

Summary Report

A Survey of Certified Organic Producers in the Western United States: Experiences and Management Practices of Growers in Idaho, Montana, Oregon, Utah, and Washington

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Introduction

While many growers have reported dissatisfaction with the lack of information and resources available to organic farmers, few surveys have been conducted about the organic grower population by public institutions to inform research and Extension services tailored towards organic farming. The Organic Farming Research Foundation (OFRF) has conducted four nationwide organic producer surveys, which included questions concerning the amount and type of products produced, marketing practices, organic prices, and research priorities (Walz, 2004). The U.S. Department of Agriculture (USDA) performed surveys of organic growers nationwide in 2009 and 2011, in which growers were asked to report land use, value of sales, crops harvested, and marketing practices. While these surveys were very valuable in terms of identifying research priorities for organic agricultural research nationwide (Sooby et al., 2007) and quantifying the extent and value of organic production in the U.S. (USDA-NASS, 2012), little to no questions were asked about tillage implements, weed control, and soil fertility management.

In the Pacific Northwest, a survey was conducted in 2006 through a joint effort of the WSU Wheat Breeding Program and the Department of Community and Rural Sociology targeting Washington wheat growers (Jones et al., 2006). While most respondents were conventional growers, questions were included to gauge interest in growing organic grains, as well as to identify the perceived primary barriers to organic small grains production. More recently, surveys of certified organic producers in Washington and Idaho were conducted that addressed motivations to farm organically, marketing practices, sources of information, and challenges faced by organic growers (Goldberger, 2008; Goldberger et al., 2010). Because these surveys targeted all organic producers and the character of vegetable, small grains, and livestock operations are often quite different, information pertaining specifically to large-scale organic management practices was still lacking.

To gain a better understanding of organic growers' use of tillage implements, weed control, and soil fertility management practices in the northwestern U.S., a survey of certified organic producers of alfalfa, grass hay, cereal crops, pulses, livestock, and dairy cows was conducted from February to May 2014. The survey was performed to supplement findings from field trials and to inform outreach efforts and future research on applied management practices as part of a USDA-funded, multi-state, six-year project examining weed control, soil management, and crop rotation practices in dryland organic production systems. Goals of the survey were to identify 1) barriers to producing organic grains in the northwestern U.S., 2) weed control practices, 3) soil fertility management practices, 4) the most

problematic weeds for organic farmers in the region, and 5) research and Extension needs of organic producers in the northwestern U.S. in the areas of weed control and soil management.

Methods

Survey recipients were identified and addresses were obtained from the 2012 List of Certified USDA Organic Operations from the USDA (<http://apps.ams.usda.gov/nop/>), a national database searchable by state, products produced, and other parameters. The survey was conducted by the Social and Economic Sciences Research Center (SESRC) at Washington State University from February to May 2014 using the Tailored Design Method (Dillman et al., 2009), during which survey recipients received four mailings, including an introductory letter, questionnaire, reminder postcard, and replacement questionnaire. Survey recipients had the option to complete the survey via the paper questionnaire or on the web. Survey questionnaires were sent to 432 certified organic producers in Idaho, Montana, Oregon, Utah, and Washington and consisted of 36 questions presented in a mix of close-ended and open-ended formats. The questionnaire was divided into three sections: (1) the character of individual farm operations and experiences of growers producing organic crops, (2) production practices concerning weed and soil fertility management and research needs of organic producers, and (3) respondents' demographics and farming experience.

Results

Of the 432 surveys mailed, 157 completed questionnaires (via mail and the web) and 1 partially completed questionnaire were returned, for a response rate of 38%. Respondents were 86% male and 14% female. Average age was 55 years. Respondents had been involved in farming as an owner, manager, or primary decision maker for 1 to 60 years, with an average of 28 years. The majority (90%) of respondents were not the first person in their family to farm, but 83% were the first person in their family to produce certified organic products. A majority of respondents completed some post-secondary education as their highest level of formal education, with 23% reporting having completed some years of college without finishing the degree, 13% completed a two-year degree, and 31% having obtained a four-year college degree. Only 16% of respondents reported a high school diploma or less as the highest level of formal education completed.

