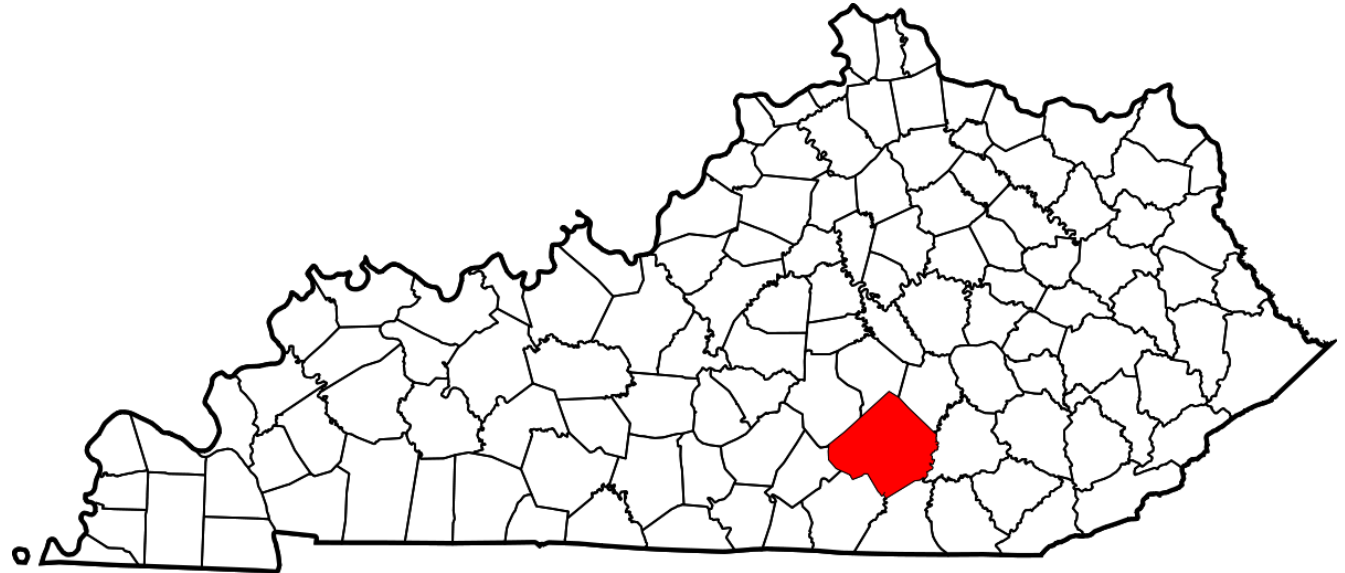


Cockroaches of the Plant World – Weeds

Non-Nuclear (Glyphosate) Options

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Weeds are Symptoms of Problems

- Soil is bare
- Soil is disturbed regularly
- Site is not well-managed (mowing, watering, etc)
- Contaminated materials are used
- Invasive ornamentals are planted
- Wrong controls are used

Know the Enemy

MUST
CORRECTLY
IDENTIFY
PROBLEM WEEDS
BEFORE
CONSIDERING
CONTROL
MEASURES



Let's Talk About the Enemy

- Weed type
 - Broadleaf
 - Grass
 - Sedge



Let's Talk About the Enemy

- Life cycles
 - Summer annual
 - Winter annual
 - Biennial
 - Perennial



Annuals

Strategies:

- Prevent germination
 - Smother with mulch
 - Pre-emergence herbicides
- After germination
 - Physical removal (yes, the hoe or hand pulling!)
 - Post-emergence herbicides
 - Other 'organic' ways



Perennials

Strategies:

- Prevent regrowth
 - Smother with mulch
 - ~~– Pre-emergence herbicides~~
- Post-emergence herbicides
- Physical removal (soil knife, trowel, hoe, sometimes the mattock!)
- ~~• Other 'organic' ways~~



Post-emergence Herbicides NOT GLYPHOSATE

Selective Chemicals

- 2,4-D – BL weeds only
- Clethodim, sethoxydim, fluazifop – grasses only
- Halosulfuron (Sedgehammer) – sedges and some BL weeds
- Triclopyr ('Brushkiller') – woody plants, hard to kill BL weeds

