Research Needs Assessment of British Columbia Organic Farmers

Organic Agriculture Centre of Canada
Nova Scotia Agricultural College
Truro, NS

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Acknowledgements

Thank you to all of the producers who took time to fill in the survey and convey their opinions and insights. The response from so many farmers at such a busy time of year (late winter/spring) was truly appreciated.

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This report follows the format of the OACC National Report. This facilitates comparisons of BC data with the national average. Where appropriate, these two documents share entire passages. The national study can be found at www.oacc.info

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Agriculture and Agri-Food Canada (AAFC) is pleased to participate in the production of this OACC Canadian Organic Needs Assessment Survey. AAFC is committed to working with our industry partners to increase public awareness of the importance of the agriculture and agri-food industry to Canada. Opinions expressed in this document are those of OACC and not necessarily those of AAFC.

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Executive Summary

Over 577 research needs surveys were distributed to organic farmers in BC with a 16.8% response rate. The top research needs identified in this survey will be used to inform a prioritization process for research projects in different sectors.

Many producers were relatively new entrants to organic agriculture; 52% had 10 or fewer years in farming. Despite the large number of new entrants, many farmers were over the age of 50 (43%). These statistics suggest that many respondents had entered organic agriculture later in life, either after farming conventionally or as a second career. Of concern with respect to producer demographics was the lack (0%) of respondents under the age of 30.

Most producers were interested in having involvement in the development of research projects, indicating that *producer/ researcher collaboration* was their highest priority, as opposed to *collaboration with researchers* and use of *producer advisory committees*. *Research conducted on organic farms* and *research conducted using farm scale equipment* were ranked slightly lower, though many respondents commented that use of on-farm and farm-scale equipment are of greater interest as it is more representative of organic farm conditions.

Among animal-related issues, the top-rated research needs among all producer categories pertained to feed, followed by breeds and parasites. For dairy producers, diseases and parasites were the highest-rated issue of concern, whereas livestock producers were proportionately more interested in feed and breeds. Overall, manure management and housing issues were of least concern to both producer categories.

Research needs for crop production clearly indicated that research related to *enhancing natural insect controls* was of highest priority and u*se of ecological interactions in rotations* followed closely. This emphasized the need for holistic management approaches to maintain balance in the system, as many producers commented that the use of pesticides and introduction of predators would upset this balance. Overall, *field crop producers* were proportionately more interested in plant related issues.

The top research needs in the soils category echoed those of crop production, with management involving rotations ranking highly. Overall, *soil fertility and crop rotations* was ranked highest, followed by *biology – improve existing life*. Overall, producers described the need for soil tests suitable for organic systems as there is currently an inadequacy in conventional soil tests.

Quality and nutrition of organic foods overall and *quality and nutrition of organic field crops* were ranked highly, followed by *value-added product*

research for BC respondents. Ratings for research on the *quality and nutrition of organic animal products* were ranked lowest by all producer categories. Overall, field crop producers indicated more interest than other producer categories in q*uality and nutrition of organic foods overall* and *value-added product research.*

BC producers' top two marketing priorities were *consumer education on organic benefits* and *buy local campaign; production economics* was ranked low by all producer categories. Market information including *information on market trends and demands*, *information on commodity prices and volumes,* and *buyer/seller matchmaking services* were also ranked highly. *Mobile slaughter facilities for organic livestock* and *assistance in developing value-added products* were ranked highest for processing needs, although individual sectors tended to rank processing facilities for their own product higher than other sectors.

Access to market information and research on organic issues was considered important to respondents of the survey. BC producers identified the *internet, email* and the use of paper handouts (i.e. bulletins, magazines) as the most effective means for information transfer. All producer categories ranked *conferences* and *academic courses* low. Producers also commented that there is an increased need for access to market information, improved consumer awareness and *processing facilities*.

The most significant barriers to the growth of organics described by BC farmers were the *lack of new entrants*, *consumer education,* and *certification and regulation challenges*. Most farmers had an optimistic outlook on future growth opportunities in the organic sector. Respondents commented that the *buy local campaigns* have increased *consumer awareness and demand*, and helped consumers become more environmentally conscious as they realize the "direct link between the environment and farming".

BC Research Needs Survey Overview

In the winter and spring of 2008, the Organic Agriculture Centre of Canada conducted a research needs survey among organic producers across Canada. This document is a summary of the results of all BC respondents from the research needs survey. Readers are encouraged to review the national survey summary for a more detailed analysis of results from the whole country.

1. Introduction

The foundation for growth in the organic sector has always rested on the farmers who have brought organic to the forefront of agriculture. The continued development of organic in Canada depends on the success of farmers. With this in mind, the Organic Agriculture Centre of Canada (OACC) has endeavored to consult organic farmers whenever possible to identify barriers and opportunities that can be addressed by Canadian research. The OACC has worked closely with the Expert Committee on Organic Agriculture, which includes representatives from across the country and from all sectors of organic, to identify research priorities. In 2007, the OACC received funding from Agriculture and Agri-Food Canada's Advancing Canadian Agriculture and Agri-food (ACAAF) program to inventory organic research in Canada and prioritize organic research needs. A multi-stage project has resulted, involving the identification of trends affecting the Canadian organic sector, opportunities and threats arising from these trends, strengths and weaknesses in the organic sector for addressing those opportunities and threats, and finally the establishment of research priorities arising from the preceding process. A key part of this process has been conducting a national survey among organic producers in Canada, asking them to rate the importance of different areas of research. This report outlines the findings for the province of BC.

1.1. Survey Description

The survey was designed based on the known key subject areas requiring research in organic agriculture (Appendix 1). The survey primarily consisted of questions relating to primary production (soils, crops, pests, and livestock) but also included sections related to production economics, quality and nutrition of organic food, sustainability, design of research and extension needs. Personal questions were also included to help characterize the farmers by their categories of production and demographics. Respondents were asked to provide input on as many or as few sections as they desired to fill in. If a farmer chose not to respond to a question, it was not included as part of the analysis. The importance of a statement or question was ranked on a five point scale. Most survey sections included a space for comments. There were some minor differences between versions sent to different provinces; those questions which were not asked in each region are noted with an asterisk (*).

For each sector (i.e. crops, livestock, vegetables, etc.) the analysis included responses from both current producers and those planning to enter the sector in the near future. The analysis considered a producer in a given sector as one who currently produces, or plans to produce a commodity in the near future. Analysis of the groups by sector means that a producer with a mixed farm would be considered as part of the field crop, livestock and vegetable sectors, for example, and their rankings would be considered for all three categories.

The report is divided into six sections to match the sectors identified by the Expert Committee on Organic Agriculture: field crops, vegetables, livestock, dairy, fruit and berry, and herbs and spices. The Expert Committee, originally founded by OACC, was established to provide a national forum for exchange of information and scientific advice about research priorities in organic agriculture (see: http://oacc.info/ResearchDatabase/res_priorities08.asp). Two additional sections relating to the execution and communication of research (Research Management and Extension) are also discussed.

