

Fort Lewis College

*Fort Lewis College
Field Station
Hesperus, Colorado
Beth LaShell*



WSARE Grant

- Western Region
- Sustainable Agriculture Research and Education
- Professional Development Grant
- August 1, 2008 to July 31, 2011



Sustainable Agriculture
Research & Education

DEVELOPING A HANDS-ON
ORGANIC WEED
MANAGEMENT LEARNING
CENTER FOR COMMERCIAL
MARKET GARDENS IN
LOCAL COMMUNITIES



Purpose

- Develop a Learning Center for organic market garden weed management strategies to address the needs of newcomers to the 4-Corners region and long time residents looking for more sustainable alternatives or methods to increase income



Primary Investigators:

- Beth LaShell, San Juan Basin Research Center
- Darrin Parmenter, La Plata County Horticulture Agent
- Dr. Phil Shuler, Fort Lewis College
- Jim Dyer, SW Marketing Network
- Gary Hathorn, Model Farm Dissemination Program; Shiprock, NM
- Tom Hooten, Montezuma County Agent



Training Participants

- **Agriculture professionals**
- **Master Gardeners**
- **Students**
- **Progressive producers**
- **Model Farmers**
 - Opinion leaders in culturally diverse communities, and training the next generation of professionals and producers



Workshops

- **Organic Weed Management Symposium**
 - February, 2009 – 80 participants
 - February 2010 – 50 participants in Farmington
- **Initial Workshops**
 - April 28, 2009 – 60 participants
 - May, 2010 - Biological and Cultural Control

Shorter 2-3 hour workshops

- **Soil and sustainability analysis**
- **Methodology**
- **Efficacy and production**
- **Managing web-based information**



2010 OWM Techniques

Barrier Methods

- **Black Plastic**
- **Sunbelt Weed Fabric (reusable)**
- **Red Plastic**
- **Embossed Black Plastic**
- **Embossed White on Black**

Biodegradable Barriers

- **Planters Mulching Paper**
- **Ecocover (encased shredded paper)**

EcoOne

Embossed Black

Cultural and Biological

- **Horticultural vinegar**
- **Flaming**
- **Corn Gluten Meal (preemergent)**
- **Glaser Wheel Hoe**
- **Hand Weeding**

And a Control





All plots established in late May by FLC Field Class



Drip Tape was added in 2010



Crops grown

- Corn
- Beets
- Bush Beans
- Broccoli/Cabbage (transplants)



5' of each crop was planted in four different rows for each OWM Technique

Each plot has a 3' center and is 80 feet long

Data Collection

- Production
 - Each treatment and each replicate are harvested separately
 - Weighed and counted
- Transect data to characterize weed pressure
- Temperature
 - Thermacrons were buried
 - Record Temperatures every 90 minutes
 - Can download to Excel
- Labor
 - Time spent on each plot is recorded



Market Gardens Looking North in May



Control



Plastic Barriers

(Black, White, Red, Embossed, Sunbelt)

- Advantages
 - More resilient
 - Often look the best
 - Proven production results
 - Most are \$.05 to .07 per square foot
- Disadvantages
 - Must remove at the end of the year (except Sunbelt can be reused)
 - Tend to hold more heat which can also be an advantage
 - Not porous to water



Biodegradable Barriers

Planters, Ecocover, EcoOne, Black

- Advantages
 - Porous to water
 - Biodegradable
 - Can till into soil at end of year
- Disadvantages
 - Installation can be difficult
 - Biodegrades early
 - More expensive
 - \$.12 - .14 per square foot



Cultural Controls

Corn Gluten Meal, Flaming, Horticultural Vinegar

- Advantages
 - CGM is a pre-emergent
 - Alternative to barriers
- Disadvantage
 - Non-selective
 - Not certified organic
 - Uses propane



Mechanical Controls

Glaser Wheel Hoe, Hand Weeding

- Advantages
 - More precise
 - GWH is tool of choice for LPC market gardeners
- Disadvantages
 - Labor requirements
 - Some tools are expensive
 - GWH is \$199 plus attachments (\$59-99)



Did I mention labor requirements? SW Conservation Corp Youth Learn and Serve Project



Web Documents for Learning Center

- Website established
 - www.colostate.edu/dept/sjbrc/owm
 - Long term storage of information
- Blog established
 - www.organicweedmanagement.blogspot.com
 - Small articles/pictures that can be easily updated



Potato Variety Trial

- 17 Varieties
 - Red, White and Specialty
 - 15 plants of each variety
 - Plant production data
 - Weight
 - Number
 - Number 1 (Marketable size)



Green Bean Variety Trial

- 9 Varieties
 - Bush and Pole Beans
 - Plant production data
 - Weight
 - Number
- Also did one row with mycorrhizae



Questions?

“Bean” the Garden Mascot



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