Contact (non-selective) Chemicals

- Diquat
- Glufosinate
- Pelargonic acid (Scythe)
- Acetic acid (vinegar)
- And more! Next slide

Post-emergence Herbicides 'Organic' Chemicals

Non-Selective Chemicals

- Vinegar
- Scythe
- GroundClear
- Citric acid
- Clove oil
- Iron HEDTA (Fe HEDTA)



Post-emergence Herbicides 'Organic' Chemicals

GroundClear

- Nonanoate acid
- May be OMRI certified
- Complete spray coverage essential



1-2 days after
GroundClear



5 days after
GroundClear

A photograph of a garden bed in a rural setting. The foreground shows a mound of dark brown soil. Behind it, a row of light-colored, irregularly shaped stones forms a border. Three tall, cylindrical wire mesh cages are positioned along this border. The background is a lush green field with some distant structures and trees under a clear sky.

Pre-emergence Herbicides for Home Gardeners

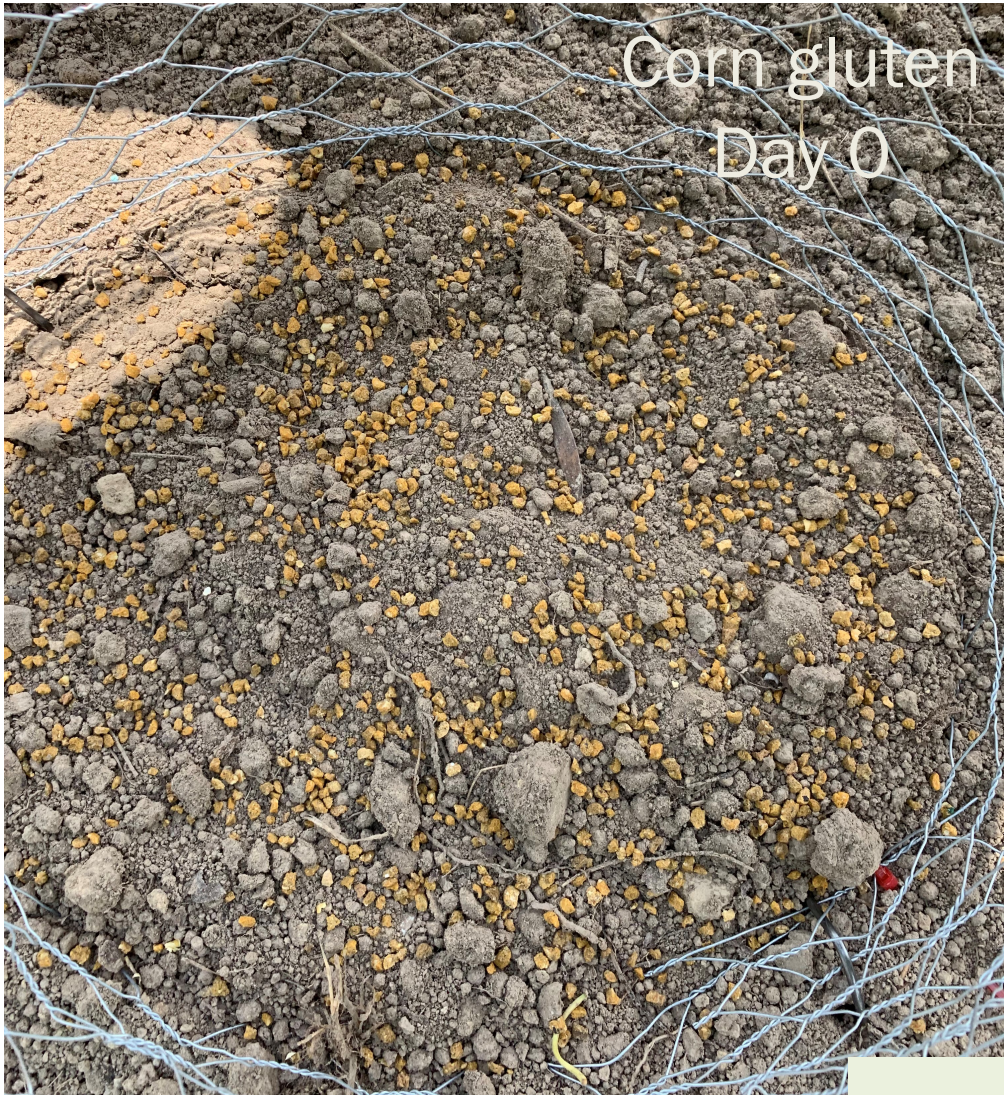


Pre-emergence best used:

