ORGANIC FARMING RESEARCH FOUNDATION

P.O. Box 440
Santa Cruz, California
831-426-6606
info@ofrf.org
www.ofrf.org

This is a final project report submitted to the Organic Farming Research Foundation.

Project title:
Prioritizing research, education and regulatory pest management needs of organic potato farmers through participatory strategic planning

Principal investigator:
Jennifer Miller
Northwest Coalition for Alternatives to Pesticides
5902 Brian Way
Boise, ID 83716
(208) 850-6504
jmiller@pesticide.org

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Project Summary

Organic potato farmers and researchers conducted strategic planning for organic potato pest management in the West to direct future research, regulatory actions, and educational programming. In January 2008, the work group convened to discuss how they manage nematodes, insects, diseases, weeds, and vertebrate pests in organic potatoes. They also identified their research, regulatory, and education needs for each pest type and voted on their highest priority needs. They identified the following as the top research, regulatory, and education needs, respectively:

1. research the impact of long-term organic soil management on pests and soil health;
2. add organic as a priority area for the IR-4 Project [USDA program that facilitates registration of pest management technology for specialty crops]; and
3. provide a clearinghouse to disseminate organic potato pest management information in a comprehensive fashion.

The pest management strategic plan (PMSP) for organic potato production in the West was published on USDA's website in December 2008. Since completion of the PMSP, five researchers have used the plan to secure funds for research into organic potato pest management and two have used the plan as a resource. This was the first time that the USDA pest management strategic planning process was completed for an organic crop.

Introduction

USDA funding of organic farming research and outreach is disproportionate compared to the amount of U.S. certified organic land. According to Organic Farming Research Foundation's *State of the States* 2nd Edition, 0.3 – 2% of U.S. farmland is certified organic, but only 0.06% of land grant research acres is certified organic. This project addressed the disparity of organic research and Organic Farming Research Foundation's goal of obtaining a fair share of research funding for organic foods and farming.

This project took a solid step towards increasing the funding to organic agriculture through USDA pest management programs. Specifically, the project ensured strong organic farmer input in the development of an organic potato pest management strategic plan prioritizing research, education, and regulatory needs of organic potato farmers in the West.

The pest management strategic plan (PMSP) for organic potato production in the West is the first plan developed for an organically produced crop.

PMSPs include background information on nematodes, insects, diseases, weeds, and vertebrates of concern, along with the research, regulatory, and education needs of highest priority identified by the workgroup. The workgroup consists of farmers, researchers, extension specialists, regulators, and commodity group representatives. The information on pest and weed management in the document comes from a variety of sources, including extension bulletins and communications with farmers and researchers. Previously developed PMSPs are available online at http://www.ipmcenters.org/pmsp/index.cfm.

USDA pest management grants require documentation of stakeholder input and the first choice for measuring stakeholder needs is a pest management strategic plan. University researchers, extension specialists, and agricultural professionals will be able to site the identified research, education, and regulatory priorities in this document, which will strengthen their ability to secure funding.

Prior to receiving support from the Organic Farming Research Foundation, first steps had been taken to launch the PMSP for organic potato production. Six organic potato farmers from Idaho, Oregon, and Washington provided input on the development of the plan during an initial workgroup meeting in February 2006. The Northwest Coalition for Alternatives to Pesticides (NCAP) and the University of Idaho hosted the planning meeting. It was the first ever pest management strategic planning meeting for an organic cropping system. While this was an important step forward, the process for developing the plan (which had been developed for conventionally-grown crops) did not work well for an organic cropping system. More time and a comprehensive, systems approach was needed to identify the pest management methods and research, education, and regulatory priorities.

From that initial meeting, NCAP committed to seeing the organic potato pest management strategic planning process revisited and a strategic plan completed. NCAP gathered input from organic farmers and researchers and determined that the document needed to be rewritten to focus more on an integrated approach. The original planning process took the approach of treating pests once they were present, which is contrary to the principal management method of prevention in an organic system.

Organic Farming Research Foundation's support allowed the workgroup to reconvene and finish developing the plan. Additionally, organic potato farmers and researchers from the two other major organic potato states, California and Colorado, were also able to participate in developing a comprehensive PMSP for organic potato production in the West.