The National Organic Standards and the USDA Organic Seal were established in 2002; prior to this time, growers were certified organic by smaller, independent, state or regional certification agencies. When the USDA established a uniform set of national standards, responding to growth in demand for organic certification, many of these state and regional agencies became accredited by USDA to certify organic operations under the national program. Over a third of respondents reported operating certified organic farms prior to 2002, which were certified organic mostly by state agencies (e.g., Washington State Department of Agriculture), which have since received accreditation by USDA. After 2002, the greatest number of new organic certifications took place in 2006 and 2007 (Figure 1), after which the number of new certifications declined among the grain crop and livestock producer population surveyed.

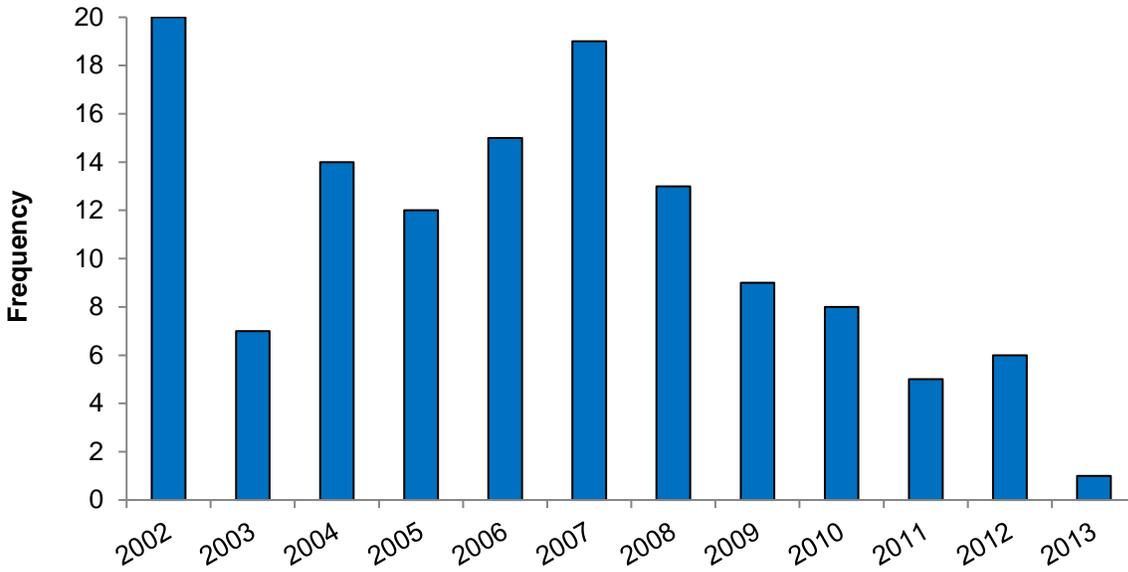


Figure 1. Histogram of organic certifications received by operations of respondents after 2002, adhering to the National Organic Standards established by USDA in 2002.

Seventy-nine percent of survey respondents had transitioned some of their conventional acreage to certified organic acreage; however, only 29% of respondents still operated some conventional acreage, indicating that the majority of operations produced only organic products. Respondents operated 1,338 certified organic acres, on average, with respondents in Montana and Utah operating more certified organic acres than growers in Idaho, Oregon, and Washington (Table 1). Grass hay was the most common organic product produced by survey respondents, followed by alfalfa, barley, and beef cattle. When asked in an open-ended question what their primary reason was for farming organically, respondents most commonly mentioned financial or economic factors, followed by the belief that growing organically was better for the environment. Concerns about corporate agriculture and chemicals, the health of their family and workers, and animal welfare were also motivating factors mentioned by respondents.

Table 1. Mean and median certified organic acreage reported by survey respondents in five states.