1.2. Survey Distribution and Response Rate

In BC, 577 surveys were distributed to organic and transitional producers, with 99 surveys returned (17.2% response rate).

1.3. Respondent Demographics

The 99 respondents were classified into six major production sectors based on which organic products they currently produced and intended to produce in the near future. In BC, the *field crop* producers focused on cereals, oilseeds, pulses, and forages. Dairy producers (n=6) were separated from the livestock producers section. The *livestock* category included: beef, swine, sheep and poultry. Table 2 specifies the breakdown of current and future producers by sector and product.

Among the 99 surveys returned, v*egetables* emerged as the dominant sector with 61% of all respondents producing or planning to produce in the future. Approximately half of the vegetable producers were greenhouse producers.

Fifty-nine percent of BC producers produce or plan to produce *fruit and berry* in the future. None of these producers reported producing berries, while 15.5% (n=9) were expecting to produce nuts.

Of the BC respondents 26% were received from *herb and spice* producers, while *livestock producers* and *dairy producers* had a response rate of 22% and 7%, correspondingly (Table1). The poultry sector was the dominate livestock category produced by BC respondents (73%), followed by beef (36%), swine (18%), and sheep (5%).

Eight percent of producers produce field crops (or plan to produce). All field crop producers reported producing forages on their farms, followed closely by cereals and pulses. The least commonly produced field crops in BC were oilseeds.

Many respondents indicated participation in more than one production sector, suggesting that a large proportion of organic farms in BC are mixed operations.

Table 1. Summary of 97 respondents by sector and product.

	Current producers	Future producers*	Total producers: current plus future		
			number	% of all respondents	% of sector
All			**99**	**100%**	
Field crops	**6**	**2**	**8**	**8.1%**	
Cereals	4	3	7		88%
Oilseeds	1	0	1		13%
Pulses	3	0	3		38%
Forages	6	1	11		100%
Vegetables	**58**	**2**	**60**	**60.6%**	
Vegetable	54	3	57		95%
Greenhouse	27	1	28		48%
Livestock	**17**	**5**	**22**	**22.2%**	
Beef	6	2	8		36%
Swine	1	3	4		18%
Sheep	1	0	1		5%
Poultry	9	7	16		73%
Dairy	**6**	**1**	**7**	**7.1%**	
Fruit and Berry	**56**	**2**	**58**	**58.6%**	
Fruit	56	2	58		100%
Berry	0	0	0		0%
Nuts	7	2	9		15.5%
Herbs and Spices	**25**	**1**	**26**	**26.3%**	

*includes only those who indicated plans to produce in the future but no current production in that category.

Table 2. Summary of survey respondents by producer category.

	Field Crops	Vegetable (incl. greenhouse)	Livestock	Dairy	Fruit/ berry	Herbs/ spices
	---number or percentage of producers---					
Current producers plus those who intend to produce in the future	8 **8.1%**	58 **58.6%**	22 **22.2%**	7 **7.1%**	60 **61%**	26 **26.3%**
Currently producing organic products	6	55	17	6	58	25
Plan to produce in future	2	3	5	1	2	1

The average farm size across all BC respondents was 160 acres, 123 acres of which was certified organic (Figure 1). The average land size under *cultivation* for all farm sectors was 75 acres, 42 acres of which was certified organic. The average amount of land dedicated to the *pasture/grazing* category for all farm sectors had an average acreage of 69, of which 68 acres was certified organic. An "*other*" category was also included in the survey to account for woodlots, maple syrup brush, wild harvest or perennial fruits/orchards. Respondents who did not indicate their land use were also reported under the "*othe*r" category. Approximately 15 acres were reported as used under the "other" category, while an average of 13 acres have been certified organic.

Between the agricultural sectors, field crop producers reported the greatest amount of land under certified organic production with an average of 256 acres. Livestock producers followed with an average of 165 certified acres. This declined to between 38-51 certified organic acres for dairy, vegetable and fruit/berry producers. Herb and spice producers only reported an average of approximately 14 acres of certified land.

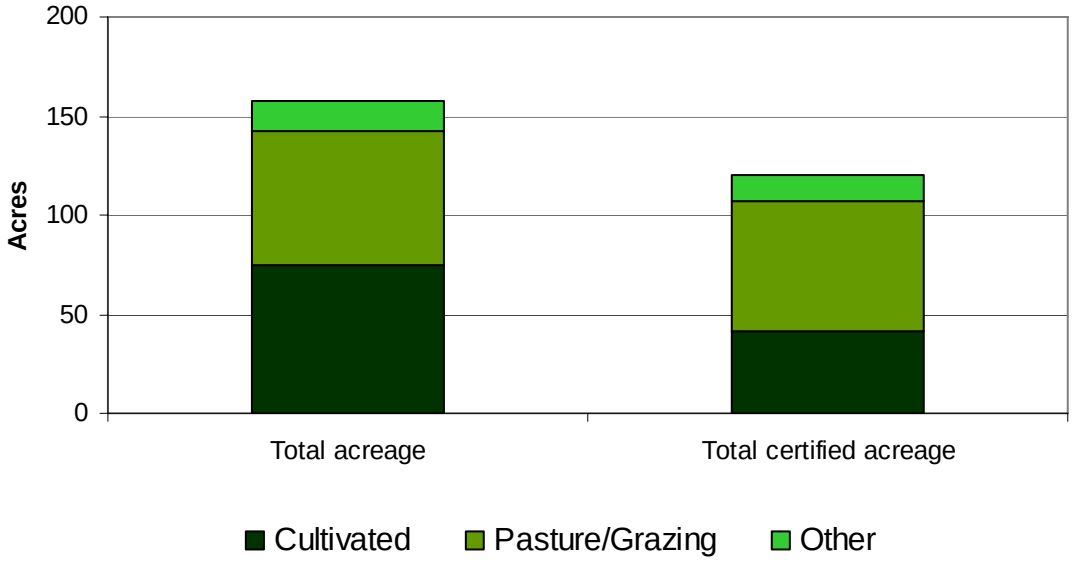

Figure 1. Average acreage by type among respondents.

