

# **Organic Weed Control in Processing Tomatoes**

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# **Organic Weed Control Options for Tomatoes**

- **Water management**
- **Cultivation**
- **Geese**
- **Organic Herbicides**

# Subsurface Drip Irrigation



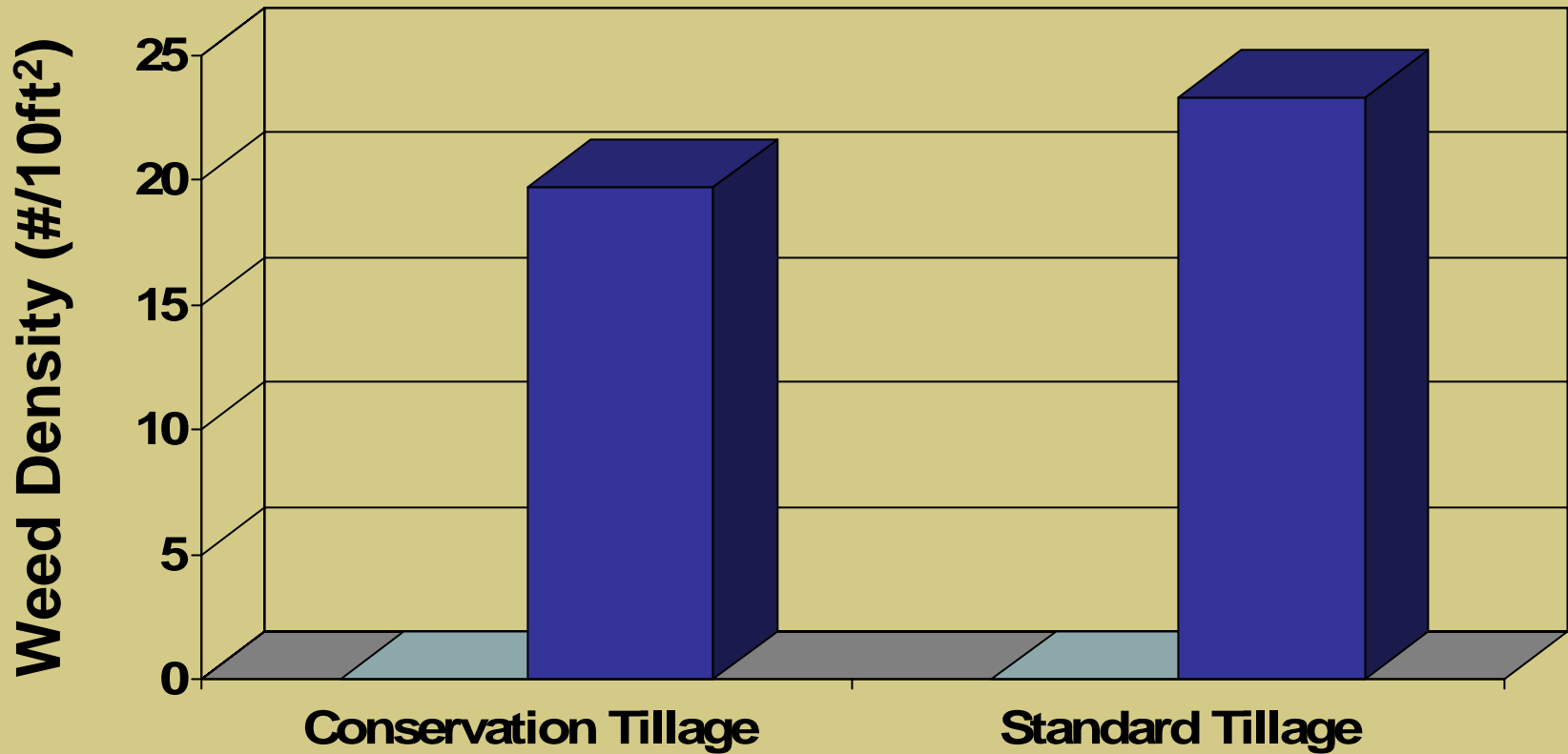
# Subsurface Drip Irrigation

- Installed 9 to 12 inches deep
- Filtration system to remove anything that might clog the emitters
- Collapsible main line that allows equipment to get into field
- Check valves at end of each drip line to check for flow