	Certified Organic Acres Operated	
	Mean	Median
Idaho	536	260
Montana	3,770	1,398
Oregon	581	320
Utah	5,376	5,086
Washington	328	170
All States	1,338	350

When presented with a list of potential problems associated with farming organically, survey respondents were asked to rate the extent that each factor had been a challenge to the success of their organic farming operation in the past five years. The “high cost of organic inputs” was rated as the most challenging, with 63% of respondents rating it as a “moderate” or “considerable” challenge. “Weed-related production losses” and “variable or low yields” were the second and third most challenging factors faced by organic growers in the northwestern U.S (Table 2). The majority (66%) of respondents reported having used irrigation on their farms in the past five years, and of those respondents, 63% reported having no trouble accessing sufficient irrigation water during the past five years. However, in the list of primary challenges to operating a successful organic farm, “lack of irrigation water” was rated as a “moderate” or “considerable” challenge by 30% of respondents, implying that access to water is a major issue for those few operations that require irrigation and experience limited access. Despite these challenges, 98% of all respondents planned on maintaining their organic certification over the next five years, and of those, 41% planned to increase production (Figure 2).

Table 2. Challenges faced by certified organic operations in the northwestern U.S.

Challenge	Mean Score*
High cost of organic inputs	2.74
Weed-related production losses	2.67
Variable or low yields	2.44
Lack of affordable fertility sources	2.32
Lack of organic price information	2.14
Difficulty in obtaining organic inputs	2.10
Lack of public research focused on organic production	2.05
Production losses due to pests or diseases	1.99
Lack of irrigation water	1.98
Lack of animal manure resources	1.91
Low prices received for products	1.81
Unstable organic prices	1.77
Limited distribution opportunities	1.77
Inability to find enough farm labor	1.72
Lack of crop varieties suited for organic production	1.71
Limited demand for organic products	1.67
Lack of access to processing facilities	1.56
Lack of access to equipment	1.50
Pesticide or herbicide drift	1.30

* Mean score on a scale from 1 = “Not at All,” 2 = “Minimal,” 3 = “Moderate,” 4 = “Considerable.”

When asked to select the product that represented the largest portion of growers’ gross income earned from certified organic products, alfalfa (23%) and dairy cows (milk and other dairy products) (21%) were the top two products chosen. Given the diversity of the operations surveyed, many other products were selected as the most profitable (Figure 3).

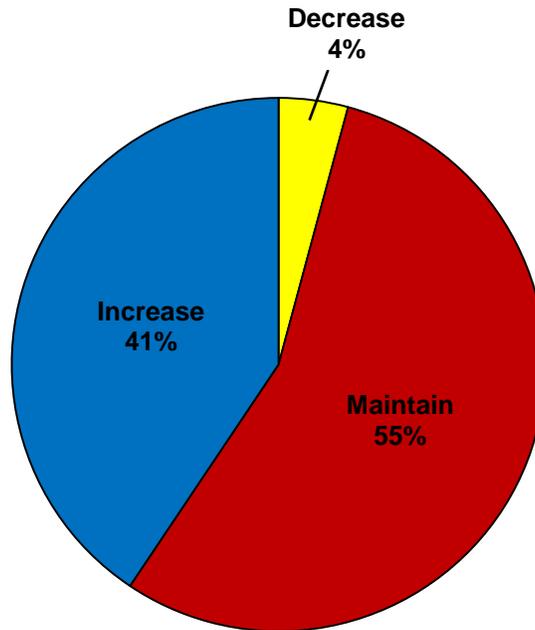


Figure 2. The percentage of respondents planning to decrease, maintain, or increase current level of organic production, of those respondents who plan to maintain their organic certification over the next five years.