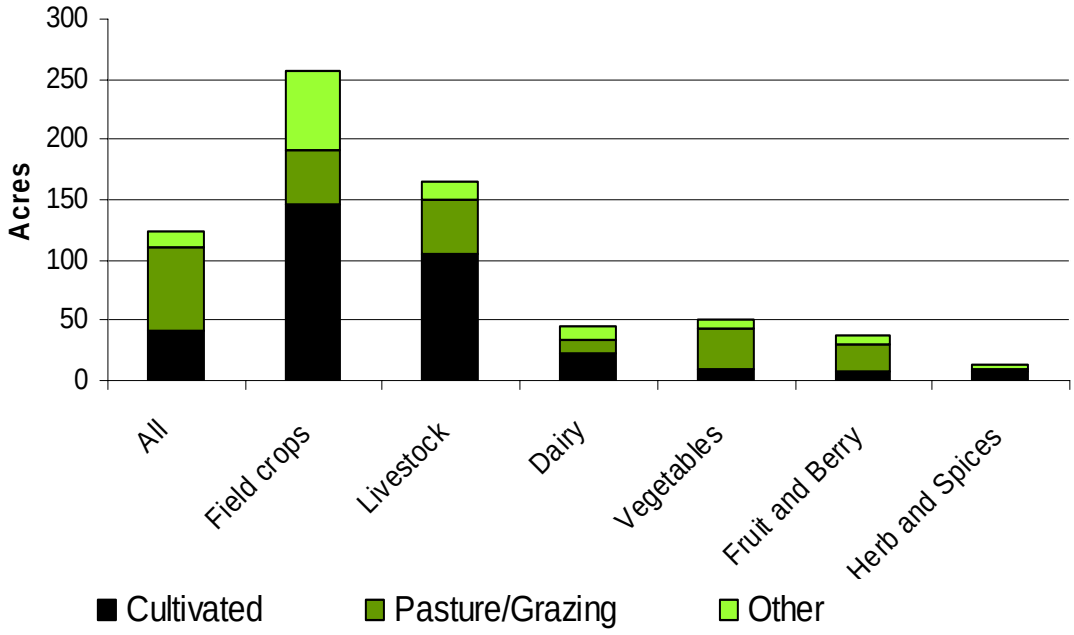

Figure 2. Average certified organic acreage of respondents by agricultural sector.

Approximately 39% of the BC producers for all agricultural sectors reported gross farm incomes below $25,000, suggesting that just under half of all the producer sectors are small farm operators. Just over 45% of the respondents reported gross farm incomes ranging between $25,000-$50,000; while large operations (>$250,000) made up 15% of survey respondents (Figure 3).

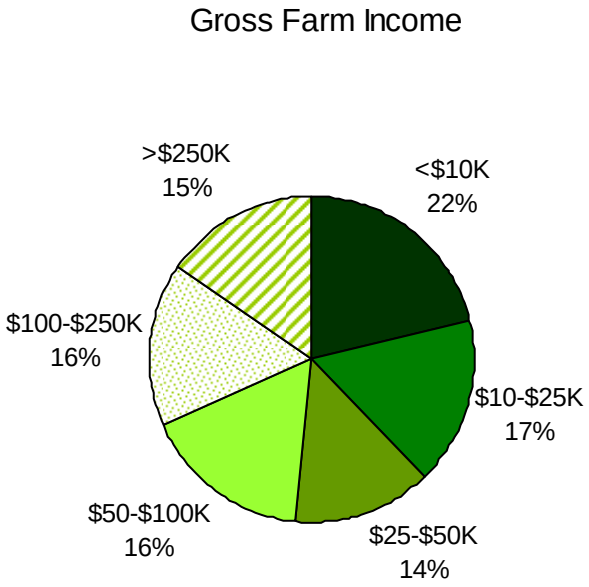

Figure 3. Gross income of respondents.

Producers were asked where they marketed their product, and were given five options with instructions to select one or more, depending on the nature of their operation; 58% of producers responded that they market their product "*direct to consumer*". This is in agreement with the gross farm income reporting that under half of all the organic farmers in BC are small farm operators. About one-third of the respondents reported selling their product through *Farmers' markets* (26%) and *wholesale* (23%) (Figure 4).

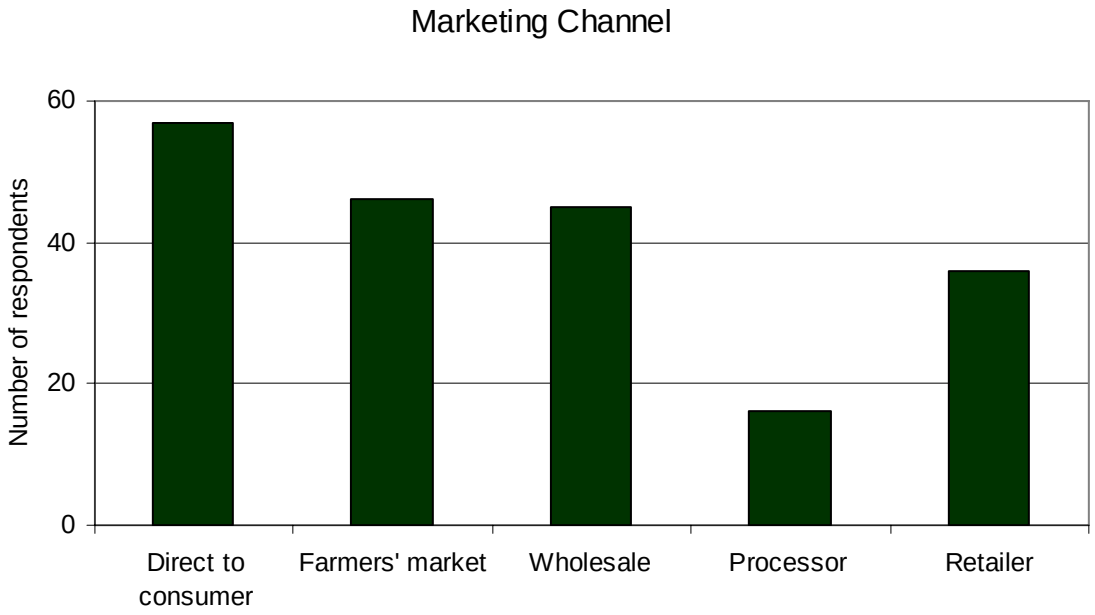

Figure 4. Marketing channels used by respondents.
Note: Each respondent could indicate multiple marketing channels.

The majority of the producers who responded to the survey reported that they are relatively new entrants to organic agriculture with 52% indicating that they have been farming organically for less than 10 years. Thirty-one percent reported that they have been farming organically for 11-20 years, while only 18% of the respondents indicated that they have been organic for more then 21 years (Figure 5).

With the large number of new entrants to organic farming in BC, the majority of the farmers (70%) are between the ages of 40-59, while none of the respondents reported being under the age of 30. A question that was not asked on the survey was how many years in total (organic and conventional) have they been farming. This may have allowed us to gain insight into who entered farming as a second career, or chose to transition to organic agriculture. Surprisingly, over a quarter of the respondents are over the age of 60 (Figure 5).