# Weed Density on Beds Relative to Irrigation method and tillage

SDI Furrow

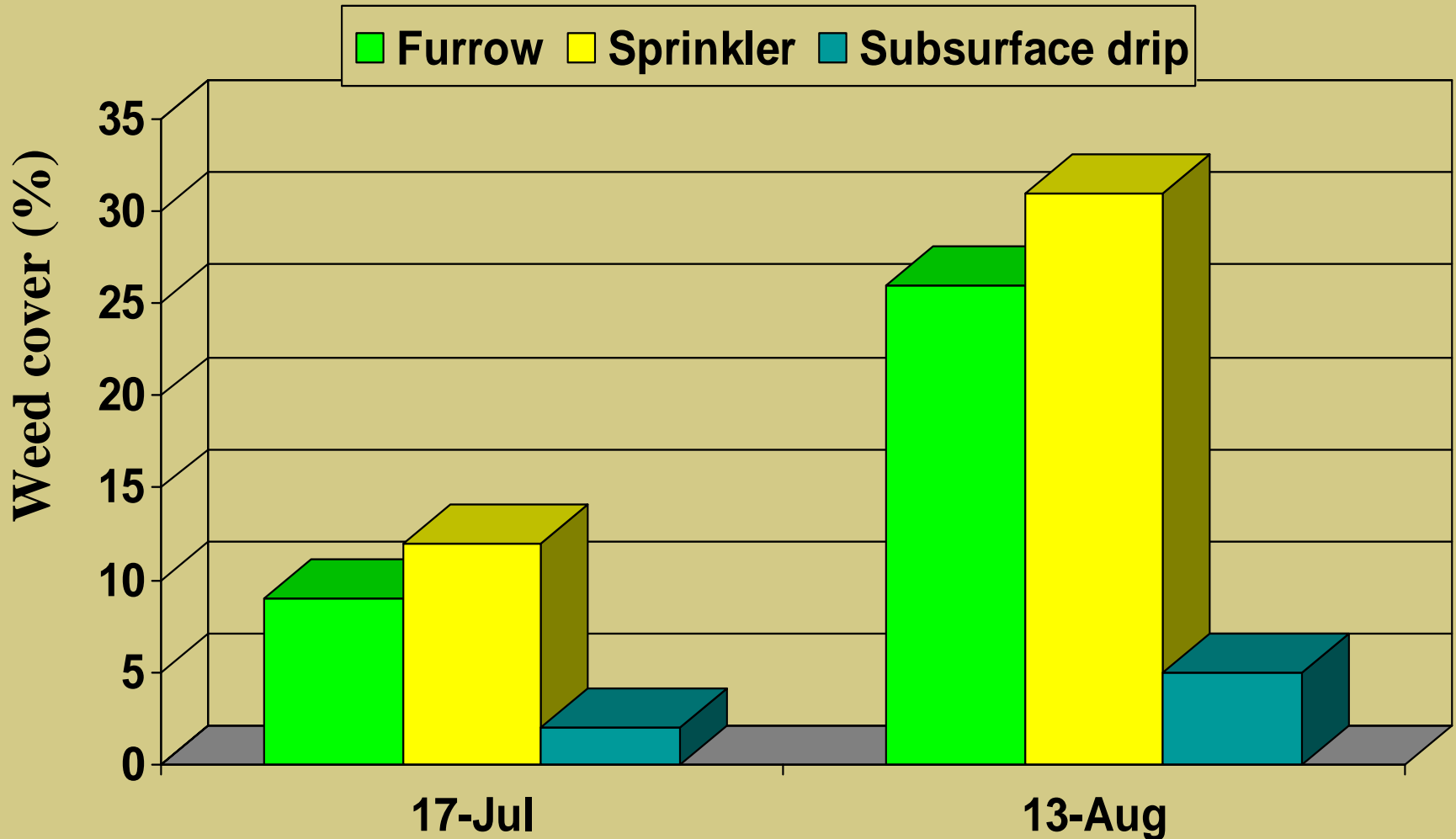






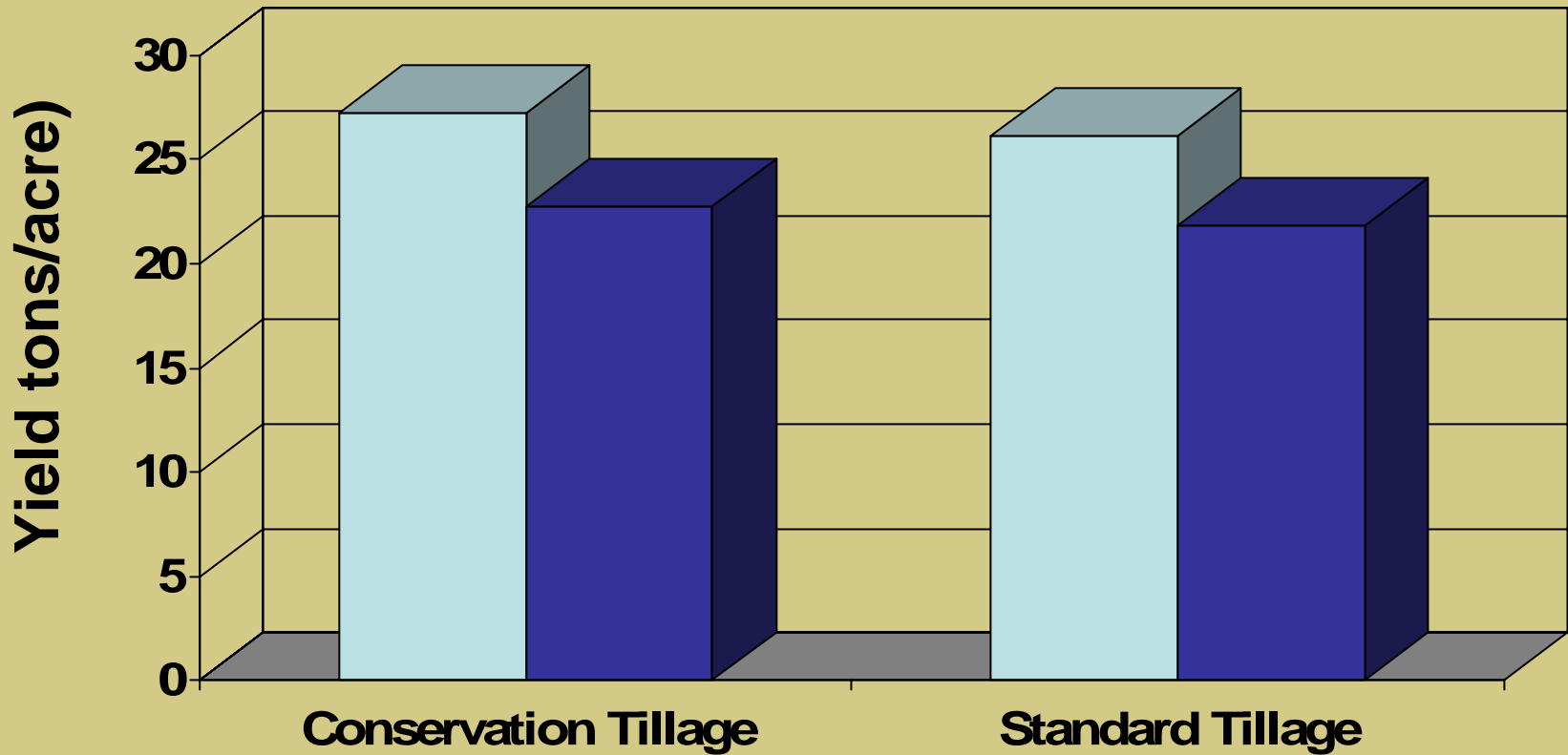


# Weed Cover (%) relative to Irrigation Method

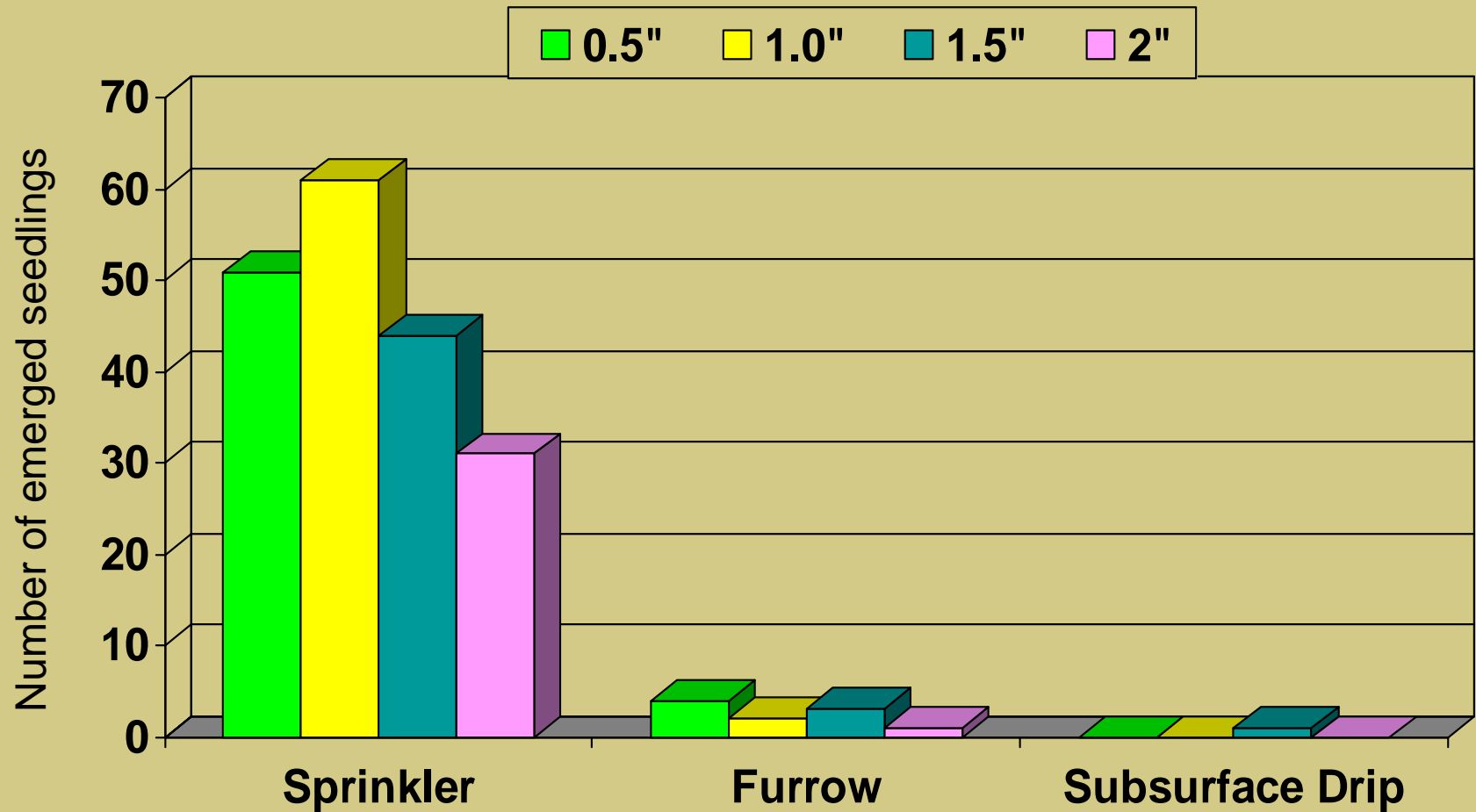


# Tomato Yields Relative to Irrigation method and tillage

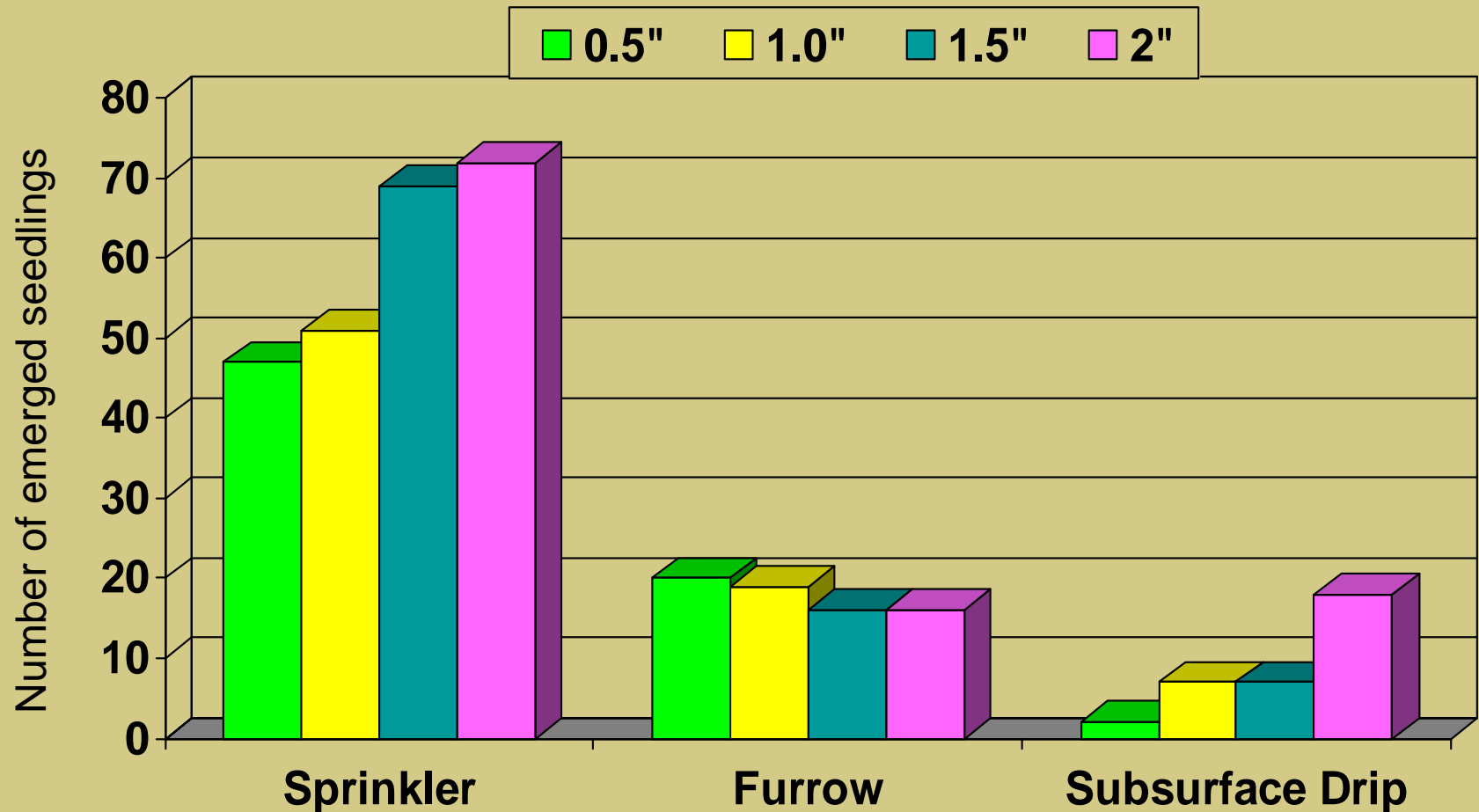
SDI Furrow



# Seed Depth and Irrigation Effect on Germination Black nightshade



# Seed Depth and Irrigation Effect on Germination Barnyardgrass



# Preirrigation







# Preirrigation for weed seed reduction prior to crop planting

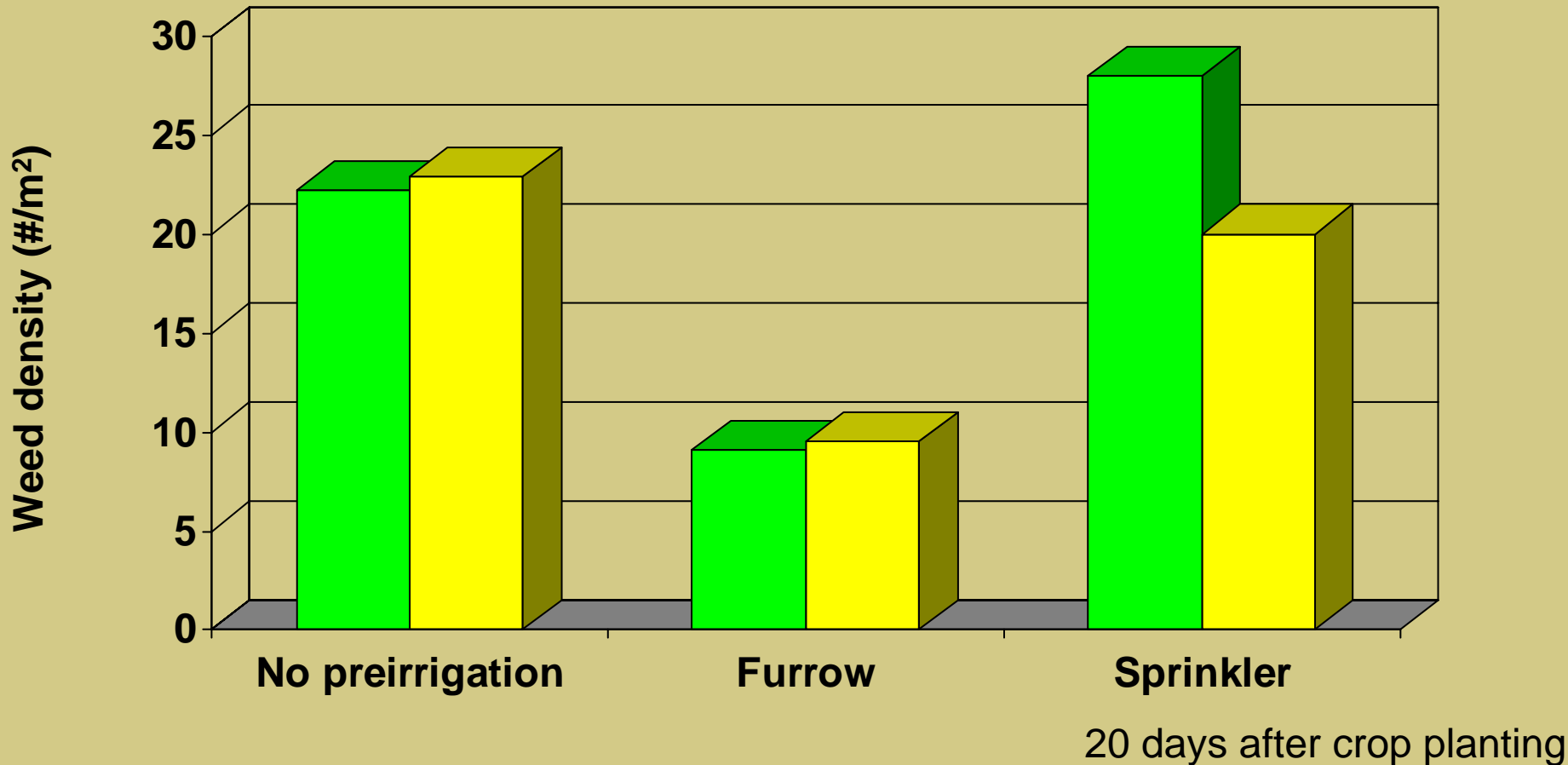
## Questions:

- Is furrow irrigation any different than sprinkler irrigation as a preirrigation method
- How long should you wait after preirrigation before weed removal
- What is the most effective method of weed removal – flamer or cultivation



# Weed Density as Affected by Preirrigation and Weed Removal Method

Flamer Cultivation



# Preirrigation Conclusions

- Maximum weed emergence occurred at 120 to 130 cumulative degree days (base temperature = 10°C)
- Preirrigation/weed removal was less beneficial when weed density was low
- Hand weeding times were reduced if pre-irrigation and weed removal are performed prior to crop planting.