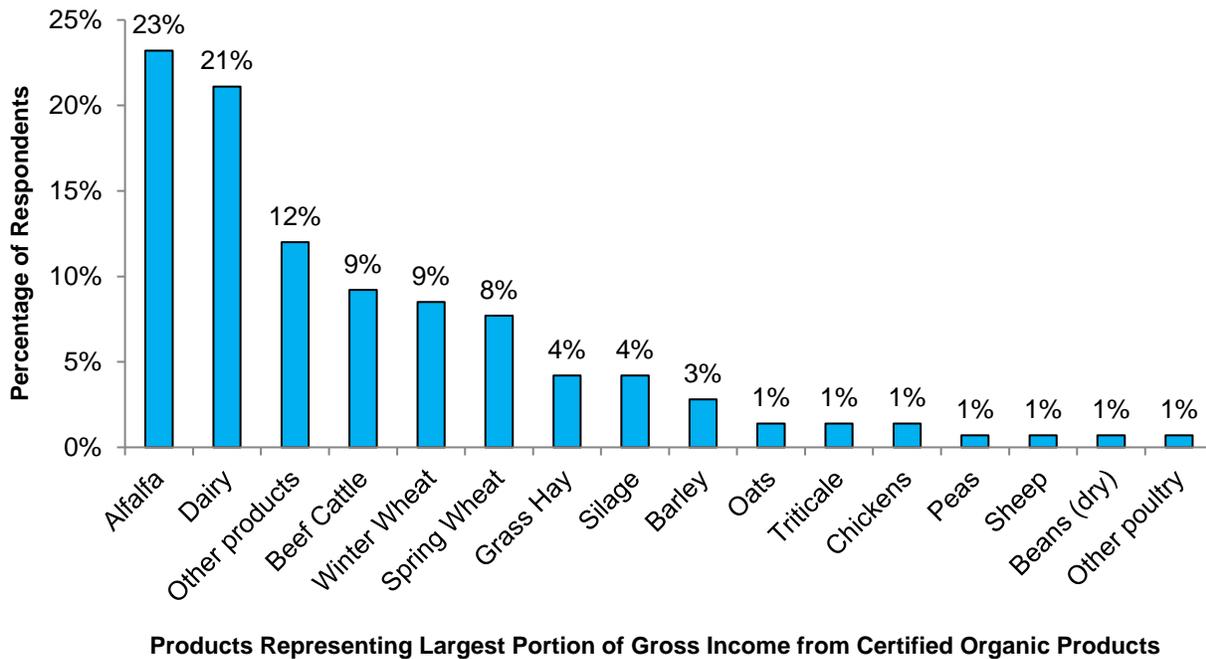


Figure 3. Respondents were asked to select the one product that represented the largest portion of the gross income earned from their operations' certified organic products in the previous year (2013). The "dairy" category includes milk and other dairy products; the "sheep" category includes sheep-derived products; the "chickens" category includes eggs and meat; the "other poultry" category includes eggs and meat, and the "other products" category includes certified organic crops, animals, or animal products not on the list provided.

Only 15% of respondents reported developing value-added products from certified organic crops, meat, and eggs produced on their operations. Increased income and access to markets were mentioned by these respondents as reasons for producing value-added products. Certified organic products made up the majority of farm sales for most respondents, as these products made up greater than 75% of total farm sales for 68% of respondents (Figure 4). Similarly, 65% of respondents were able to sell greater than 75% of their certified organic products at an organic price premium.

