PROGRAM

Organic Vegetable Production Weed Control Strategies: Integrating Precision Cultivation, Weed Biology and OMRI Herbicides Training Program

Funded by USDA
Northeast Region Sustainable Agriculture
Research and Education Program

Rutgers University - Snyder Research Farm
140 Locust Grove Road
Pittstown, New Jersey

September 16, 2010

9:00 a.m. to 3:30 p.m.

9:30 AM to 10:15 AM – **2009 weed control strategies.** Observing plots established in 2009 and maintained in 2010. Multiyear weed control strategies

A] **Stale Seedbed Technique:** for reducing weed competition; theory and results. **Please note this plot was accidentally tilled in August, 2010** with heavy disk 8 inches deep. Photos to convey stale seedbed results included.

Photo 9/4/2009 – showing stale seedbed with weed emergence prior to killing weeds with herbicides to prevent weed seed production and avoid soil disturbance.

←Stale seedbed

←Continuous tillage

Picture Photos 7/30/2010 - Close-up of weed emergence
Stale seedbed was to be no-till planted with beans and corn after weeds killed with flaming or OMRI herbicides to minimize soil disturbance.

B] **Continuous tillage technique for reducing weed competition;** theory and results. Area Tilled 25 times over one year and planted to sweet corn and snap beans on August 17, 2010.

Photo above continuous tillage with disk - Note close -up of continuous tillage weed populations in photo in previous photo.

C] Summer/Winter Cover Cropping: utilizing Rye and Sudan grass (mowed at 12 inches during season) for reducing weed competition: theory and results – Sudan grass planted June 29, 2009 – 75 pounds per acre followed by Rye planted October 8, 2009 – 112 pounds per acre followed by Sudan grass planted June 8, 2009 – 60 pounds per acre.

Photos above of Sudan grass top 7/28/09 and rye below on 5/7/10 note reduced weed populations in Rye plot compared to check strip.

D] **Comparison of straw mulches for weed suppression** –

3 mulch applications were compared for demonstration purposes based upon mulching experiences and vegetable crops at the Snyder Research Farm: 4 inches of clean rye straw, 8 inches of clean rye straw, 4 inches of mulch hay containing weed seeds. Mulches reapplied in 2010 at same rates on half the plot.

Photo above 7/29/09 – mulches applied 6/25/09 – foreground 4 inches weedy hay, middle 4 inches clean rye straw, back 8 inches of clean rye straw. Note lack of weeds in weedy hay compared to 4" clean straw – Why?

10:15 AM – 10:45 COMPOST MULCHES – 2010

Demonstrations on several compost materials utilized for mulching at various steps will be observed including; mushroom compost, horse bedding compost and clean rye straw.

Photo above mushroom compost is dark material and horse bedding compost is reddish material.

Polyethylene or plastic mulches were developed for vegetable production in the 1960s. Today, many vegetables are grown exclusively utilizing plastic mulches for weed control, insect control as well as managing soil temperatures and moisture within the root zone. Over the last 40 years considerable research has been published comparing various colors. Three mulches are compared in the field today – green IRT [infrared light transmitting], black, and white on black. Many other styles of polyethylene mulches are available.

10:45 AM – 11:15

OMRI herbicides – products review and application strategy.

Ed Beste, University of Maryland/John Grande, Rutgers University

Three OMRI approved herbicides were applied when September 2, 2010 to small weeds which germinated approximately 2 weeks prior. Treatments were:

Burnout – mixed at a 2:1 ratio water to Burnout

GreenMatch – mixed at a 2:1 ratio water to GreenMatch

Weed Pharm – applied undiluted

All products were applied with a backpack sprayer-25PSI with a TeeJet flat fan nozzle-[110-05] applying 30 gallons of spray per acre.

Demonstration of backpack sprayers for precision application – audience participation

Photo above shows weed growth stage-lambsquarter, purslane, ryegrass on treatment day 9/2/10. Photo below shows general activity of OMRI herbicides 9/3. Treatments applied 12 noon – 90°f and bright sunshine.

11:15 AM – 11:45 AM

Hand-operated tools for precision weeding of vegetable crops; small scale organic vegetable farmers in a program planning meeting indicated hand tool weeding preferred to more costly mechanized equipment. **Overview and audience participation.**

11:45 AM – 12:30 PM

Lunch and discussion of national organic program requirements for weed control by **Erich Bremer – Supervisor Organic Certification Program – New Jersey Department of Agriculture**

AFTERNOON PROGRAM: **12:30 PM – 1:30 PM**

Mechanical precision cultivation of weeds in vegetable crops:

Cultivating tractors and implement **overview and operation – audience participation**

1:30 PM – 1:45 PM

Propane Flaming of Weeds: overview and operation of backpack propane flamer on weeds and near plastic mulches-**audience participation**. Presentation by **Mark VanGessel – University of Delaware**

1:45 PM – 2:45 PM

Farmers Understanding Weed Biology as an Essential Weed Management Skill: presentation by **Chuck Mohler – Cornell University**

2:45 PM – 3:00 PM

Large-scale organic weed control demonstration: presentation by **Joe Heckman – Rutgers University Cooperative Extension**

3:00 PM – 3:30 PM

Preview of Program

Q & A Evaluation Form

New Jersey Pesticide Credits

Organic Weed Control

Hands-On Training Program for Agricultural Educators and Farmers

September 16, 2010

9:00am – 3:30pm

Rutgers University Snyder Research Farm

140 Locust Grove Road, Pittstown, NJ 08867

POST-PROGRAM SURVEY

Name (optional): _____

Please assess your improvement in understanding of the nine competency areas listed below: **Rating scale: 0 to 5** **0 indicating lack of impact of training program** **5 indicating maximum expected impact from one day training program**		0-5
1	Utilization of stale seedbed techniques to reduce weed competition	
2	Precision cultivation with tractor mounted implements	
3	Precision cultivation with hand-operated implements such as wheel hoes and hand hoes	
4	Basic weed biology including weed seed dormancy and emergence and perennial weed population dynamics	
5	Influence of cover cropping practices on weed control	
6	Influence of continuous tillage on reducing weed seed populations	
7	Effectiveness and application techniques of OMRI/NOP approved herbicides	
8	Mulching techniques including plastic, straw and other materials to suppress weed competition	
9	Utilization of flaming for weed control	

Comments:

Thank you.