# 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
- Burial by one inch of soil kills most weed seedlings

# Morningglory Emergence (%) relative to Seed Depth

<b>Seed Depth (in.)</b>	<b>Sandy soil</b>	<b>Silty soil</b>
<b>0</b>	20	7
<b>0.2</b>	47	47
<b>0.4</b>	76	66
<b>0.8</b>	61	80
<b>1.2</b>	19	69
<b>1.6</b>	10	50
<b>2.0</b>	1	40
<b>2.4</b>	1	3

# 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 mat finish
- Fuel cost??









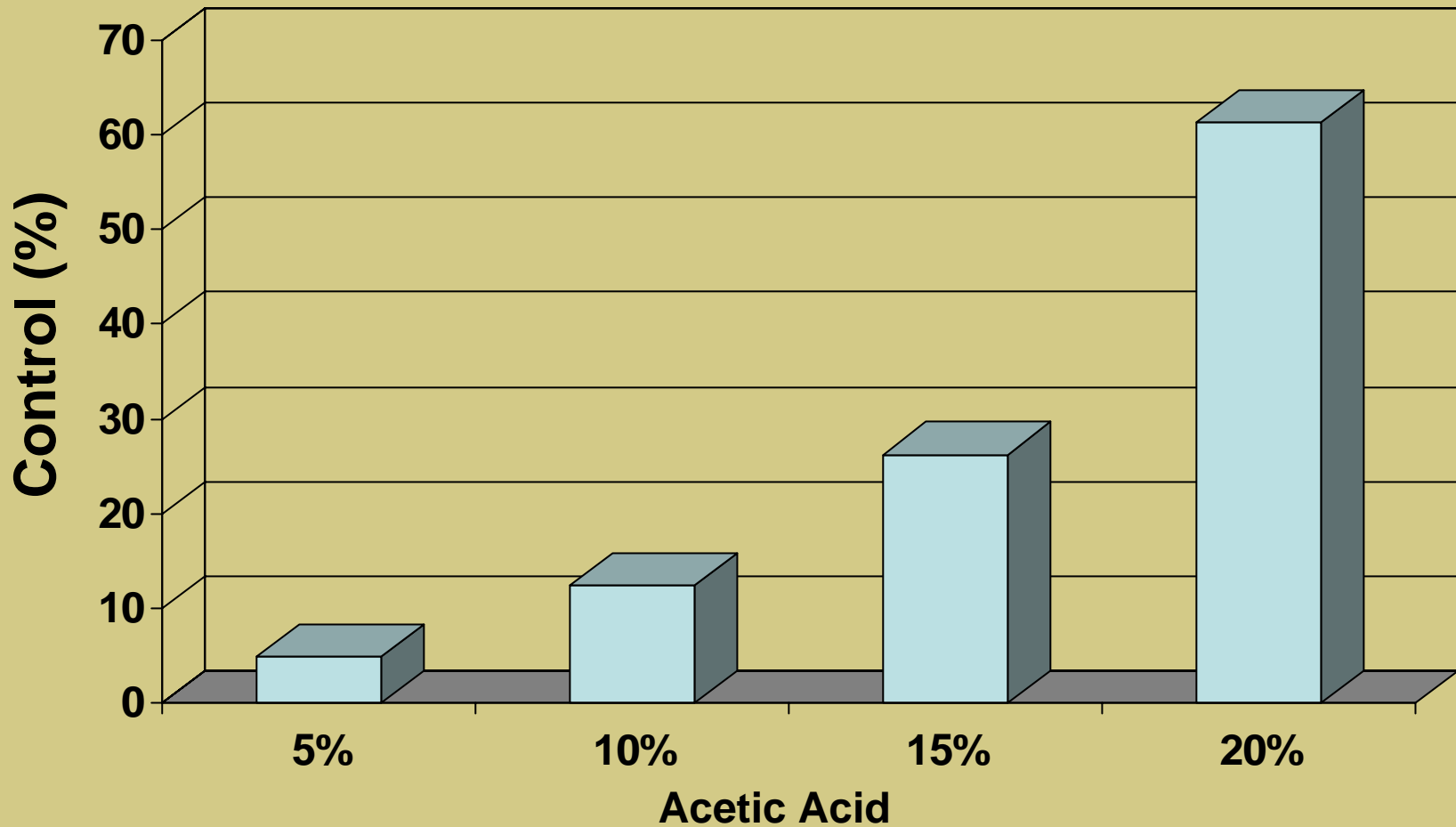




# Organic Herbicides

- Various acids
  - Vinegar, C-Cide, etc.
- Essential Oils
  - Matran EC, WeedZap, etc.
- Corn Gluten Meal – **Does Not Work**