- Fresh-tilled soil AND
- No further soil disturbance

OR

- Around perennials and/or
- On top of mulch



Corn gluten
Day 0



Preen
Day 0

June 4 day of
application

*organic preen = corn gluten



Corn gluten
Day 0

June 4 day of
application



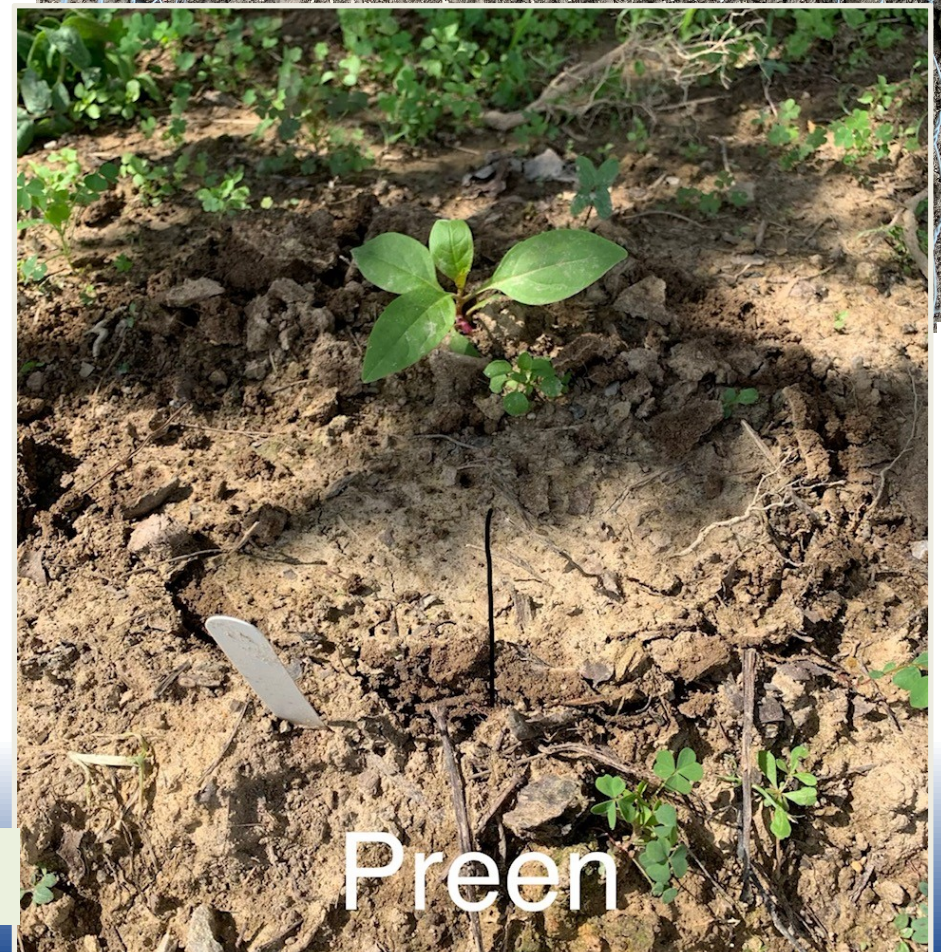
Preen
Day 0



Organic Preen

July 10 weed harvest
36 DAT

*organic preen = corn gluten



