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OREGON TILTH, INC.

## **Conservation Biological Control Farm Walk**

***Persephone Farm, Lebanon, OR August 6<sup>th</sup>, 2003***

**Organized by the OSU State IPM Program and Oregon Tilth**

### **Summary, evaluation and next steps**

#### **Summary**

*Introduction:* Conservation biological control programs seek to maintain or enhance the numbers and diversity of indigenous beneficial insects and spiders on farms, particularly the predators and parasites of crop pests. The first event of a new conservation biological control program (CBC), led by the Integrated Plant Protection Center (IPPC) at OSU, and Oregon Tilth, took place at Persephone Farm, in Lebanon, Oregon, on August 6<sup>th</sup>. Owners Jeff Falen and Elanor O'Brien hosted a farm walk that explored current CBC practices on their farm as a focus for more general discussions about methods, the insects that are benefited, and limitations that may be encountered.

Approximately 30 Oregon Tilth Certified organic vegetable growers in Marion, Polk, Linn, Benton and Lane counties, were invited to participate by telephone. A number of the growers contacted, expressed an interest in the project. Information about the walk was also included in the August edition of *In Good Tilth* (Volume 14, Issue 4), but this was published too late to attract additional participants. The walk was attended by six growers, five interns and two interested consumers. This summary is being sent to all that participated, and all those that wished to be kept informed.

This farm walk initiates a project which aims to implement (CBC) on a regional scale within Oregon. To be successful, the methods of CBC will need to be tuned and adapted to fit within local farming systems, they will need to be relevant to local needs, and they will need to be effective. We believe that the best way to achieve this is through establishment of community-based, farmer directed projects that adapt the principles of *Community IPM*. IPM (integrated pest management) is a practical and effective starting point for learning about ecology and biodiversity on the farm.

*Community IPM* incorporates IPM in a strategy for local, sustainable agricultural development where farmers:

- act on their own initiative and analysis;
- identify and resolve relevant problems;
- conduct their own local IPM programs that include research and educational activities;
- elicit support from local institutions;
- establish or adapt local organizations that include farmers as decision makers;
- employ problem-solving and decision-making processes that are open and egalitarian;
- create opportunities for all farmers in their communities to participate and benefit from the IPM activity;
- promote a locally sustainable agricultural system.

*Persephone farm and current CBC practices:* Jeff and Elanor have owned Persephone farm for 18 years. It produces a number of machine transplanted crops, including broccoli, cauliflower, kohlrabi, fennel, cabbage, corn, lettuce, kale, collards, basil and parsley. It also produces a number of direct seeded crops, including beets, chard, spinach, cilantro, turnips, rutabaga, bush beans and dill. These are distributed in strips among a number of rotational units that are individually managed in each field. CBC practices are distributed within, between and around these commodities, as the farming operation permits.

A number of CBC practices have evolved on the farm over the 18 years of current operation. Elanor O'Brien provided a brief summary of these practices, which included:

- “bird and bat houses;
- plantings of sunflowers for birds and minute pirate bug (assumed to be a predator of cucumber beetle larvae);
- plantings of dill, cilantro, fennel, *Agastache*, *Alyssum*, *Calendula* and orache interspersed with cash crops, to attract and sustain various beneficial insects;
- an attempted hedgerow (which was not a success because of competition with weeds) of shrubs meant to attract and sustain birds, bees and beneficial insects;
- emphasis on cover-cropping fields not in cash crops, many with flowering plants such as vetch and clover;
- pastured poultry flock which hopefully consumes potentially harmful soil invertebrates;
- vigorous wild population of mustards, radishes, chickweed, speedwell etc., to sustain a vibrant wasp community;
- formerly: release of purchased ladybugs and lacewing larvae (we no longer feel the need to do this).”

*The farm walk:* The farm walk was designed to spend two hours in the field, progressing to three stations, interspersed with periods of sweep netting and insect identification, using hand lenses.