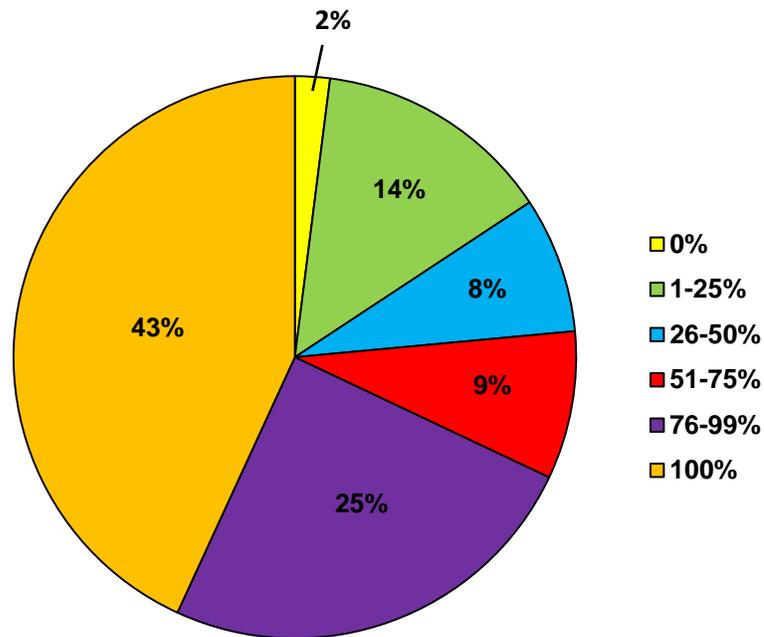


Figure 4. Percentage of total farm sales derived from certified organic products, including certified organic value-added products.

A majority (66%) of respondents rated the importance of being able to sell their certified organic products at a price premium as “somewhat important” or “very important” to the success of their operation, but 21% rated it as “very unimportant” (Figure 5). Interestingly, more growers who produced only certified organic products rated the importance of organic price premiums as “very unimportant” compared with growers who produced both types of products, suggesting that price premiums are not crucial for the survival of all organic operations. However, those who rated price premiums as “somewhat important” or “very important” included growers who produced only certified organic products and growers who produced both organic and conventional products, indicating that even growers who operate in both types of markets depend on price premiums for certified organic products.

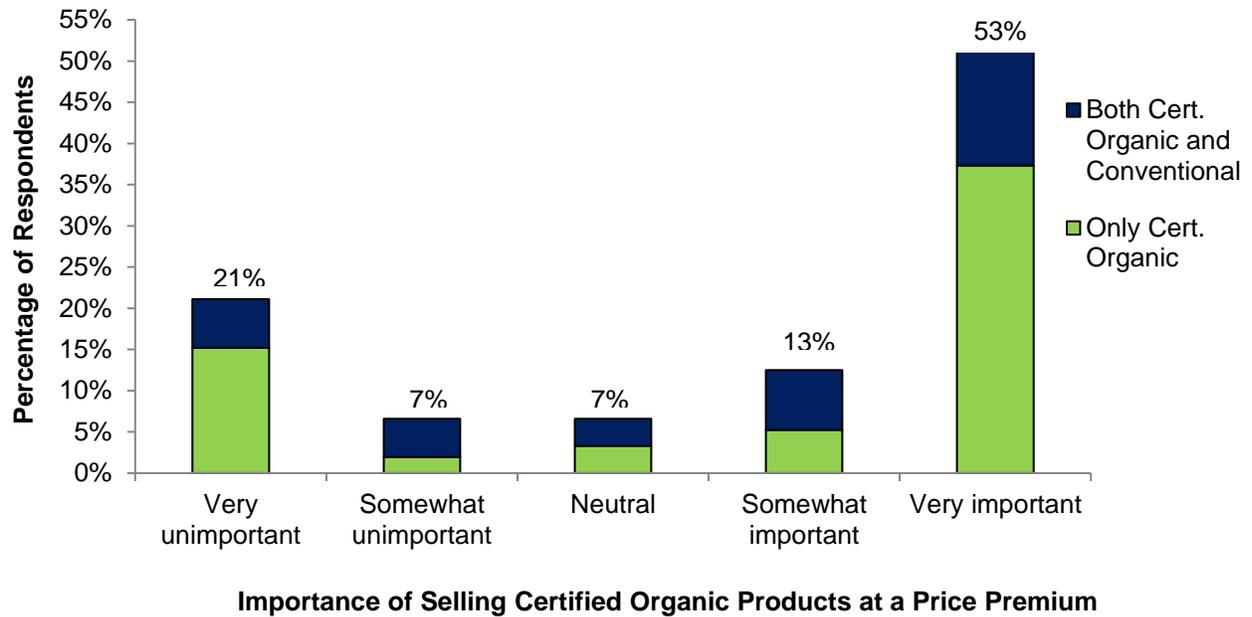


Figure 5. Survey recipients were asked to rate the importance of being able to sell their certified organic products at a price premium to the success of their operation. Responses shown above are displayed according to the type of operation. “Both certified organic and conventional” refers to operations with both certified organic and conventional acreage, and “only certified organic” refers to operations with certified organic acres only.