Objectives Statement

These original objectives were not significantly altered during the project.

a) **By January 2008, a draft organic potato pest management strategic plan will be reviewed by at least eight researchers and two organic consultants in preparation for the strategic planning meeting to be held in March 2008.**

b) **In March 2008, at least ten organic potato farmers and 15 researchers and organic consultants from 5 western states (CA, CO, ID, OR, WA) will provide input on the research, education and regulatory needs of organic potato farmers.**

c) **By December 2008, the USDA will publish its first ever pest management strategic plan for an organic crop, specifically for organic potatoes grown in the West.**

d) **In 2009, at least two researchers or extension specialists will develop a USDA research and/or extension proposal focused on meeting identified research,**

education and regulatory needs of organic potato farmers in the West. The proposal will focus on the stakeholder identified priorities, to further enhance the likelihood of success and to direct more USDA funding to organic research.

Materials and Methods

The first PMSP for an organic crop was launched in 2006, when organic potato farmers and researchers from Idaho, Oregon, and Washington met to discuss their pest management practices and identify their research, regulatory, and education needs. The USDA-guided process for developing a PMSP has been used for 100+ crops, but none have focused on organic production. The work group struggled to make the process fit an organic system, which is focused more on prevention and the integration of pest management practices. Consequently, there was not enough time to modify the process and complete the strategic planning during the working session. After trying to finish the needs identification remotely by email and conference calls, the work group determined that members needed to reconvene.

In fall 2007 and with support from the Organic Farming Research Foundation, the project team prepared to reconvene the work group in early 2008 and finish the organic potato production PMSP by December 2008. A starting document describing nematode, insect, disease, weed, and vertebrate pest management in organic potato production was developed. The organic methods were based upon the information gained from organic potato farmers at the initial PMSP work group meeting, along with information gained from university extension bulletins. The compiled organic pest management practices for each pest were reviewed by a team of researchers prior to the work group reconvening in early 2008.

In December 2007, 12 organic potato farmers and 23 researchers were invited to attend the January strategic planning session in Portland, Oregon. The strategic planning process included farmers and researchers from all five major organic potato producing states in the West. By reconvening the group, organic potato production in California and Colorado could be added to the strategic plan, since these states represent a majority of the organic potato production in the West. The draft document, with the nematode, insect, disease, weed, and vertebrate pest management methods, was shared with participants ahead of the meeting.

In January 2008, eight organic potato farmers and 15 researchers and agronomists participated in the strategic planning session. They identified whether the pest was a major concern in each growing region and the management methods used in an organic potato cropping system. The farmers and researchers also identified the research, education, and regulatory needs for managing nematodes, insects, diseases, weeds, and vertebrates in organic potatoes. At the end of the meeting, they voted on the top research, regulatory, and education needs in order to develop the list of highest priority. In addition, work group members from each organic potato growing region completed a table identifying their field activities by time of year. The growing regions were divided into California, Colorado, Columbia Basin of Oregon and Washington, Idaho, Klamath Basin of California and Oregon, and the West of the Cascade Mountains region of Oregon and Washington. The pest management activities for each pest type were also presented in a table format to provide a quick, accessible way to view the information.

Following the January 2008 work group meeting, our project team compiled the new information and edited the draft strategic plan. Extensive questions were noted during the work group meeting, so the project team worked with farmers and researchers to gather this additional information. In June 2008, the strategic plan was completed and sent to all participating work group members from both the 2006 and 2008 planning sessions for a final review.

Our project team reviewed and incorporated the edits from the work group into the PMSP during late summer 2008. The work group again identified several questions during the review process, so the project team worked with the appropriate resource person to address these questions and comments.

In October 2008, USDA completed its review of the document. The project team made the final revisions to the document in November. In December 2008, the PMSP for organic potato production in the West was published on the USDA website. Hard copies of the PMSP were distributed to work group members.

Project Results

1) The first ever pest management strategic plan for an organic crop was published on the USDA website in December 2008.

The 108-page plan is available online at http://www.ipmcenters.org/pmsp/pdf/CA-CO-ID-OR-WAOrganicPotatoPMSP.pdf. The Organic Farming Research Foundation's support for the development of the plan is recognized on the cover page.

The plan provides an overview of pest management in an organic cropping system and the approaches farmers take for managing nematode, insect, diseases, weeds, and vertebrate pests in organic potatoes. For each pest type, the plan also contains a list of research, education, and regulatory needs, as identified by the participating organic potato farmers and other workgroup members. The work group also identified their highest overall research, education, and regulatory needs, which are summarized below.

