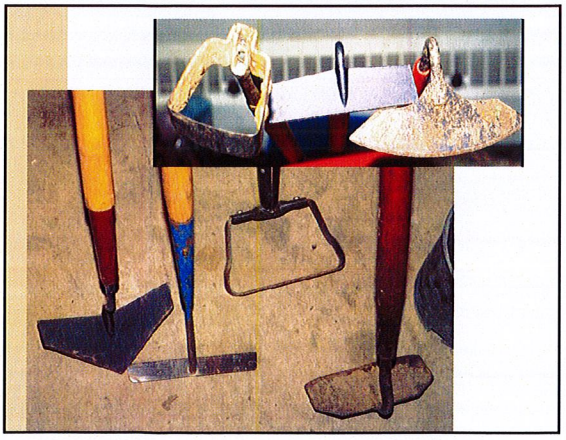
Cultivation

- transitive verb: To improve and prepare (**land**), as by plowing or fertilizing, for raising crops; till. b. To loosen or dig soil around (growing plants). To grow or tend (a plant or crop).

Cultivation – Perennial Weeds

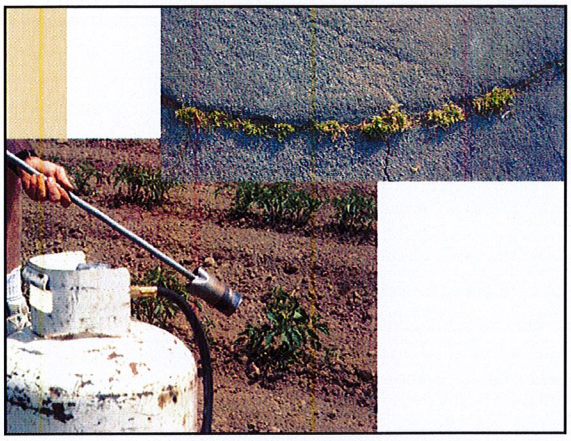
Cut below the soil surface to reduce root carbohydrate
Repeat cultivation at 2 to 3 week intervals during the growing season





Propane Flamers

- Kills weeds like a contact herbicide
- Treated leaves go from a glossy to a matte finish
- Weak on grasses
- Fuel cost??

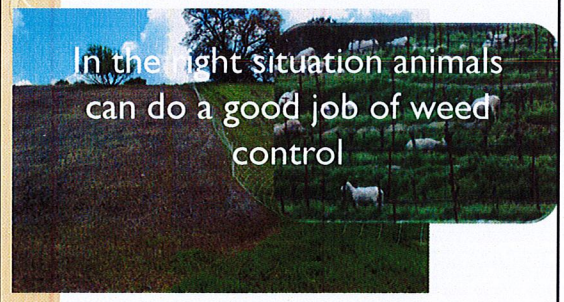


Mowing

- May favor low growing and perennial weeds
- Will require repeated operations

Animals

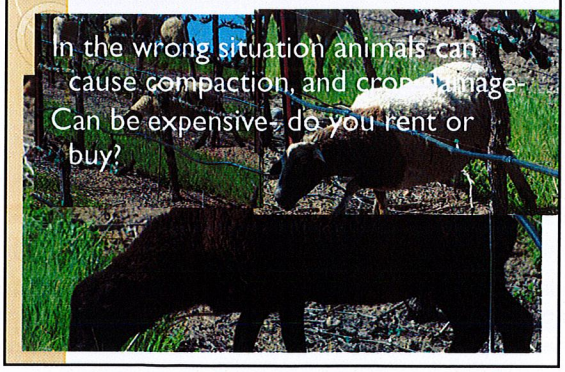
Animals



Animals- Before

Animals- After

Animals

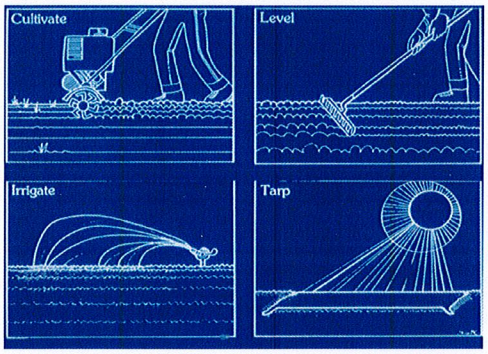


Soil Solarization

A method to control un-germinated weed seeds in the soil seedbank.
Uses clear plastic mulch during the summer months to raise soil temperatures to the thermal death point.
Also controls some diseases

How to Solarize Soil

Prepare a smooth soil surface
Wet the soil
Lay and anchor the clear plastic (1-2 mil)
Leave plastic in place 4-6 weeks
In coastal areas solarize during May-June or August-September



SOIL SOLARIZATION FOR GARDENS & LANDSCAPES

Integrated Pest Management for Home Gardeners and Landscape Professionals

Soil solarization is a non-chemical method for controlling soilborne pests using high temperatures produced by capturing radiant energy from the sun. The method involves heating the soil by covering it with a clear plastic tarp for 4 to 6 weeks during a hot period of the year when the soil will receive the most direct sunlight. When properly done, the top 6 inches of the soil will

speeds up the breakdown of organic material in the soil, often resulting in the added benefit of release of soluble nutrients such as nitrogen (NO_3, NH_4), calcium (Ca^{++}), magnesium (Mg^{++}), potassium (K^+), and fulvic acid, making them more available to plants.

Plants often grow faster and produce both higher and better quality yields

Questions?