**Station one** provided vistas of the farm and surrounding habitats. It was the setting for an interactive session about landscape factors that influence beneficial invertebrates. Persephone farm is bordered by the South Santiam River, with diverse and mature riparian vegetation, and oak savannah that eventually merges with the forested vegetation of the western Cascade

foothills. Participants identified a number of features that may serve to promote beneficial invertebrate populations. These included structural and non-crop vegetation diversity and the presence of the riparian zone, with its mature tree and under-story vegetation. A very large conventionally- farmed field, across the river, was also seen as a potential source for beneficial invertebrates that are not benefited by the semi-natural, tree-dominated habitats that border Persephone farm. Finally, the complex strip-cropping pattern, including CBC measures that provided a rich array of pollen and nectar sources and invertebrate habitats, were recognized as making a positive contribution to insect biodiversity.

Station one also included a brief discussion of the scale over which beneficial insects complete their life cycles. Beneficial insects that actively fly or disperse in air currents in search of prey, including ladybugs, hoverflies, parasitic wasps and some spiders, may be born some distance, possibly miles away from the fields that they colonize. Although local CBC measures may retain them within the field, and enhance their beneficial effects, their population levels also depend upon the landscape beyond the farm, and how it is managed. Beneficial insects that are poor dispersers, or even wingless, including many ground beetles, complete their life-cycles within the local farm or even a single field. These insects are much more dependent upon local practices and the contribution that CBC measures can make.

**Station two** examined specific practices at Persephone farm, including the use of buckwheat as a cover crop, insectary plantings of sunflowers and *Cilantro*, and a prototype hedgerow. A field walk also took the group to an area where orache and *Calendula* were planted in rows, like the neighboring crops, to enable cultivation. This type of planting has proven to be far more effective for weed management on the farm than broadcasting. Jeff and Elanor have learned which types of planting are most effective through experience, over the 18 years of organic farm production.

**Station three** included natural enemy displays that were designed to represent the beneficial fauna of the farm. These were used in discussions about identification, prey or host types and life cycles. The displays included:

- live examples of all the life stages of several local species of ladybird beetle;
- live examples of all the life stages of several local species of predacious hoverflies;
- live examples of local species of non-predacious hoverflies;
- live examples of wasps, bees and moths that can be easily confused with hoverflies;
- pinned specimens of all the organisms listed above;
- live prey items included in the above cages to observe feeding;
- live examples of nabid bugs and big-eyed bugs;
- vials of minute pirate bugs;
- vials of predacious and plant feeding thrips;
- vials of spiders collected from the farm;
- pinned specimens of predacious ambush bugs, soldier beetles and ground beetles;
- pinned specimens of parasitoid wasps;
- parasitoid wasps and aphid feeding flies (Cecidomyiidae) in vials of alcohol

The farm walk ended with completing the evaluation, lively discussions and a wonderful meal.

## Evaluation

Participants completed an evaluation exercise at the end of the walk. There was broad interest in a number of topics associated with biological control, including insect identification, finding out more about pest biology, learning about techniques that can be applied on the farm, and developing effective ways of sharing on-farm experiences between growers. It was very clear among this group of growers, that the majority of them learn about new techniques and approaches by communicating among themselves. With regard to facilitating this community exchange, a number of approaches were suggested including farm walks, meetings out of the main growing season, and Internet-based communications. There was also interest in extending invitations to include possible suppliers of insectary and hedgerow plants, students, conventional growers, community members and scientists with expertise to share. The idea of a CBC newsletter was also very popular. Overall, the walk was considered to be a success by those that attended.

A detailed summary of the evaluation and the suggestions that were made is given at the end.

## Next steps

The verbal and written feedback from the meeting will be taken into account in planning the next farm walk, which is being scheduled for September. The list of participants and interested contacts will be kept informed as plans are firmed up. We also hope to write regular articles for *In Good Tilth* while the program is being established. Finally, we are also planning a Conservation Biological Control Fair, in the Valley during November. We hope that the participants will be able to attend as presenters and attendees.