# Mustard Control with Acetic Acid (70 gpa)



14<sub>1</sub>DAT Treated Dec 20, 2006  
2-3 leaf mustard

0.1% Yucca extract added to all trmts

**Acetic Acid 5% + 0.1 % yucca extract - 70 GPA**

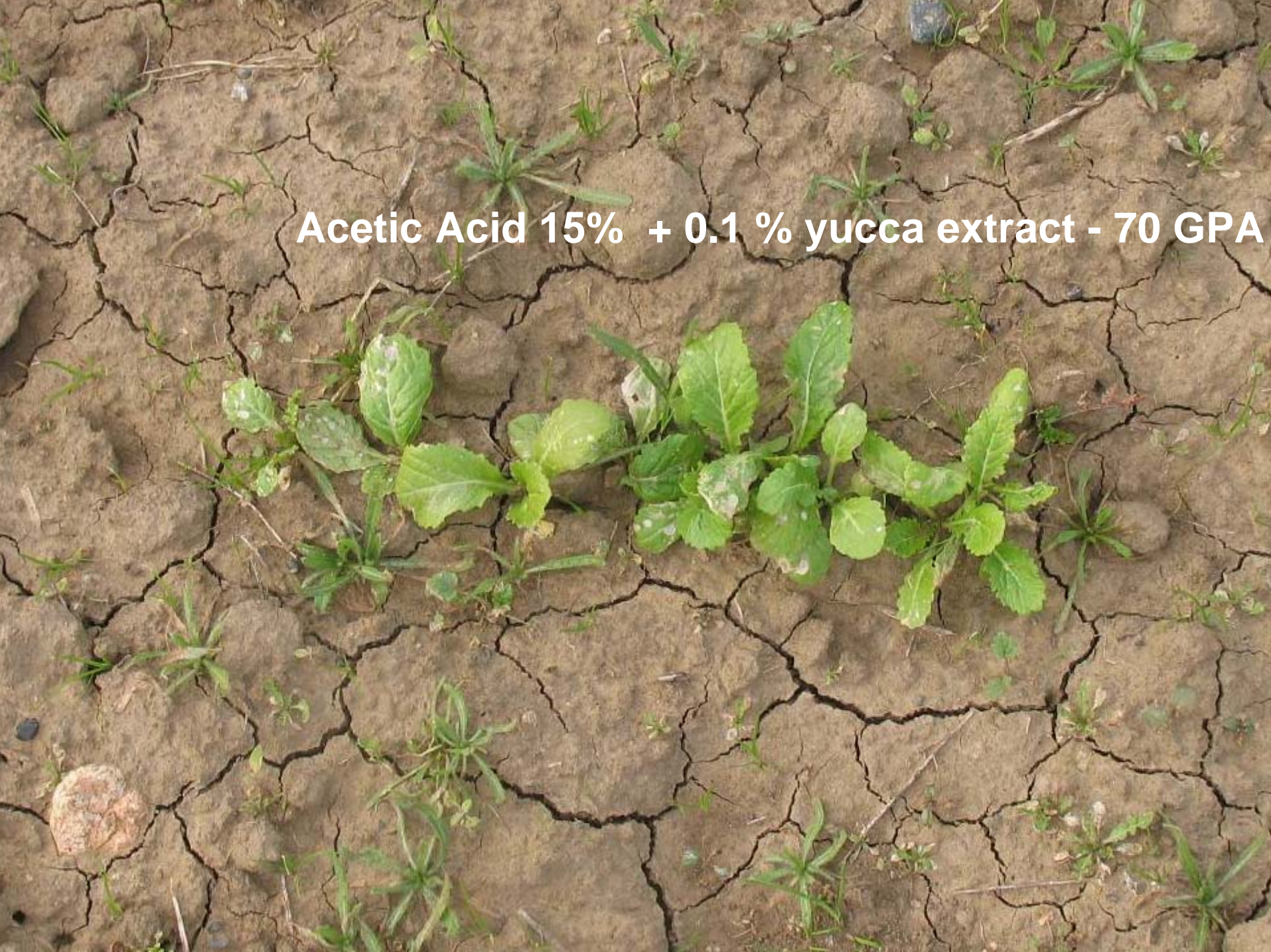


Acetic Acid 10% + 0.1 % yucca extract - 70 GPA

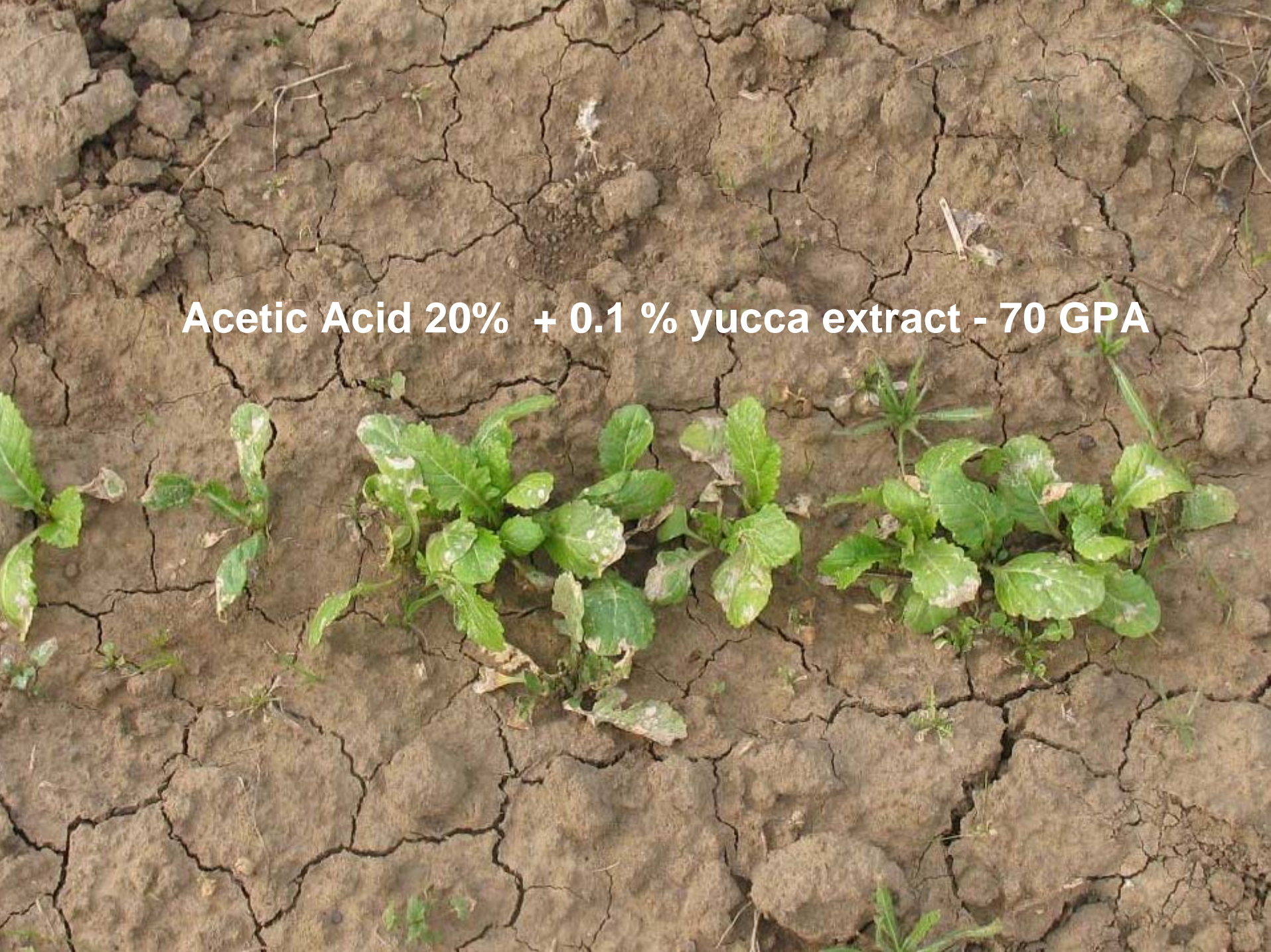




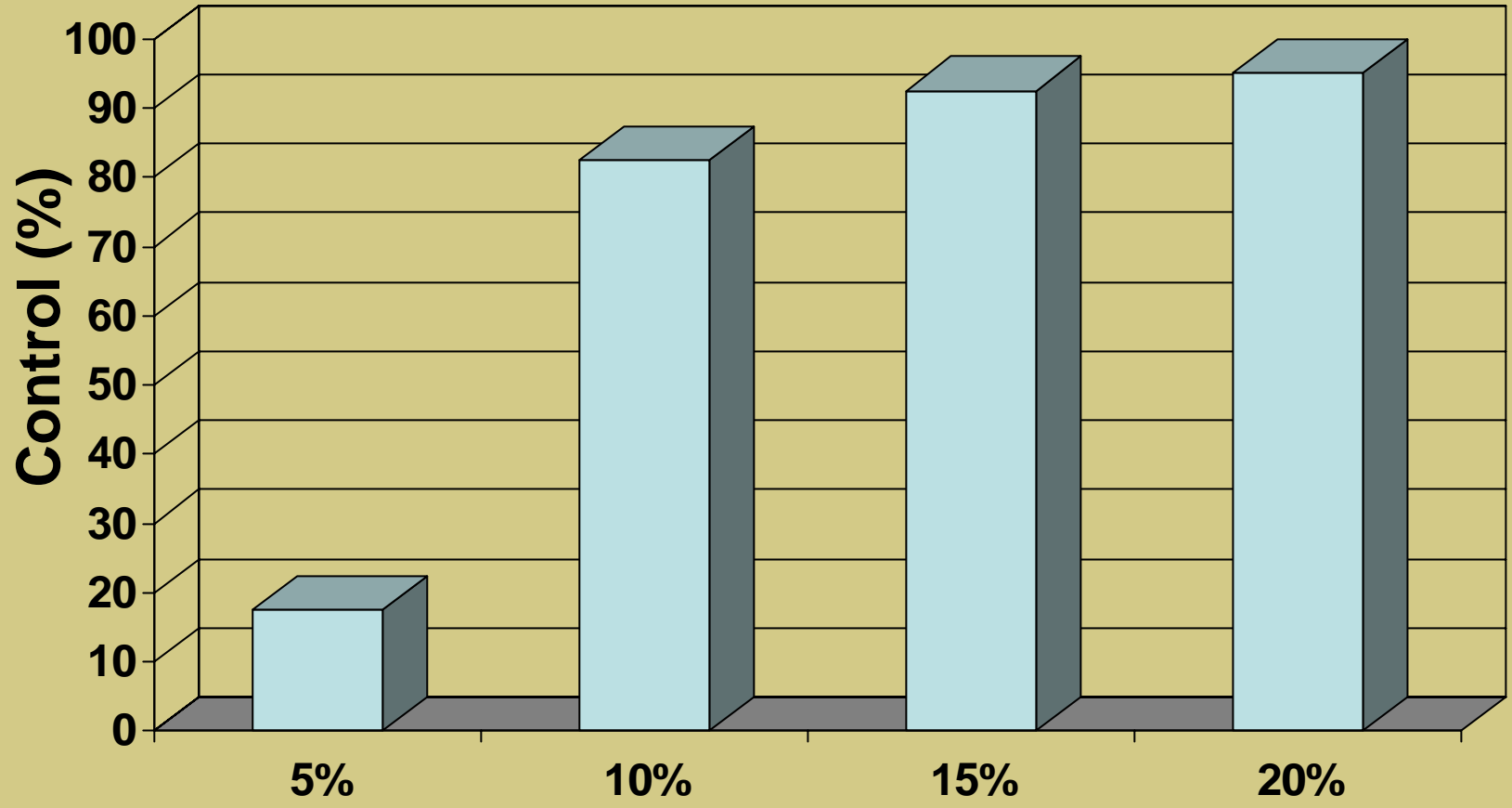
**Acetic Acid 15% + 0.1 % yucca extract - 70 GPA**