Preen

Treatments June 4
36 days of weed growth

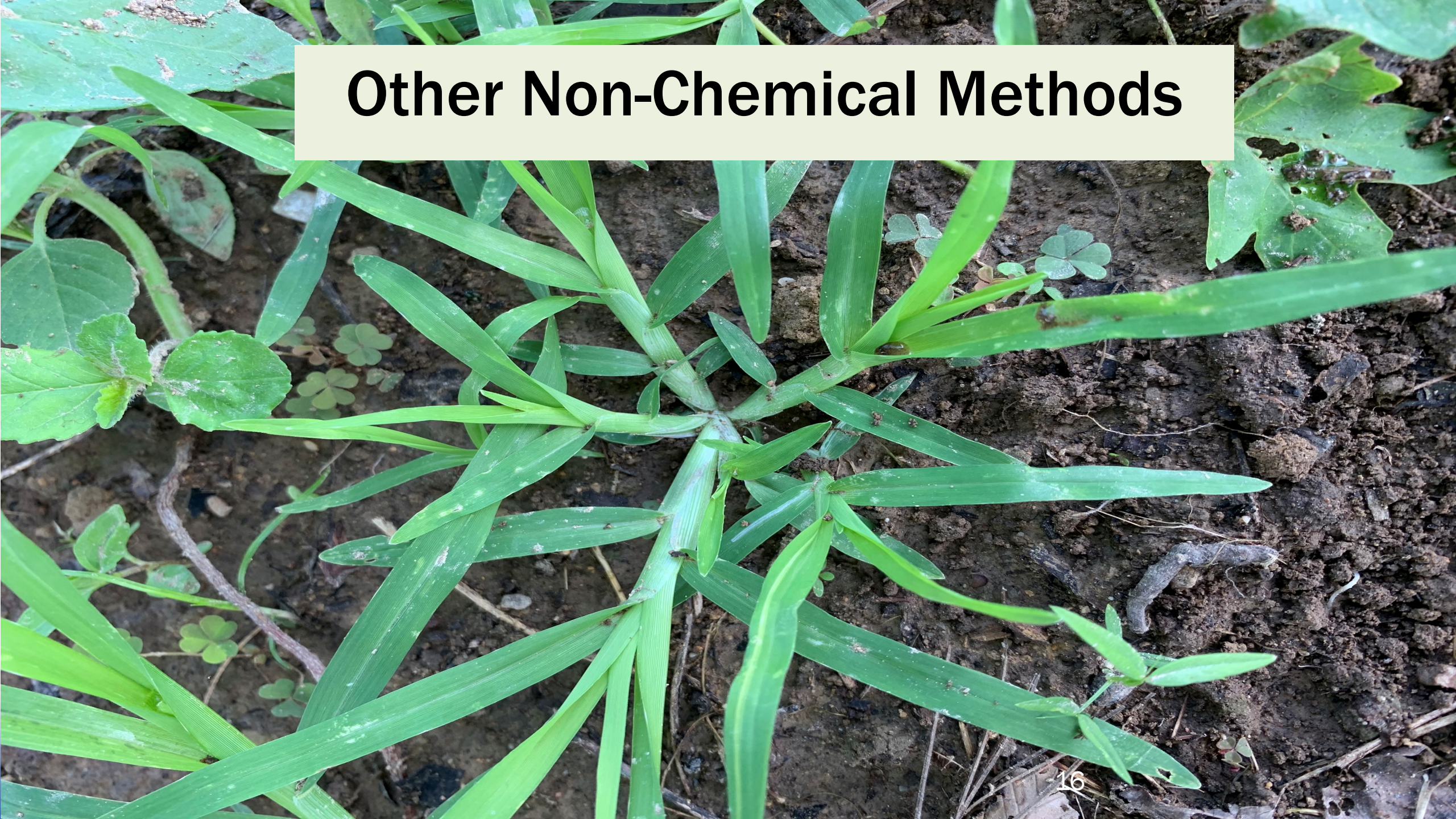


July 10 weed harvest
36 DAT

*organic preen = corn gluten



Other Non-Chemical Methods



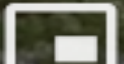
Flaming

- Uses propane gas
- Goal is to heat up plant cells til they burst
- Best use: small seedlings on stale seedbed, in between rows