Weed Management

Seventy-one percent of respondents used at least one type of tillage implement to control weeds on their certified organic acreage, and 53% used more than one type of mechanical tillage. As some tillage implements are appropriate to use in only certain crops, mechanical tillage use responses were disaggregated by type of crops produced (grain crops vs. forage crops). Grain crop producers used, on average, more mechanical tillage implements compared with forage crop producers, likely because many forage crops are perennials, and don’t require annual tillage before and after planting. Grain crop producers used pre-plant tillage (78%) and a rod weeder (43%) for mechanical weed control, and forage crop producers used pre-plant tillage (43%) and a tine weeder (15%) for mechanical weed control (Table 3). The cultural controls used by the most respondents to control weeds were crop rotation (89% of grain crop and 59% of forage crop producers) and an increased seeding rate (71% of grain crop and 46% of forage crop producers) (Table 3). A majority (65%) of grain crop producers reported having used cover crops. When asked which weeds have proven difficult to control on certified organic acreage and/or have negatively impacted their certified organic products, growers most often mentioned Canada thistle (*Cirsium arvense*) and field bindweed (*Convolvulus arvensis*), followed by mustard (Brassicaceae) and pigweed (*Amaranthus*) species (Figure 6).

Table 3. Percentage of respondents who reported using selected implements for mechanical weed control. Percentages shown include those who used these implements only on their certified organic acres, and those who used them on both their certified organic and conventional acres.

Weed Control Practice	Grain Crop Producers ^a (%)	Forage Crop Producers ^b (%)
<i>Mechanical Controls</i>		
Pre-plant tillage	78	43
Rod weeder	43	19
Tine weeder	32	22
Inter-row cultivator	30	11
Root undercutter	22	13
Rotary harrow	17	15
Rotary hoe	11	4
<i>Cultural Controls</i>		
Crop rotation	89	59
Increased seeding rate	71	46
Cover crop	65	35
Selection of competitive varieties	64	41
Residue mulch	45	18
Relay- or inter-crop	32	18

^a Includes respondents who produced winter wheat, spring wheat, beans (dry), barley, chickpeas, oats, triticale, peas, and/or lentils, and not the crops in the forage category (see footnote b).

^b Includes respondents who produced alfalfa, grass hay, and/or silage, and not the crops in the grain crop category (see footnote a).