**Acetic Acid 20% + 0.1 % yucca extract - 70 GPA**



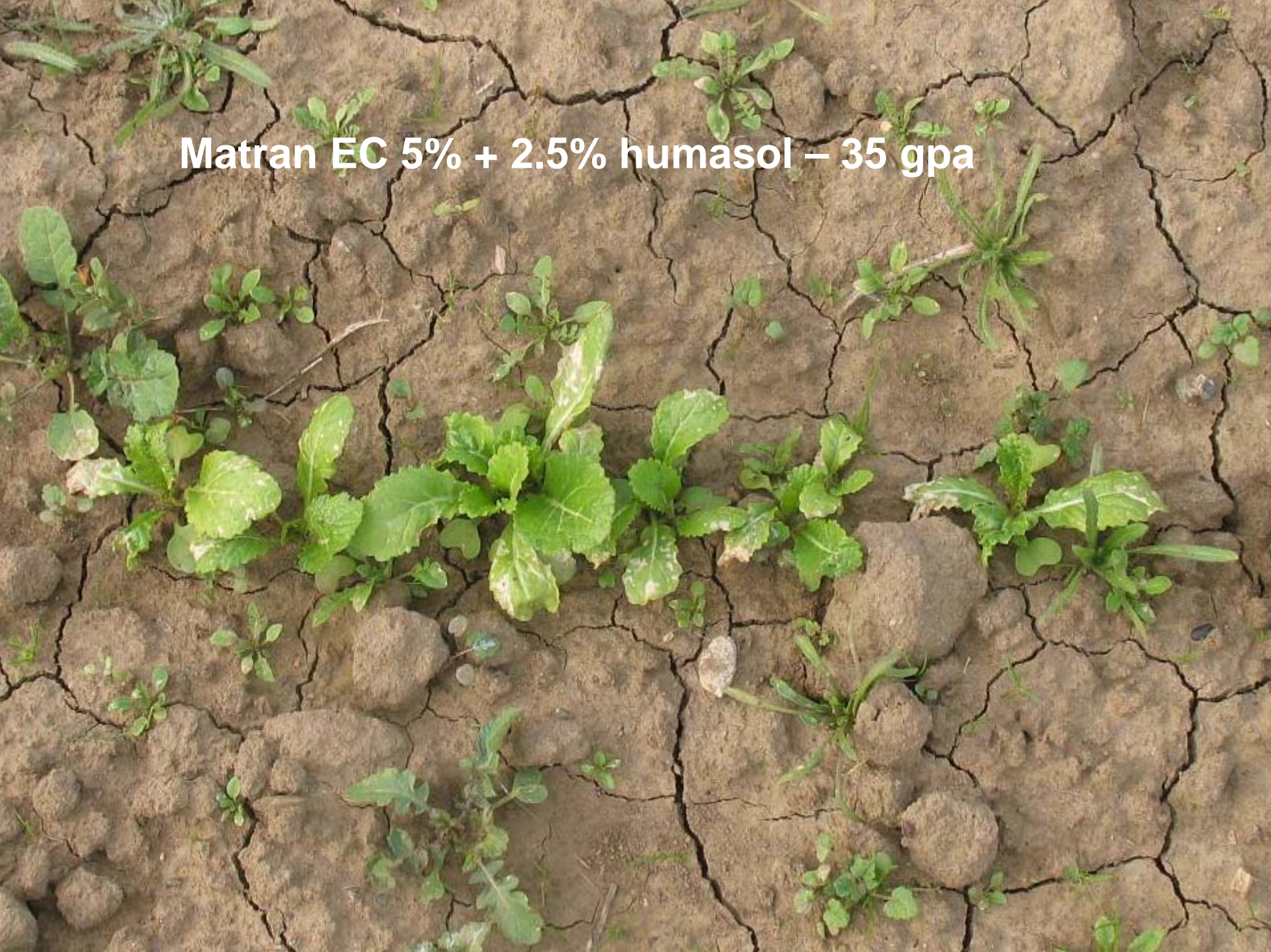
# Mustard Control with Matran EC (35 gpa)