2:00 / 3:36

17



FLAMED

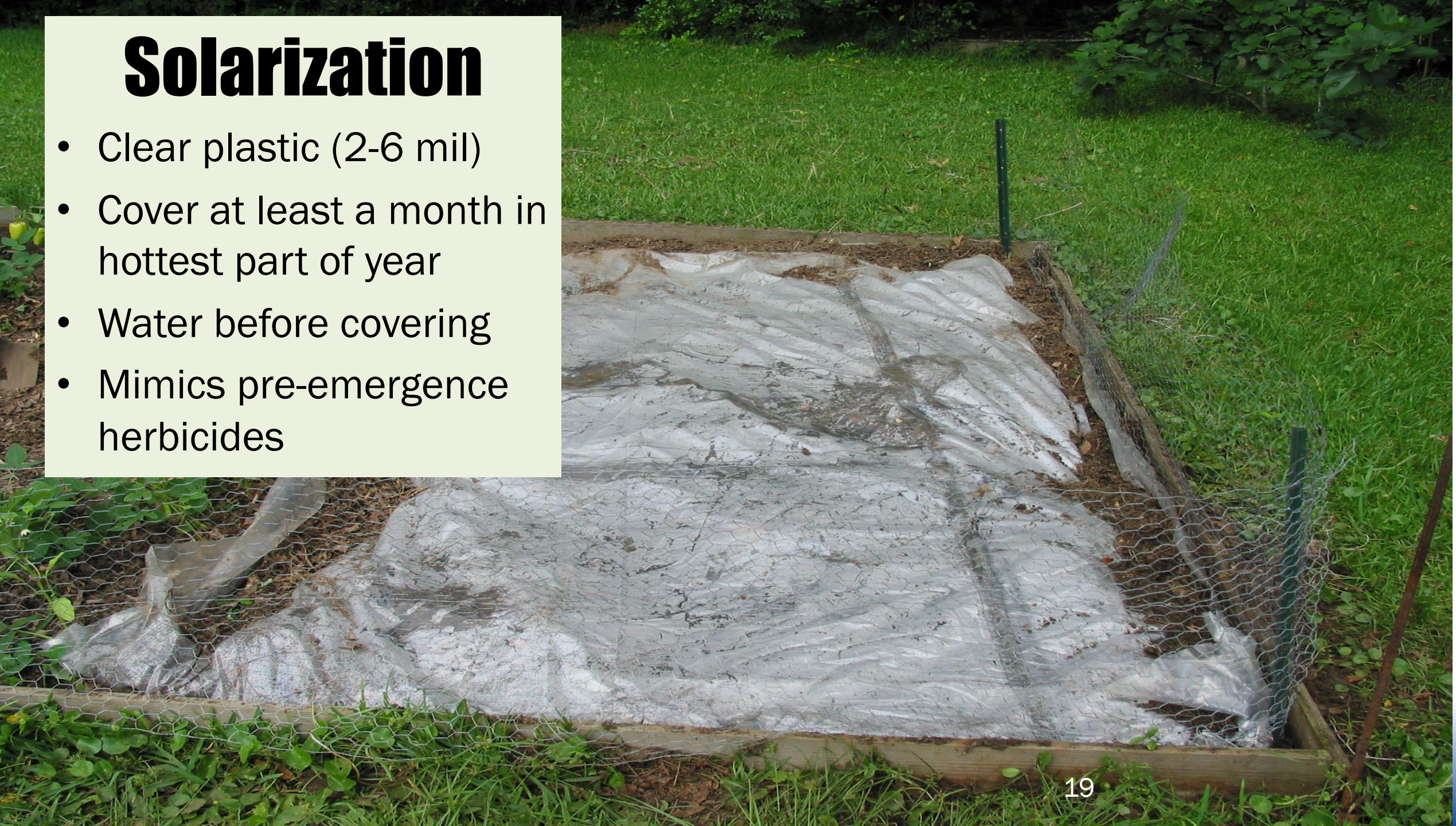
Mixed weeds

Sowthistle



Solarization

- Clear plastic (2-6 mil)
- Cover at least a month in hottest part of year
- Water before covering
- Mimics pre-emergence herbicides



3 weeks after removal



Figure 7. Plots of A) solarized soil and B) non-solarized soil 3 weeks after the plastic cover was removed.

147 days after removal



Figure 8. Plots of A) solarized soil and B) non-solarized soil on March 12, 2013, which was 147 days after the plastic cover was removed from the solarized plot.

4 weeks

6 weeks



Green onion harvest



Yanking / Eating

- Very satisfying
- Ultimate revenge



Take Home Messages

- Get to weeds when they are small and keep on top of them
- Pre-emergence can work as long as soil is not disturbed after application
 - Post-emergence options available for selective grass or broadleaf weed control
- Non-selective 'organic' herbicides will need repeat applications
 - 'organic' herbicides with acids and oils – danger signal word!
 - Weed whackers