Summary of the Most Critical Needs in Organic Potato Production in the West

Research Needs

1. Research the impact of long-term organic soil management on pests and soil health and how that management helps plants resist pests.
2. Research organic sprout control in storage, and discover potato varieties that have longer dormancy to further prevent sprouting in storage.
3. Scientifically evaluate all biological control agents.
4. Determine how best to conserve natural enemies in an organic potato cropping system.
5. Dedicate long-term organic research sites.

Regulatory Needs

1. Add organic as a priority area for the IR-4 Project [USDA program that facilitates registration of pest management technology for specialty crops] in order to cut costs for new organic pesticides.

2. Allow fast-track EPA approval for low-risk organic pest management materials as part of the Pesticide Registration Improvement Act. Determine how to work with smaller companies to help them with this process.
3. Clarify and integrate the requirements of the Good Agricultural Practices (GAP) program and the National Organic Program (NOP) so that they are not in conflict with each other. For example, manure use is restricted by GAP but allowable under NOP rules.
4. Approve new potato varieties, already in use in Europe, that have resistance to important pests (e.g., potato cyst nematode, late blight).
5. Integrate regulations and reduce barriers to producing organic potato seed in regulated seed-producing areas.

Education Needs

1. Provide a clearinghouse to disseminate organic potato pest management information in a comprehensive fashion (e.g., eOrganic). Include cultural practices and their efficacy, as well as resistant varieties. Make sure this information is available in Web-based and non-Web-based formats.
2. Educate growers about which green manure varieties are good for managing specific pests.
3. Educate USDA about the importance of funding organic research, especially long-term organic research.
4. Educate growers about the importance of good, clean, certified seed, and provide them with strategies for understanding all of the information available about certified seed. Educate them about having a plan for clean seed (i.e., not using self-saved seeds and not buying from unknown sources.)
5. Educate FDA and USDA about the importance, validity, and safety of organic methods.
6. Educate growers about soil-building research (e.g., mulch and compost addition).

2) As of June 2009, seven researchers have used the organic potato production PMSP to develop research programs, document stakeholder needs in grant proposals, and/or shared the document with others.

An initial survey of the participating researchers has shown that seven have used the organic potato production PMSP to develop their programs, as documenting support for their grant proposals, or as a resource. Five of these researchers used the PMSP to document stakeholder needs in a grant proposal and were funded. The other two researchers had used the PMSP as a resource document for farmers and other researchers. Five researchers on the work group noted that they had not used the PMSP; however, several expected to use the document in the coming months. NCAP will survey work group members again in December 2009 to determine how the PMSP has been used to advance research into organic potato production.

Conclusions and Discussion

This project provided an important opportunity for organic farmers and researchers to work together to identify organic potato pest management practices and set priorities for their research, regulatory, and education needs. Several researchers had limited experience working with organic production and this planning process helped them to better understand organic methods and the importance of preventative measures.

With completion of the first PMSP for an organic crop, a template is now available for developing additional strategic plans for other organic crops. The organic potato PMSP differed from other PMSPs prepared in the West in that it focused on the preventative methods such as crop rotation, avoidance, sanitation, variety selection, cover crops, etc. as the foundation for pest management. The organic potato PMSP also addressed each pest type together, rather than dividing the plan by crop stage. These changes helped to make the strategic planning process and resulting document better fit an organic cropping system.

While more time is needed to determine the full extent by which the PMSP has impacted organic potato production research and educational programming for farmers, seven researchers have already reported that they have used the plan. Five researchers used the organic potato PMSP to secure funding for more research into organic methods of pest management, including conservation biological control, biocontrol for potato insects, and sprout control.

Outreach

This project involved the participation of 40 workgroup members, including organic potato farmers, researchers, agronomists, regulators, and other technical experts. All participants received the final PMSP for organic potato production in the West and were encouraged to share it with other farmers and researchers.

The organic potato production PMSP was announced in articles in the *Capital Press*, the potato trade magazine *Potato Grower*, the Weekly Harvest Newsletter of ATTRA National Sustainable Agriculture Information Service, and in the Western Integrated Pest Management Center's newsletters.