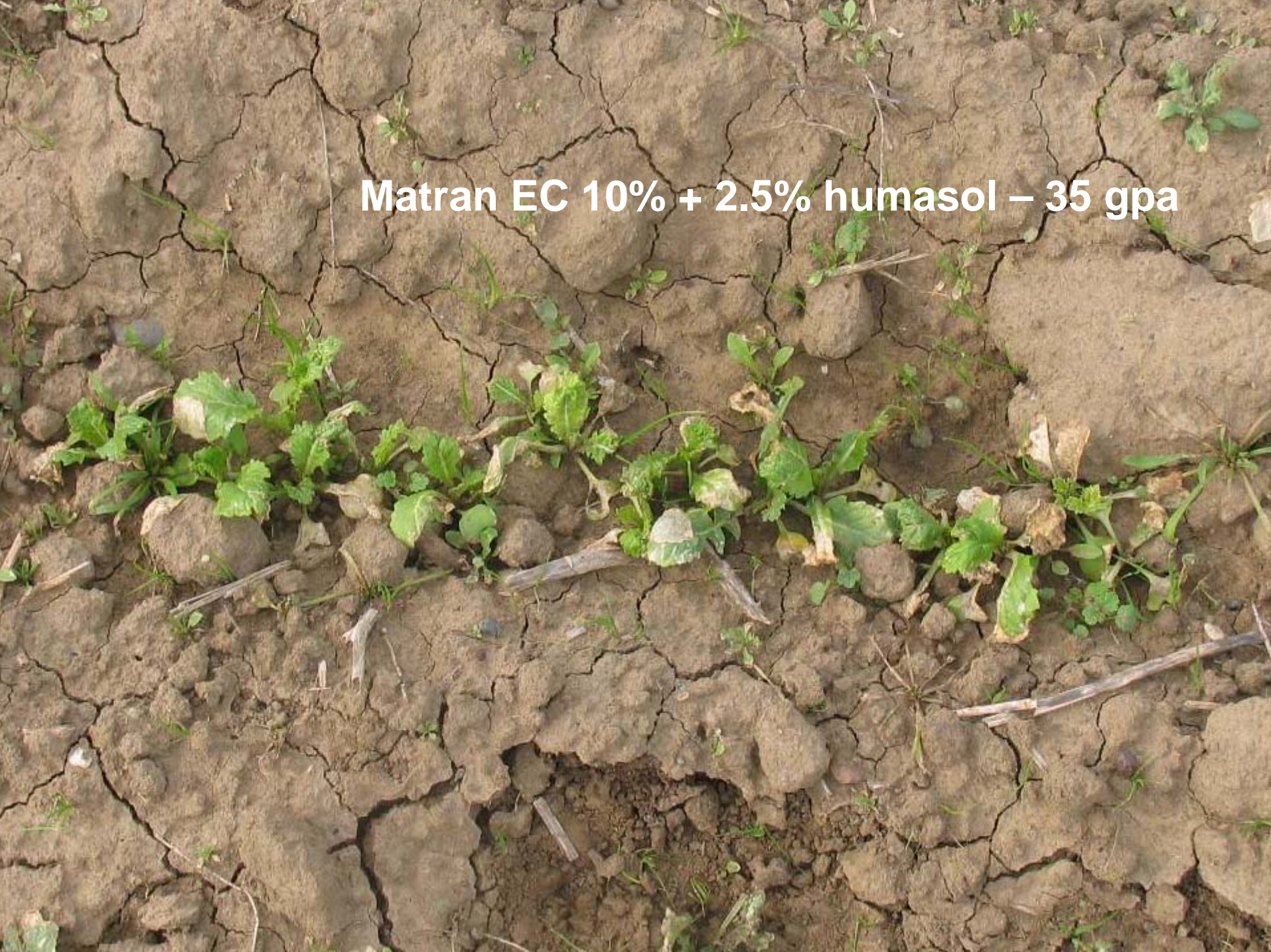
14<sub>1</sub>DAT Treated Dec 20, 2006

2.5% Humasol added to all trmths

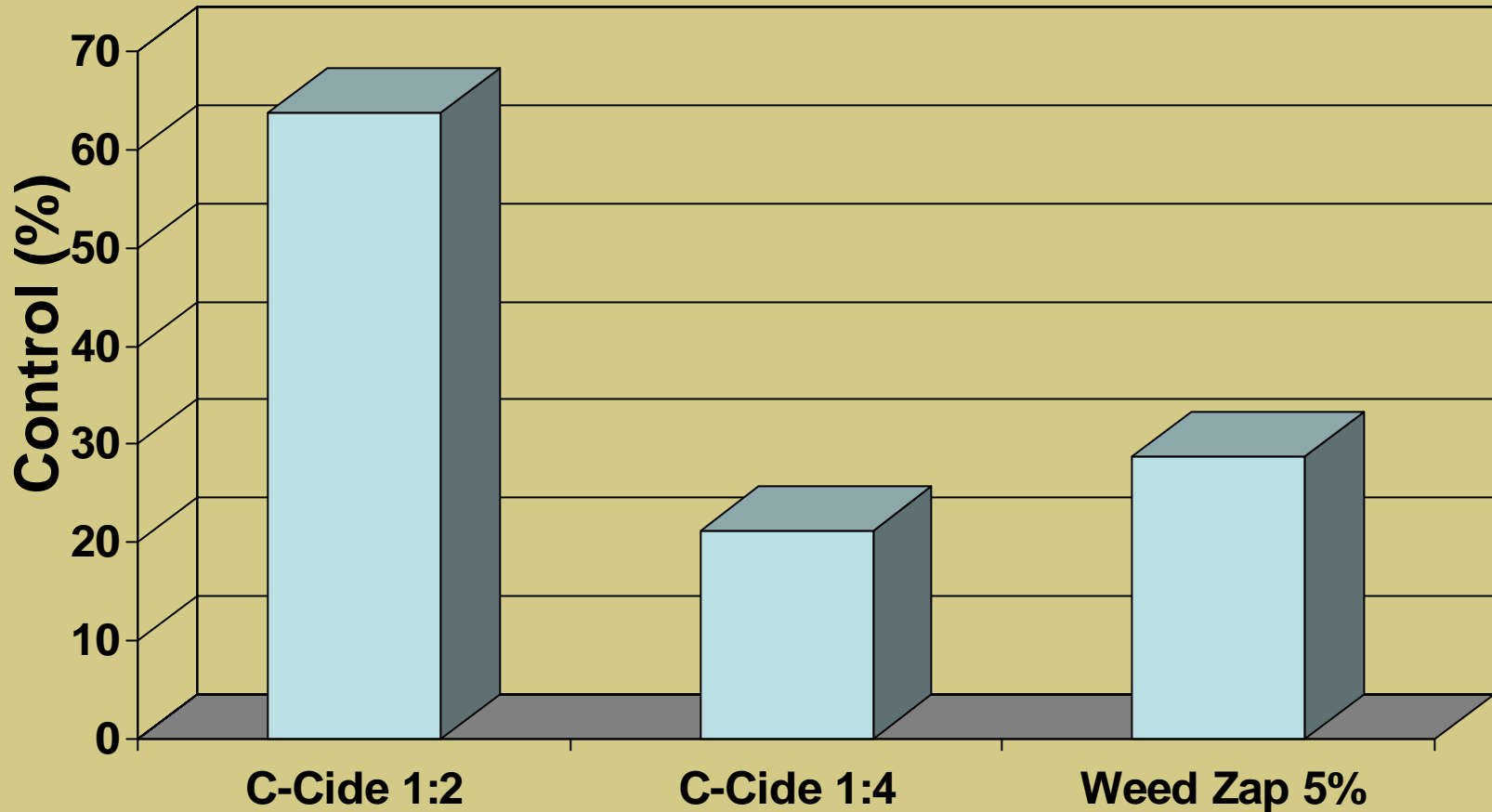
**Matran EC 5% + 2.5% humasol – 35 gpa**