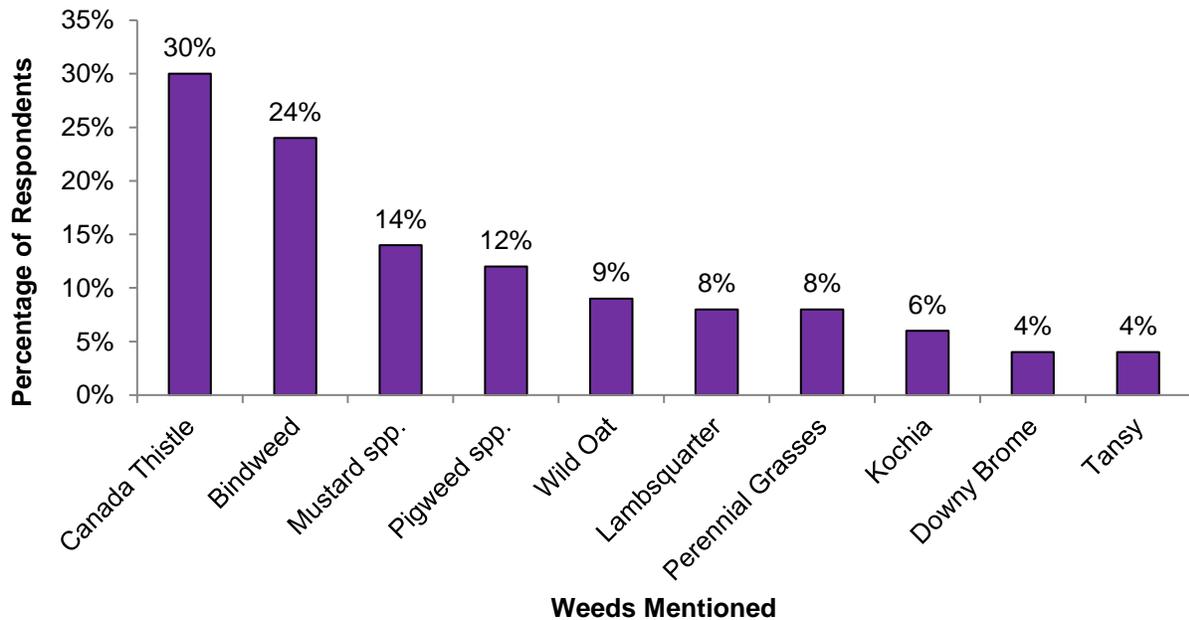


Figure 6. Weeds mentioned in response to an open-ended question, asking survey recipients to list weeds that were difficult to control on their organic acreage and/or have negatively impacted their certified organic products. Weeds mentioned by less than 4% of respondents are not shown.

Soil Fertility

A majority (78%) of respondents conducted soil sampling and/or soil tests to monitor the nutrient status of their soils, and of those, 89% of growers who operated both conventional and certified organic acreage performed soil sampling/tests on both types of acreage. Sixty-nine percent of respondents reported having applied livestock and/or poultry manure on their farm, of which 76% applied manure only on their organic acreage. Additionally, 74% of those who applied manure reported that the manure was generated on-farm.

Fifty percent of respondents reported having grown cover crops and 55% of respondents grew green manure crops on their certified organic acreage to supply nitrogen to their soil. The cover crops most commonly mentioned were peas (38%) and oats (29%) followed by wheat (19%), barley (16%), triticale (16%), and vetch species (16%). Rates of the use of green manure between the five states were comparable, with the lowest in Oregon (48%) and greatest in Montana (67%). Growers were asked about their fertility management strategies, and green manure was the most common soil fertility management tactic employed by respondents. Growers also reported applying compost (36%), natural fertilizer from animals (e.g., blood meal, fish emulsion, bone meal) (45%), and green waste (18%). These rates of use were comparable between grain crop and forage crop producers. When asked what soil fertility issues they would like to see addressed by public researchers and Extension agents, growers most often mentioned the development of affordable soil fertility amendments or products (16%) and cover crops research (13%). Growers also mentioned strategies to achieve sufficient levels of plant-available nitrogen (12%) and phosphorus (10%).

Conclusions

While the survey results indicate that the rate of adoption of organic agriculture is slowing in the northwestern U.S. among small grains and livestock producers, they also show that those operating certified organic acreage have little intention of giving up on organic management. Financial factors proved to be the strongest motivator for certified organic producers; however, their strong convictions in organic farming leading to the improved health of their families and a lower impact on the environment likely lower the possibility that certified organic growers in the northwestern U.S. will return to conventional farming, even if returns from organic products decrease. In written comments many respondents expressed their belief that organic agricultural practices were better for their families and customers, and did not want to use chemicals on their operations. However, the number of organic small grains, forage, and livestock producers in the northwestern U.S. is low compared to other regions, such as the Midwest (USDA-NASS, 2012); consequently, these growers struggle with problems that result from the organic market being relatively small and undeveloped, such as feeling underserved by public researchers and the agricultural industry as a whole.