Outreach events were conducted in Idaho, including two organic potato field days and a session at the University of Idaho Potato Conference. NCAP held two organic potato field days in mid-September, with 63 people attending. Both farmers who hosted the field days had participated in development of the organic potato production PMSP. The first field day was hosted by Kris Taylor, an organic grower in just his second year of organic potato production. The second field day was hosted by Fred Brossy, an organic farmer who has been growing organic potatoes for 14 years.

Speakers at the field days addressed various aspects of organic potato production, including nutrient management, pest and weed management, storage, and rotation crop choices. The hosting organic potato growers described their rotation system, potato pest and weed management, and fertility management. In addition, Alec McErlich, agricultural research and development manager for Small Planet Foods and PMSP work group member, discussed his

extensive experience managing organic potatoes and various vegetable crops across the Pacific Northwest. University of Idaho researchers Amber Moore and Nora Olsen discussed organic nutrient sources, storage management, and sprout inhibitors. Gina Greenway, University of Idaho graduate student in agricultural economics, updated growers on the status of her organic potato market assessment.

More than 70% of the field day participants reported an increase in their knowledge of organic weed and disease management in potatoes and marketing organic potatoes. Thirteen of the participants committed to updating their organic potato production plans, based upon new information gained at the field days.

A session on organic potato production and pest management was held in January 2009 at the University of Idaho Potato Conference. University of Idaho researchers reported on their studies of fertility management options, potato variety trials, and storage methods in an organic potato crop. The organic potato PMSP was also shared with farmers.

In February 2009, the PMSP was presented in a poster at the sub-regional SARE conference in Spokane, WA.

NCAP's newsletter *The Farmer Exchange* profiled Kris Taylor, one of the organic potato farmers who participated in development of the PMSP. The organic potato production PMSP was listed as a resource in the newsletter.

NCAP has planned two organic field days for summer 2009. Both of these field days will cover organic potato production and several of the pest management needs identified in the plan.

References

Guidance in Developing a Pest Management Strategic Plan. August 15, 2007
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Pest Management Strategic Plan for Pacific Northwest Potato Production. 2007.
http://www.ipmcenters.org/pmsp/pdf/PNWPotatoPMSP.pdf

A complete list of references is contained in the Pest Management Strategic Plan for Organic Potato Production in the West.

Addenda

Pest Management Strategic Plan for Organic Potato Production in the West. 2008.
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Organic Production: Pest Management Strategic Plan Available. March 2009. *Potato Grower*.

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Two Organic Potato Field Days Are Outgrowth of Organic Potato Production PMSP. February 2009. *The Western Front*. Western Integrated Pest Management Center

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Organics grow in Idaho: Regional, state groups work together to help new organic farmers. November/December 2008. *Spudman*

Organic Potato PMSP. October 2008. *The Western Front*. Western Integrated Pest Management Center

Organic spud acres still lag: Shipper dedicates packing facility specifically to organic product. September 26, 2008. *Capital Press*

Pictures from outreach events:

A September 2008 field day was held at Kris Taylor's organic potato field near Idaho Falls, Idaho. Taylor participated in the work group that developed the organic potato production PMSP. Taylor is a relatively new organic potato farmer, producing his second organic potato crop in 2008. Alec McErlich, agricultural research and development manager for Small Planet Foods, was also a PMSP work group member. McErlich shared his extensive experience in organic potato production during the September field day.

Kris Taylor digs some of his organic potatoes to show field day attendees. Alec McErlich, agricultural research and development manager for Small Planet Foods, shared his experience working with organic potato farmers in the Northwest.

Field day attendees learn about the latest research conducted on sprout control for organic potatoes

Alec McErlich, agricultural research and development manager for Small Planet Foods, talks about organic methods of weed management and other topics during the September 2008 organic potato field day near Idaho Falls, Idaho.

A second field day was held at Fred Brossy's organic farm near Shoshone, Idaho. Fred started transitioning to organic in 1992 and has been growing organic potatoes since 1996.

Organic farmer Fred Brossy talks about his organic rotation, including potatoes, during a September 2008 field day.

Gina Greenway, research associate with the University of Idaho, shares the results of her research into organic potato markets.

Field day attendees visit Fred's test plot of several new potato varieties.

Alec McErlich, agricultural research and development manager for Small Planet Foods, talks about organic potato production during the September 2008 organic potato field day near Shoshone, Idaho.