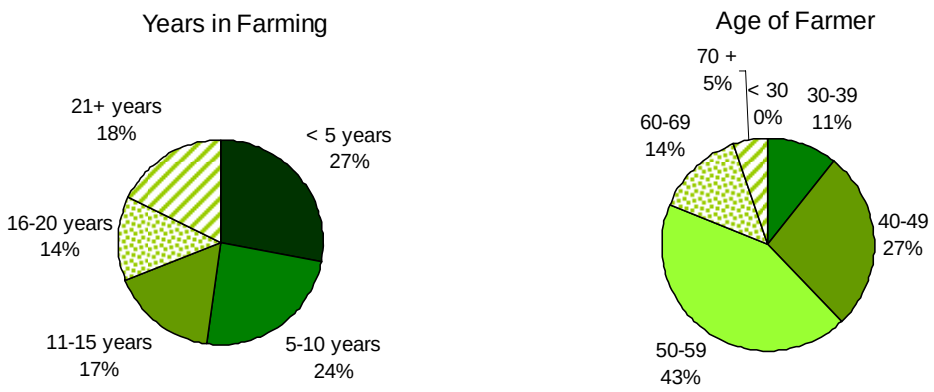

Figure 5. Respondent number of years in organic farming and age.

Survey respondents from BC indicated that almost half of the farmers were female (44%), with 56% of the respondents indicating that they were male. This was interesting as the National survey data indicated that males were predominate producers (77%). Though not a question on the survey, a few producers indicated that they were a partnership between a couple or several family members. These answers were divided evenly between the genders.

2. Research Management

This portion of the survey attempted to gauge organic producer opinions about where and how research should be conducted and the level of involvement of producers in research. These do not relate directly to a research need and so are not included in the larger needs summary.

Producers from all the agricultural sectors in BC reported being interested in having *research conducted on organic farms* (highest priority) in collaboration with the researchers as opposed to research conducted at *regional research and demonstration farms*. Generally, producers were supportive of working with researchers through direct collaboration on producer initiated research. Research utilizing farm scale equipment was also considered a high priority as farmers felt it related more directly to on-farm practices. Producers also reported that a producer board which determines where research dollars were directed would be an asset for ensuring funding was directed toward their research needs.

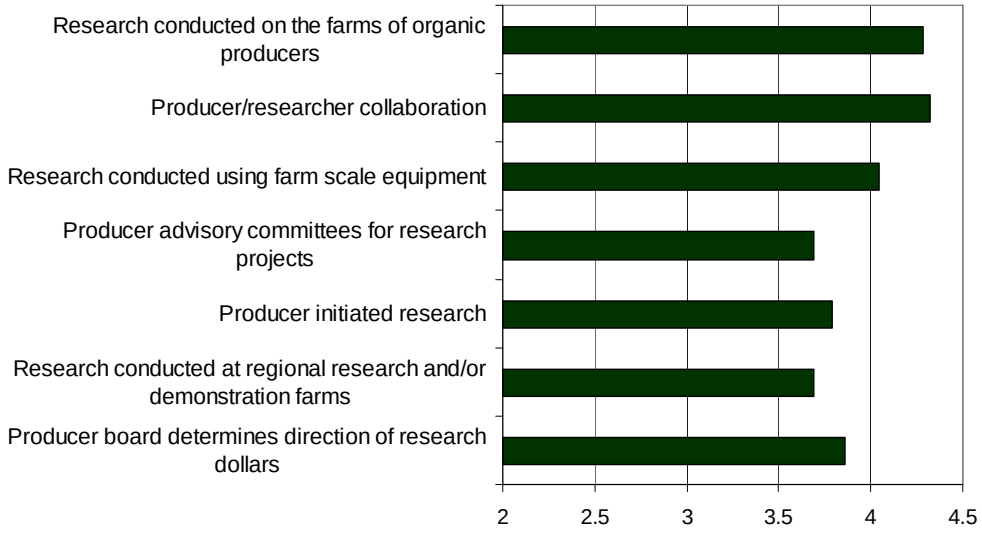

Figure 6. Research management need ratings.
Note: A rating of 5 indicates a very important need, 1 indicates a less important need.

3. Top 15 Research and Marketing Needs Identified by Producers in BC

This is a brief overview of the top ranked research needs across all sectors for BC. The sections following will go into greater depth about each of these research need rankings.

Overall, BC respondents regarded the need to further educate consumers through marketing on the benefits and issues surrounding organic agriculture as top priorities. Producers also indicated the need to manage the system holistically and focus on the ecological issues such as soil quality, biodiversity, energy use and pest reduction. Farmers also reported that nutrition (i.e. livestock feed) and control of insects and diseases were of top priority. Below is a list of the top priorities for BC farmers in all agricultural sectors (Table 2).

Table 3. Top 15 research needs ratings among all respondents.

Priority	Section	Project	Average	n
1	Ecological Systems	Soil quality	4.59	75
2	Marketing	Consumer education on organic benefits	4.54	84
3	Animals	Livestock feed	4.52	21
4	Marketing	Buy local campaign	4.46	79
5	Ecological Systems	Biodiversity	4.40	72
6	Plants	Enhancing natural insect controls	4.39	77
7	Marketing	Consumer education on organic standard	4.39	83
8	Soil	Soil fertility and crop rotations	4.38	80
9	Ecological Systems	Energy use	4.34	74
10	Ecological Systems	Pesticide reduction	4.31	80
11	Plants	Ecological interactions in rotations	4.31	72
12	Plants	Beneficial rotations for specific problems	4.29	72
13	Plants	Cultural disease controls	4.24	71
14	Plants	Enhancing natural disease controls	4.23	78
15	Animals	Livestock breeds	4.16	19

[z] This is the average importance rating of all individuals who responded to the question; 5 indicates a very important need, 1 indicates a less important need. In all cases, responses ranged from a rating of 1 to 5 (i.e. responses ranged from less important to very important). Blank responses to a question were not included in the analysis, hence, the variation in the number of respondents to each question.
[y] 'n' is the total number of respondents to this question.

4. Animals

Among all the animal producers, the top need ratings were *feed* followed by *breeds* and *parasites*.

By producer type, livestock producers indicated that *feed* as a top priority followed by *breeds* that would be beneficial to the organic sector. A few livestock producers commented that they would like more information on breeds of dairy goats suitable for organic production. Poultry producers reported that they were interested in obtaining information on natural roosting instincts and research on breeds suitable for pasture. Sheep producers responded that further research into the control of parasites was of concern and the approval of products like garlic barrier for use in organic systems.

Dairy producers were proportionally more interested in *diseases* and *parasites* which could afflict their herd, followed by *grazing, feed* and *breeds*. Farmers commented that they were interested in "research into the management/control of hoof wart (*mortellaro*) for dairy cows" as this was an issue for organic BC producers.

Overall, manure management and housing were of least concern to both livestock and dairy farmers.

