

Four-Corners WSARE Organic Weed Management Conference

Soils and Weed Management: 5 Principles and Practices

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Contents / Schedule

Topic	Application	Time
Introduction	Organic Weed Management and Soils: What's the Connection?	8:00-8:15
Principle 1 Healthy Soil	Soil Sampling, Soil Testing, Soil Survey and soil mapping	8:15-8:40
Principle 2 Soil Quality	Soil pH (before and after treatment with vinegar herbicide and organic fertilizer), Soil texture (impacts rates of herbicides) using pH meter and home test kit	8:40-9:00
Principle 3 Soil Temperature	Use soil thermometer or remote sensors to determine soil temperature under mulch	9:00-9:15
Principle 4 Soil Drainage	Infiltrometer, Soil Penetrometer (Compaction, Crusting)	9:15-10:00
Principle 5 Soil Records	Notebook or Computer Logbook	8:00-10:00
Closing Comments	Closing Discussion	9:45-10:00

Introduction: Organic Weed Management and Soils – What's the Connection?

- * A good organic weed management plan should maintain weed populations at an acceptable level while minimizing any negative impact to long term soil health
- * Soil characteristics are important to weed management. Soil properties such as texture, organic matter, compaction, pH, and drainage influence which weed species are present, the ability of a crop to compete with weeds, effective organic herbicide rates, residual activity of organic herbicides, and cultivation practices.

* In organic weed management we engage in practices that may differ significantly from more conventional weed management - we may use little to no herbicides and the ones we use are organic materials that react with soils in different (and we hope more beneficial) ways than synthetics. In organic weed management, we may place more emphasis on tillage, which can change soil physically and even chemically over time.

* With regard to tillage, an interesting study in Oregon showed some benefit from night tillage, apparently because weed seeds kicked up during tillage are not exposed to sunlight, and so are less likely to germinate.

Principle 1: Monitoring the overall health of your soil through periodic soil testing will help you make sure that your management practices are maintaining a healthy soil system that can help you can help your crop grow more vigorously and thus naturally resist an **overabundance** of weeds.

Application: View Web Soil Survey map/information, Practice golden rule of soil testing with proper sampling technique

Principle 2: Knowing something about soil quality can help you more effectively manage weeds in your organic cropping operation

Application: Estimate soil texture, determine soil pH with home test kit and pH meter

Principle 3: In using mulch, the type of mulch can impact soil temperature (and pH), which in turn may impact the growth of your crop and weeds

Application: Examine soil temperature data from different mulch types

Principle 4: A properly drained, un-compacted soil helps crop growth and over time can make your crop more competitive than weeds

Application: Use Soil Penetrometer to assess compaction issues, Use Infiltrometer to assess drainage

Principle 5 Keep a history of soil test records to document your progress

Application: Record data from today's workshop

Date	
Location	
Description of Management Practices	
Texture	
pH	
Soil Temperature	
Penetrometer Reading (OK, Caution, Problem)	
Infiltration Rate	

Date	
Location	
Description of Management Practices /Weed Issues	
Texture	
pH	
Soil Temperature	
Penetrometer Reading (OK, Caution, Problem)	
Infiltration Rate (Low, Med, High)	



Big Stick Ditch

55

70

78

49

End