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**Persphone Farm Walk  
Participant List  
8/6/03**

Host: *Jeff Falen and Elanor O'Brien* 541-451-5640  
Persephone Farm, 30291 Bates Lane, Lebanon, OR 97355  
Interns: Seth Belber, Jessica Levine, John Mammenga

Other Farmers:

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Consumers:

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**Evaluation questions and responses:**

1. Concerning the enhancement of beneficial organisms on your farm, which topics are the most important to you? Options listed:
  - a. identification of organisms; 6
  - b. biology and ecology of organisms; 5
  - c. how to apply different tactics on your farm; 7
  - d. comparative cost analysis of different tactics; 2
  - e. learning effective monitoring techniques; 3
  - f. developing effective ways of sharing on-farm experiences between other farmers; 6
  - g. other; suggestions given;
    - i. color albums of pests
    - ii. timeframe for effectiveness
  
2. We are interested in facilitating a community exchange of information on enhancing beneficial organisms on the farm. For this to work, we need to know about how you learn new approaches on your farm. How did you learn about the newest practice you now regularly employ on your farm? Summary of individual responses:
  - a. talking to other farmers; 9
  - b. the Internet; 3
  - c. books; 3
  - d. no-till workshop; 1
  - e. Oregon Tilth; 1
  - f. observation/experimentation; 1
  - g. bat conservationist 1
  - h. classes 1
  
3. In the interest of developing a broad-based, grower community effort in conservation biological control, we believe grower participation at all levels of program development is essential. What are some of your visions for what such a program would look like? Summary of individual responses (no prompts given):
  - a. farm visits, seasonal farm tours;
  - b. internet-based newsgroups, on-line chatting;
  - c. regionally-based handbooks, web site with bug photographs, directories of where to buy beneficials;
  - d. winter grower meeting program, classes in different areas;
  - e. newsletter by a different member each month;
  
4. Who, if anyone other than growers, do you think should be invited to participate in the community-based program you previously described? If possible, please indicate what levels of participation these persons/groups should have. Summary of individual responses (no prompts given):
  - a. anyone interested, including consumers, community members, gardening groups;
  - b. students, those planning to farm;
  - c. entomology, ornithology and botany experts;
  - d. food banks, gleaners;
  - e. student interns and farm workers;
  - f. more conventional growers;
  - g. government agencies with regulatory responsibilities;
  - h. suppliers of bugs;
  - i. seed companies;

5. We are very interested in summarizing what we've experienced today and will be holding other farm meetings this summer. We want to share this information with you as soon as possible and establish active dialog with all of you who are interested. Knowing that you are all very busy at this time, what is the best way to accomplish this? Options listed:
- |  |                                    |
|--|------------------------------------|
| a. 'phone calls, if so, when is the best time? | <b>6 (any(1), eve (2), pm (1))</b> |
| b. breakfasts?;                                | <b>0</b>                           |
| c. meetings, if so, when is the best time?     | <b>3</b>                           |
| d. e-mail discussion groups;                   | <b>5</b>                           |
| e. monthly newsletter;                         | <b>8</b>                           |
| f. other;                                      |                                    |
| i. 'web page'                                  |                                    |
6. What did you think of this farm walk? We hope to do at least one more this season. Are there ways we can make it better? Summary of individual responses (no prompts given):
- a. it was great, really helpful, enjoyable, excellent idea, opportunity to share information, a great job, preparation apparent, interesting, informative, good ideas for next season, good discussions;
  - b. more time in field sampling, insect identification information valuable;
  - c. seeing plantings;
  - d. see a transitional farm;
  - e. ask participants to provide food and to bring dishes, to avoid paper plates

# Conservation Biological Control Farm Walk

*Integrated Plant Protection Center, OSU, with Oregon Tilth*

## Agenda

Persephone Farm walk

6<sup>th</sup> August, 2003 4pm-6pm

Participant, program and farmer introductions .....	30 min
Walking to station one to discuss landscape factors with Paul .....	~20 min
Walk to station two to discuss methods for enhancement with Jeff .....	~25 min
Walking to station three to review insect displays with Gwendolyn & Mario .....	~10 min
Handouts, evaluation and discussion.....	~ 20min
Food, fun & more discussion.....	~ 15 min
6:00.....	Completion