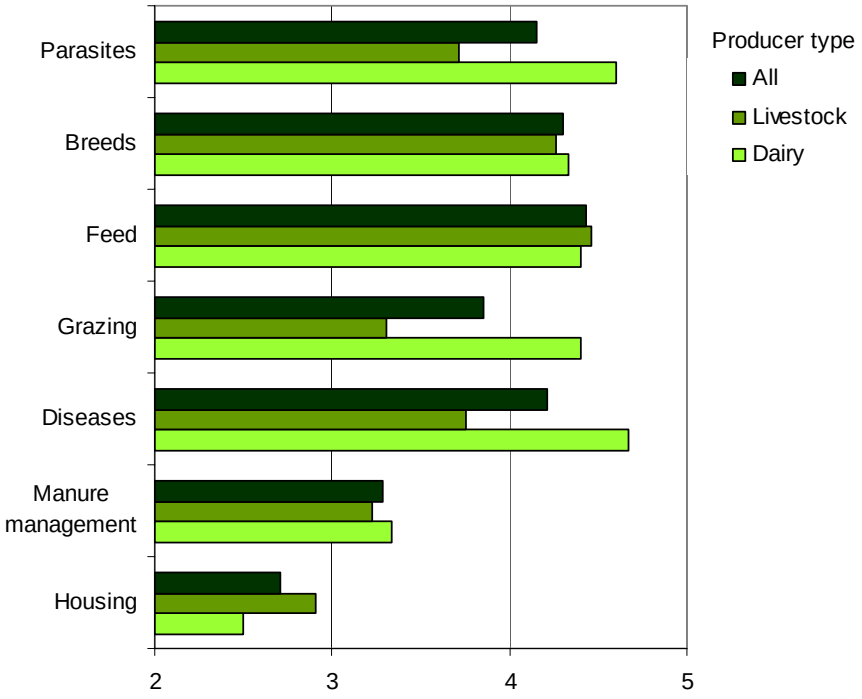

Figure 7. Research needs ratings for livestock issues by producer category.

Note: The livestock category includes all livestock except dairy production. Rating of 5 indicates a very important need, 1 indicates a less important need.

5. Plants

5.1. General

Organic crop producers in BC indicated that *enhancing natural insect* controls was of equal importance for all crop producer types and ranked as a top interest. This was closely followed by the *use of ecological interactions in rotations*.

In general the top priorities listed by crop producers- *enhancing natural insect controls, ecological interactions in rotations* and *use of beneficial rotations for specific problems* emphasize the use of integrated approaches to pest control rather than pesticides.

Field crop producers- cereal, oilseed, pulses and forage producers which consisted of 8.2% of all the respondents, indicated that r*otations that assisted in minimizing specific problems* was at the top of their research interests, followed by *weed* and *insect* controls. Overall field crop producers ranked plant issues of greater importance than other crop producers in BC (Figure 8).

5.2. Weeds

Field crop producers ranked the use of rotations and mechanical methods for weed control higher than cultural and biological uses. Farmer's commented on the need for more knowledge on how different weed infestations reflect soil imbalances. Of particular importance were methods of weed control for Canada thistle. Many farmers also indicated issues with other varieties of weeds including- couch grass or quackgrass, lamb's quarters, morning glory, dandelion, chickweed, and poison ivy. Nonetheless, many farmers felt that weeds added to the diversity of the farm and were not a significant problem as some could be used as silage for feed.

5.3. Insects

BC producers from each of the producer types indicated that *enhancing natural insect controls* and *use of ecological interaction in rotations* was of greatest interest and priority as this relied on the natural system for managing pests. Farmers commented that they "do not believe in unbalancing the natural insect system (i.e. releasing insects)"; they felt that maintaining diversity would allow for a balanced system which would encourage beneficial insects to control pest insects. Farmers suggested there is a need for annual and perennial plants that act as hosts to attract predator (beneficial) insects, and require more research into what plants may be suitable in rotations to achieve this. Farmers were also interested in the use of pheromones to attract or confuse pest insects.