Responses indicated alfalfa and dairy to be the most profitable certified organic products produced, followed by beef cattle, suggesting that meat and dairy products are likely more profitable for growers than are certified organic commodity cash grains such as winter and spring wheat, and other small

grains. Such a finding suggests that certified organic grain producers may find that marketing their organic small grains for feed may be more profitable than growing for food-grade markets.

While other surveys have identified low yields to be a challenge for organic growers (Goldberger, 2008) and a perceived barrier to adopting organic production practices (Jones et al., 2006) in the northwestern U.S., certified organic growers still reported struggling with weed and pest control issues, which indicates little progress has been made in controlling pests without the use of chemicals. The persistence of yield losses due to weeds and pests points to the need for public researchers and Extension agents to use survey findings to inform the design of organic production studies, while listening to the needs of growers and taking current management practices into account. Currently, most growers reported having used mechanical tillage but relied mostly on cultural methods to control weeds, especially pre-plant tillage, crop rotation, and increased seeding rates, which have not proven successful in ameliorating pressure from the perennial weeds Canada thistle and field bindweed.

Similarly, field studies of organic management practices often focus on cultural controls, as they are an integral part of the organic agricultural paradigm; however, research on larger-scale, technology-based tactics for weed and pest control, such as precision guidance systems for tillage implements in performing weeding operations, could greatly benefit organic growers operating on large acreages. Research efforts to help organic field crop growers control weeds would likely contribute to the sustainability of these operations, as several growers reported weeds as limiting their crop choices and endangering the survival of their organic operations. Enabling the practice of organic agriculture on large acreages could also extend the ecological benefits derived from organic agriculture to a greater land area, as opposed to researchers focusing on small organic vegetable farms operating on few acres. The findings of this survey identify a group of organic growers operating on a comparable scale to conventional producers with similar, but underserved, research needs. Publicly supported efforts to improve weed control and soil fertility efforts on these operations could benefit the availability of organic products, increase financial returns for growers, and result in measurable benefits to agroecosystems on a landscape scale.

This work was funded by a USDA-NIFA grant titled "Sustainable Dryland Organic Farming Systems in the Pacific Northwest" (Grant #2009-51300-05578).

References

- Dillman, D.A., Smyth, J.D., and L.M Christian. 2009. Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method. 3rd ed. John Wiley and Sons, New York, NY.
- Goldberger, J.R. 2008. "The Experiences and Perspectives of Washington's Certified Organic Producers: Results from a Statewide Survey." *Sustaining the Pacific Northwest*. 6(3): 5-8.
- Goldberger, J.R., Connor, S., and J. Miller. 2010. "The Experiences and Perspectives of Idaho's Certified Organic Producers: Results from a Statewide Survey." *Sustaining the Pacific Northwest*. 8(2): 8-11.

- Jones, S.S., Kidwell, K.K., Dawson, J.C., Jussaume, R.A., Goldberger, J.R., Krebill-Prather, R., and L.L. Glenna. 2006. "Wheat Production in Washington: Summary Report." Washington State University Summary Report CSS Information Series No. 1202-06.
- Sooby, J., Landeck, J., and M. Lipson. 2007. "2007 National Organic Research Agenda." Organic Farming Research Foundation, Santa Cruz, CA. Accessed online at: <http://ofrf.org/sites/ofrf.org/files/docs/pdf/nora2007.pdf>.
- U.S. Department of Agriculture–National Agricultural Statistics Service (USDA-NASS). 2012. "2011 Certified Organic Production Survey." Accessed online at: <http://usda.mannlib.cornell.edu/usda/current/OrganicProduction/OrganicProduction-10-04-2012.pdf>.
- Walz, E. 2004. "Final Results of the Fourth National Organic Farmers' Survey: Sustaining Organic Farms in a Changing Organic Marketplace." Organic Farming Research Foundation, Santa Cruz, CA. Available online at: http://ofrf.org/sites/ofrf.org/files/docs/pdf/4thsurvey_results.pdf.