**Matran EC 10% + 2.5% humasol – 35 gpa**



# Mustard Control with Organic Herbicides



14<sub>1</sub>DAT Treated Dec 20, 2006

2.5% Humasol added to Weed Zap

**C-Cide 1.6% (1:2 dilution) - 70 gpa**

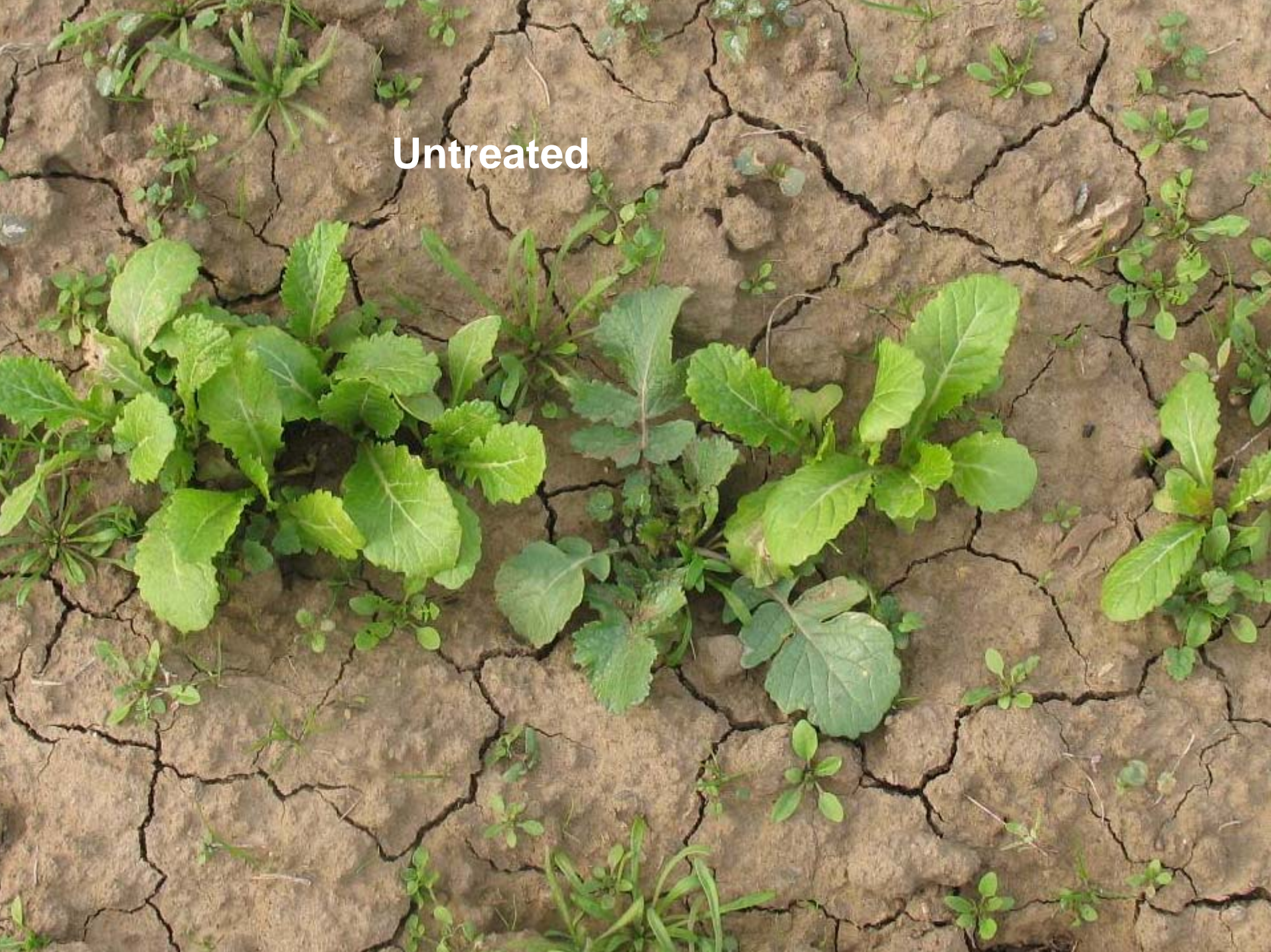


C-Cide 1.0% (1:4 dilution) - 70 gpa





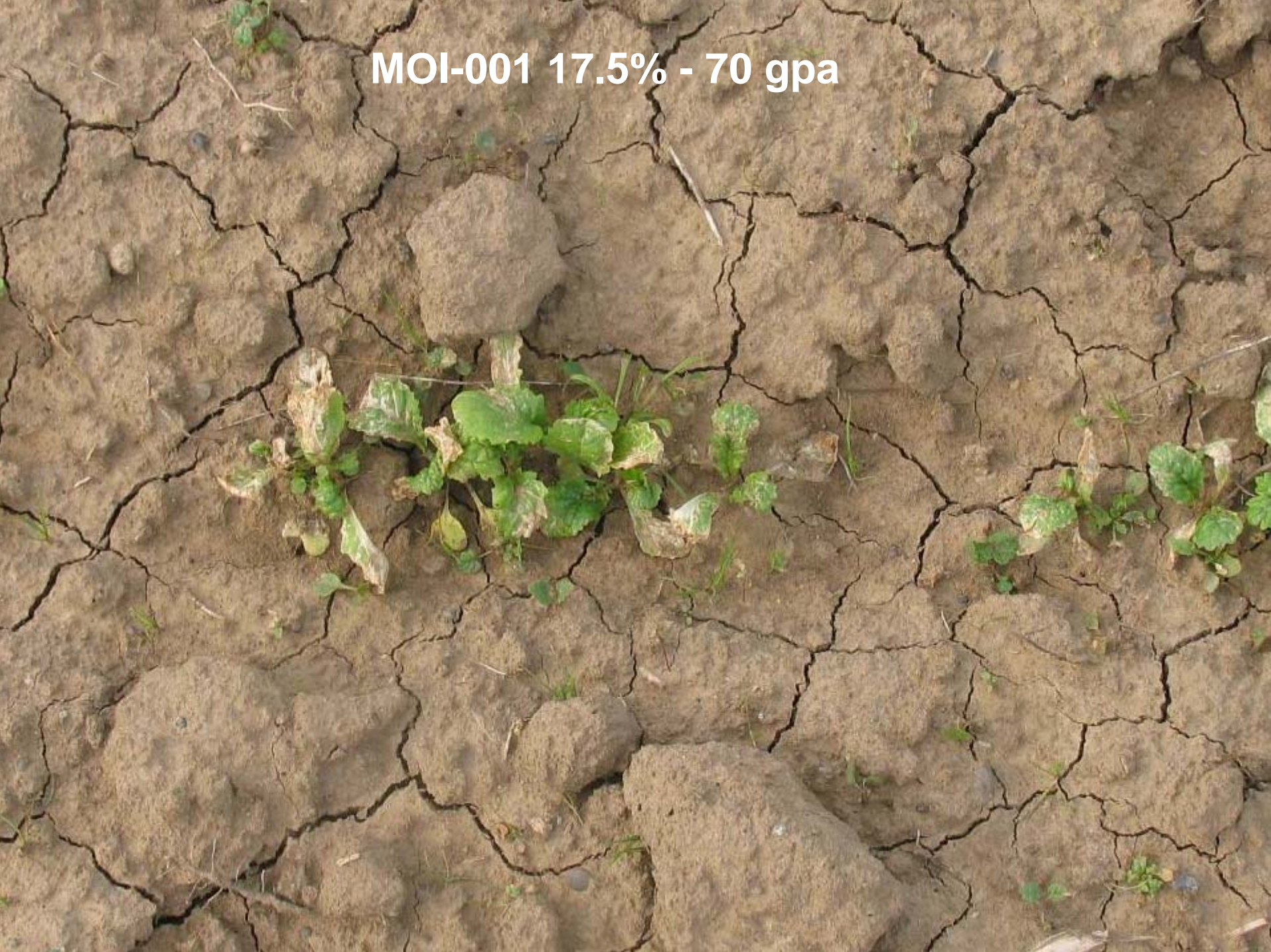
Untreated



MOI-001 10% - 70 gpa



MOI-001 17.5% - 70 gpa



5% Acetic acid

4-5 leaf mustard





**10% Acetic acid**



**15% Acetic acid**

Matran EC 10%

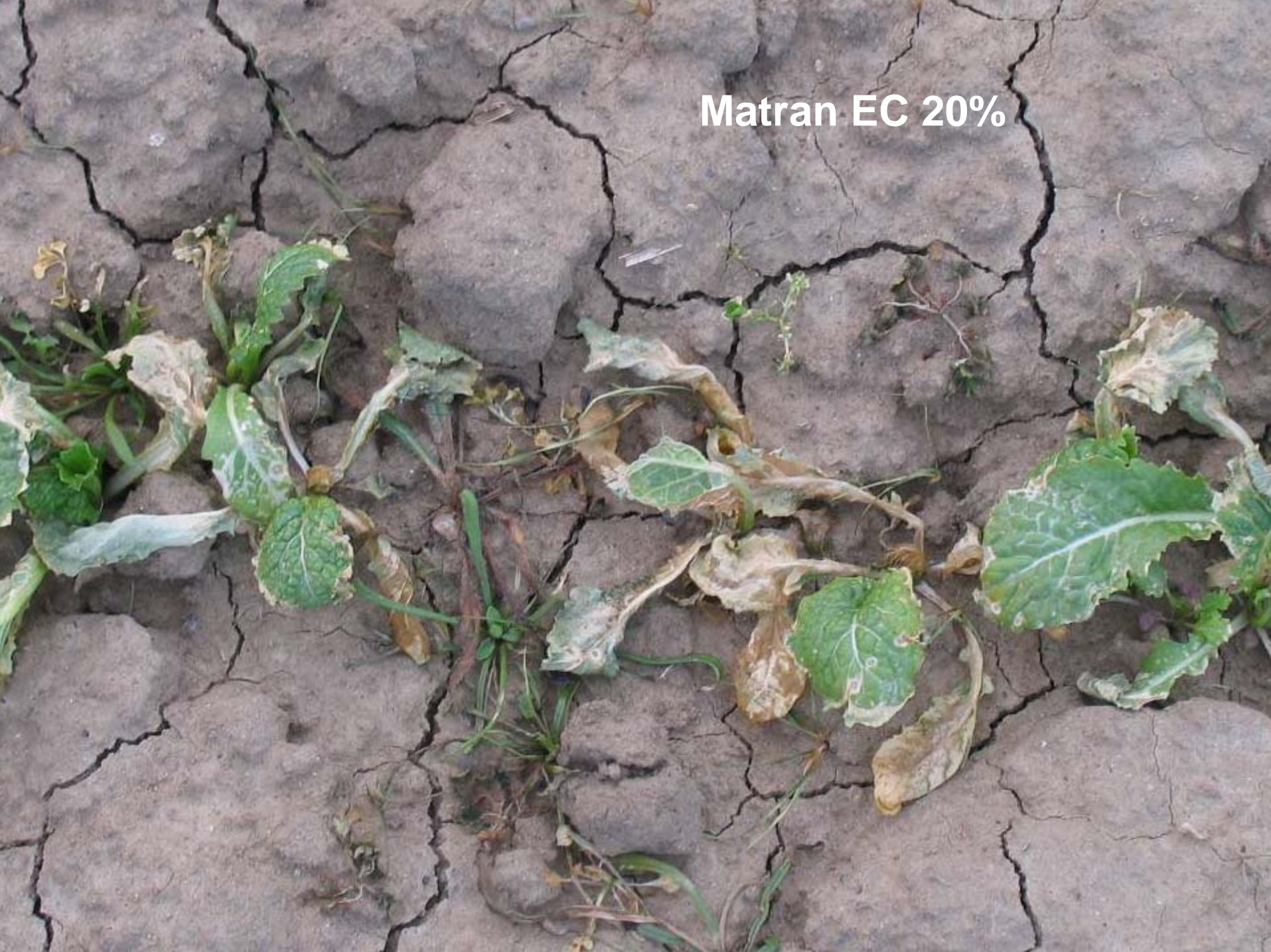


Matran EC 15%





Matran EC 20%



MOI-001 14%



C-Cide 1.6%





C-Cide 1%

Weed Zap 5%



Untreated



# Prevention

- Avoid letting weeds go to seed
- Do not let weeds come in on equipment

**Manage water carefully and weed problems  
can be reduced!**