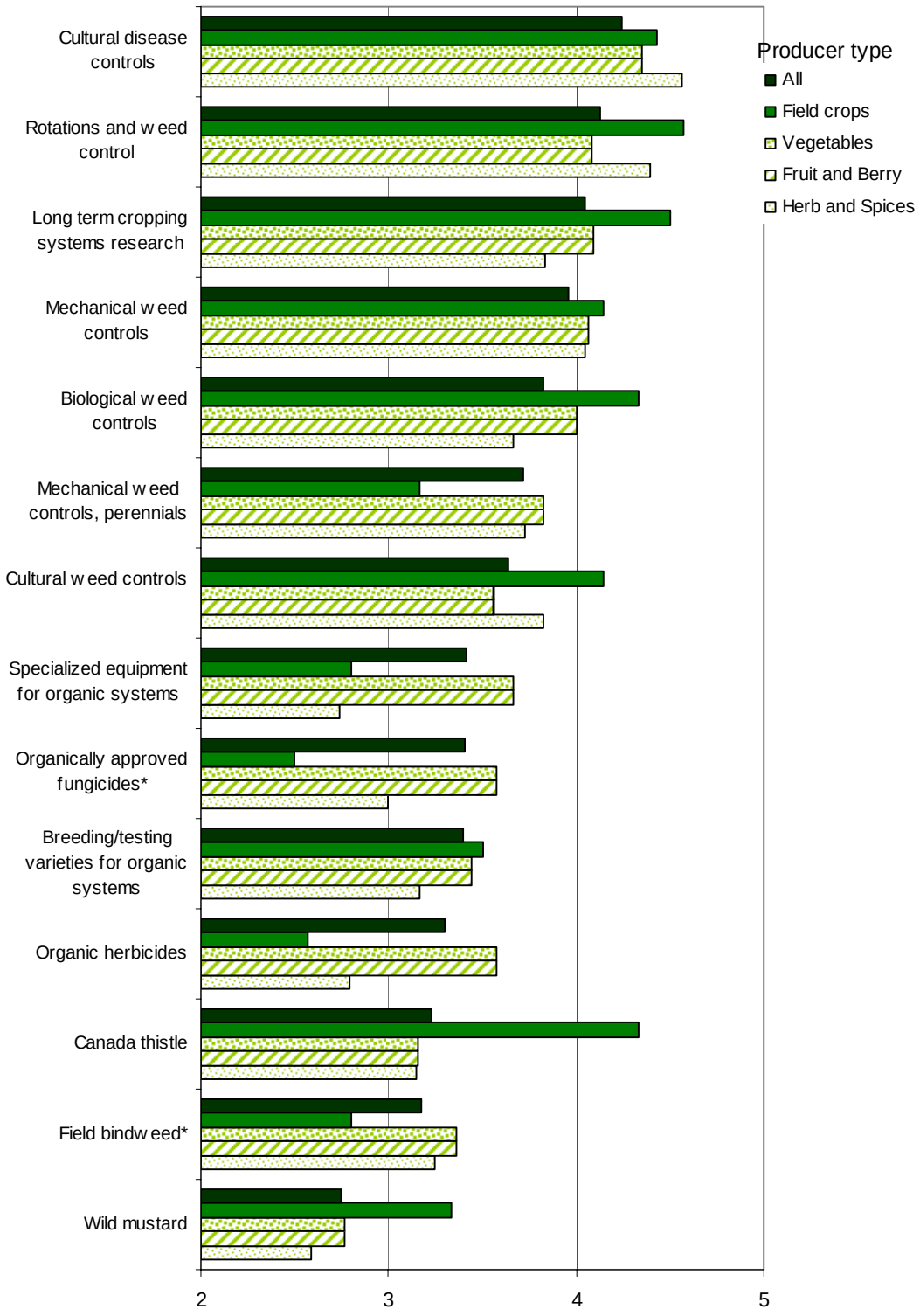

Figure 8. Research needs ratings for plant issues by categories.
Note: A rating of 5 indicates a very important need, 1 indicates a less important need.

Field crop producers ranked the use of *cultural insect control* higher than any of the other producer types as they have the ability to use timed tillage, delayed planting, harvest and other management controls that may disrupt the life cycle of pest insects to minimize their effects.

The use of biological and organically approved insecticides were ranked the lowest by all producers as farmer commented that "this would upset the natural balance of the system" as insecticides would have a detrimental "effect on the beneficial insects" and "the release of additional or new predatory insects may become an issue" in the future. Some farmers indicated an interest in further research into the use of mycopesticides as an alternative.

Insect pests of most concern to BC producers were wireworms, flea beetle, clearwing moth, cherry fruit flies, pear rust mite, aphids (i.e. rosy apple aphid) and carrot rust flies.

5.4. Disease

All producers, particularly herb and spice producers ranked the use of cultural disease controls of greatest interest for minimizing disease issues on their farms. Though vegetable, and fruit and berry producers ranked the use of organically approved fungicides lower than cultural controls, they indicated that this was of second importance to their operations (Figure 8). This may be of importance as these producers have less land to rotate their crops, and the use of perennial crops makes rotation nearly impossible.

Diseases, which BC respondents noted as concern were- brown rot, botrytis, grey mold, anthracnose canker, mildew on apples and lettuce, and white rot. Some interest was noted in the use if temperature and humidity and the use of cover crops for reducing fungal pests.

5.5. Other

Many comments were received about specific equipment needs, although the specialized equipment category was not highly rated. Produces indicated a need for improved flame weeding technology, and a majority of the comments specified the need for small scale machinery including seed cleaning, harvesters for beans, clover, grains and herbs, and insect vacuums. These comments noted the importance of small scale equipment for producers of small, mixed farms which is a large percentage of the organic farming community in BC.

6. Soils

The top research needs in the soils category echoed the plants category with the effect of rotations ranking high (Figure 9). All producer categories ranked soil fertility and crop rotations as their top priority, with field crop producers ranking this higher than any other of the producer categories. This was followed closely by the *soil biology- management to improve existing soil life*. Other research needs were not ranked as highly as these top two needs.

BC respondents noted the need for soil tests designed for organic management "reflect the biological activity" and "need for organic inputs, not just the substitution of organic for chemical" substances. The greater understanding of soil biology was also reflected in the comments with farmers noting interest in the symbiosis between plants and animals, how to manage the soil biology and use of more native plants and grasses. Other areas of interest were the use of improved compost technology, and use of cover crops to reduce carbon emissions.

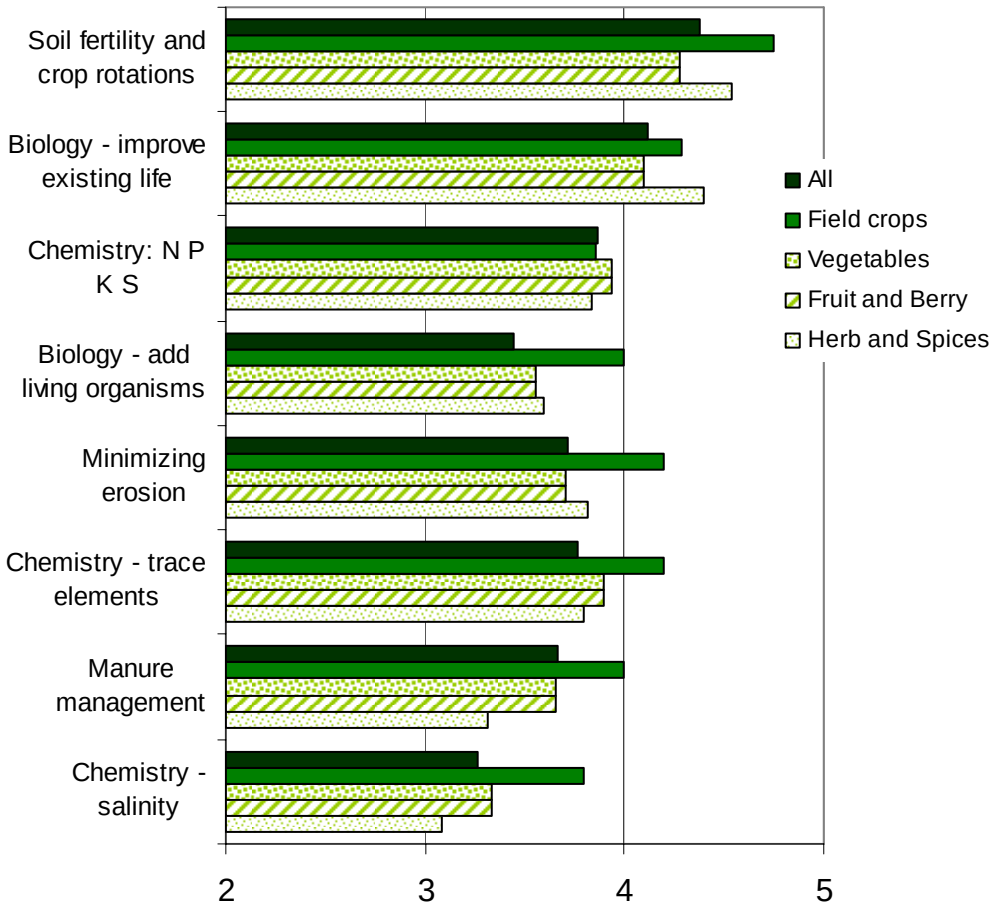

Figure 9. Research needs ratings for soil issues among producer categories.
Note: A rating of 5 indicates a very important need, 1 indicates a less important need.

7. Ecological Systems

There was a high degree of interest in research related to the environmental sustainability of organic farming. BC producers ranked all the needs highly which was in line with the National Report's top 20 needs.

All sectors ranked the ecological systems needs similar; however soil quality was of slightly greater interest among all producers, whereas carbon sequestering was ranked lowest overall. The breakdown by producer type indicated that *dairy producers* ranked pesticide reduction, energy use and carbon sequestration more highly. *Field crop* producers indicated more interest in biodiversity and soil quality, followed by energy use and carbon sequestration. Vegetable, fruit and berry and herb producers ranked ecological systems similarly; therefore only vegetable producers are represented on the graph (Figure 10).

The majority of farmers' comments in this section were concerned with the use and dependence of fossil fuels by machinery and conventional farming practices. Methods of switching to more ecological systems such as no till farming, less shipping of food, and use of biofuels to reduce organic farms dependence on fossil fuels was of importance. More generally farmers commented on the need for water conservation, "closed loop" production systems and the sustainability of organic farms.

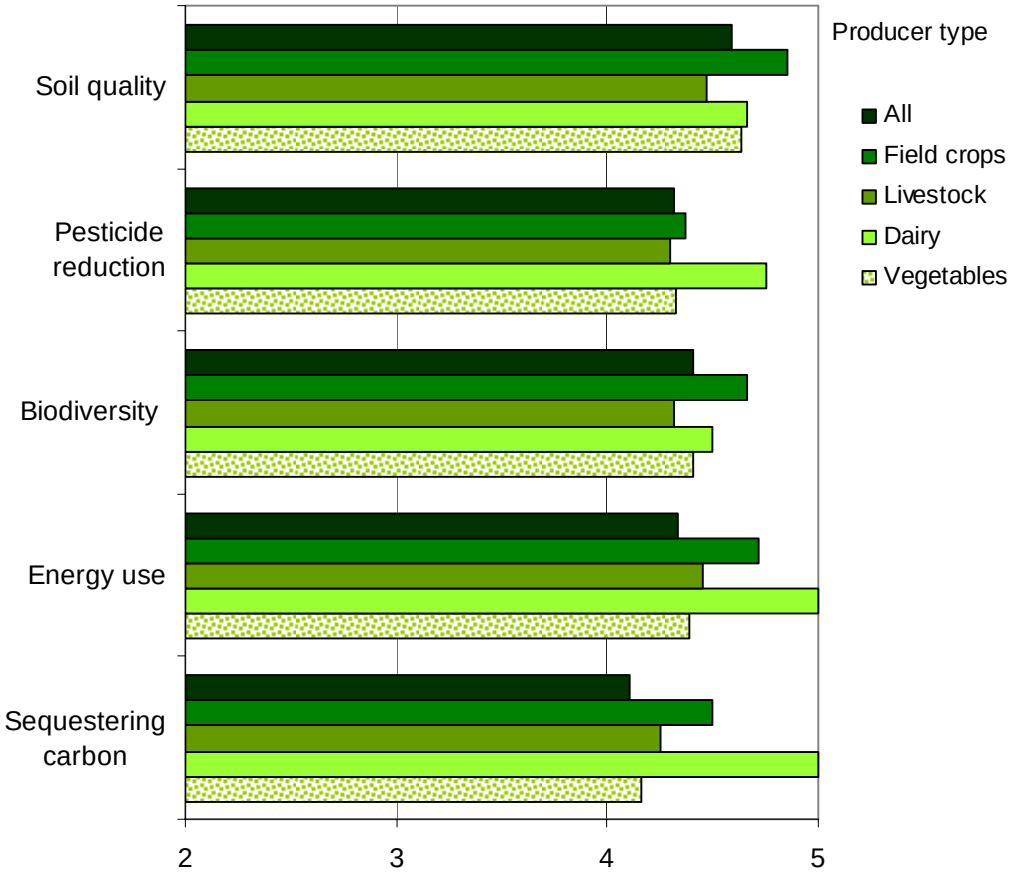

Figure 10. Research needs for sustainability issues by producer category.

Note: The livestock category includes all livestock except dairy production. A rating of 5 indicates a very important need, 1 indicates a less important need.

8. Health and Food Quality

Quality and nutrition of organic foods was rated as a high research need by BC producers (Figure 11). The distribution of respondents by producer type indicated that the quality and nutrition of organic foods was scored more highly by field crop producers. People in each producer category of interest were more interested in research for their own crops (i.e. vegetable producers ranked quality and nutrition of horticultural crops more highly than field crops). Many farmers described their crops of interest to include- root crops (i.e. carrots, potatoes, beets, garlic), grains, alfalfa, corn, spelt, barley, brassicas, tomatoes and tree fruits (i.e. apples).

Overall, BC producers ranked *value-added product research* highly, especially field crop producers. Compared to the National Report, where *value-added product research* was ranked one of the lowest priorities overall. Specific value-added projects respondents identified were- cheese and sprout production, solar fruit drying, wild foods, as well as research into the cost and profitability of producers offering value-added products.

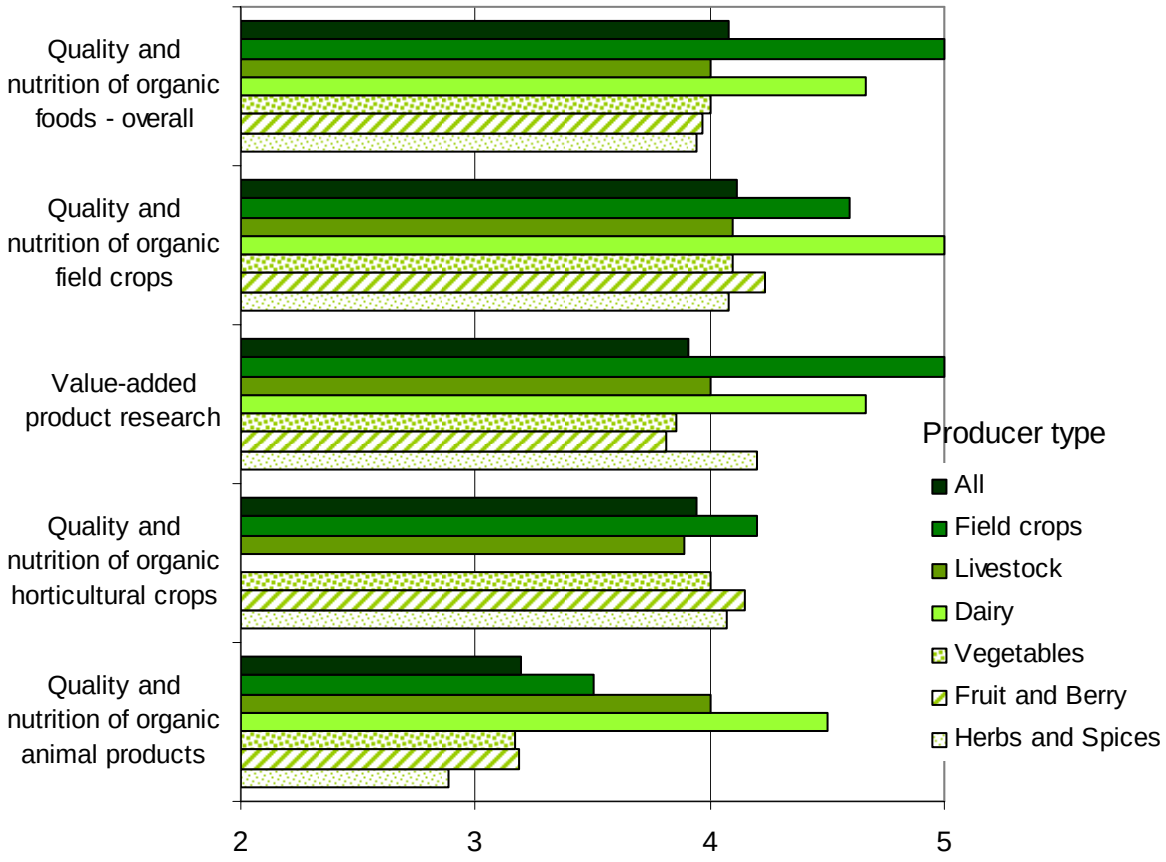

Figure 11. Research needs ratings for health and food quality issues by producer category.

Note: The livestock category includes all livestock except dairy production. A rating of 5 indicates a very important need, 1 indicates a less important need.

9. Marketing, Economics and Processing Needs

All producer types ranked *consumer education* and the *buy local campaign* as their top 2 research needs for marketing. Overall **Consumer Marketing** was ranked highest by all producer types for marketing issues. Comments suggest that the need to inform and educate the consumer is of greatest importance if the organic sector is going to continue to grow. Within the **Consumer Market** sector, *livestock* and *field crop* producers indicated that the *buy local campaign* was of significant importance to their producer category. Many producers commented that the *buy local campaign* was gaining awareness for organic farming and was important in drawing in consumers.

Under the **Markets** section *field crop* and *dairy producers ranked information on commodity prices and volumes* as top research need. Dairy producers also ranked *local procurement for institutional buyers* and *information on buyers/brokers* as their 2nd and 3rd ranked research needs.

Dairy producers ranked all needs highly as organic dairy production is relatively new. Under the **Processing** category, facilities such as *mobile slaughter facilities and processing facilities for organic cattle* were highly ranked by *dairy producers*, as they are required for the success of this sector in BC.

The Economics section was rated the lowest by all producers and all the producer categories ranked their own category as having the highest need (e.g. field crop producers indicating the importance of grain production economics).

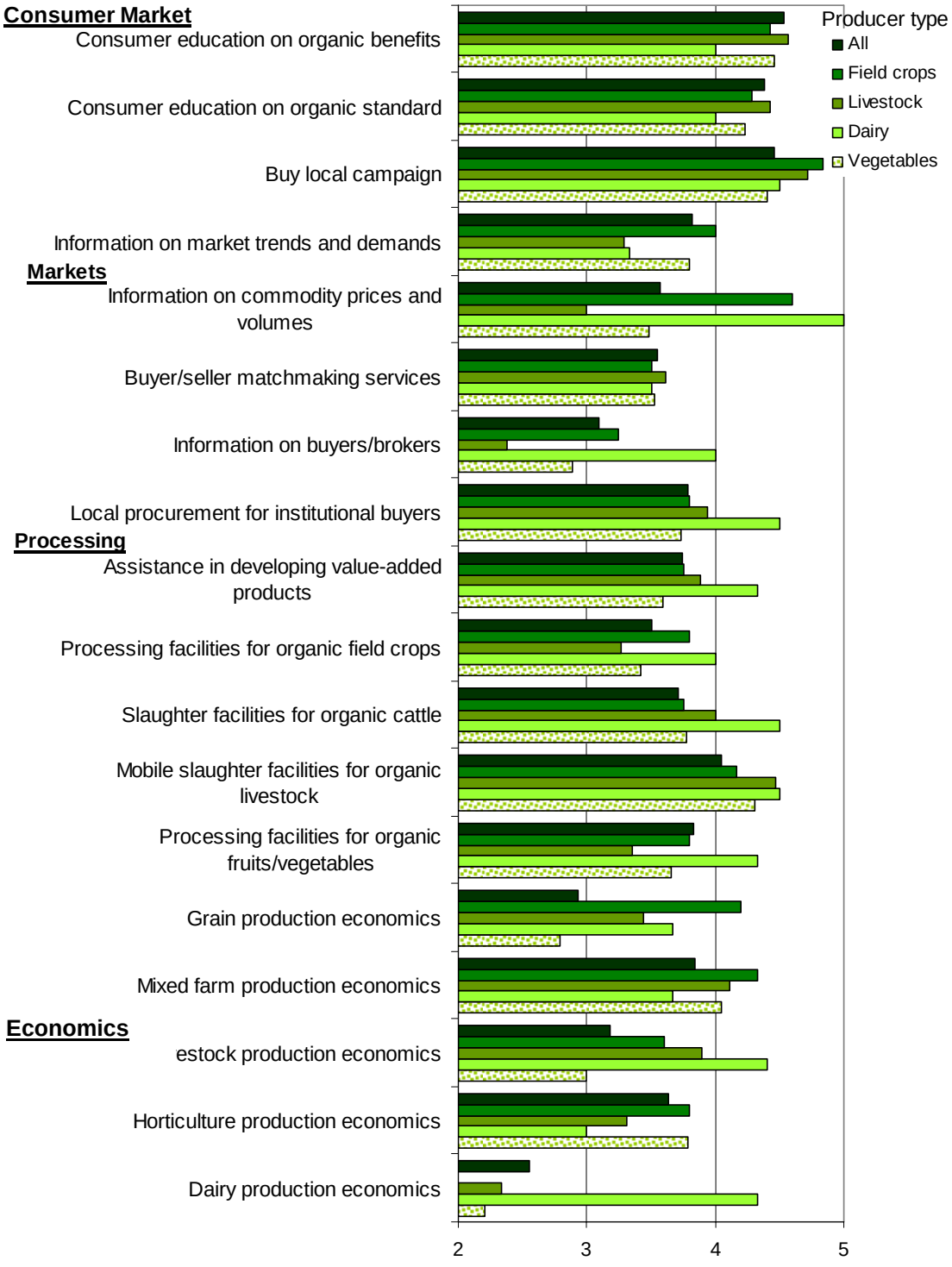

Figure 12. Research needs ratings for marketing issues by producer category

Note: The livestock category includes all livestock except dairy production. A rating of 5 indicates a very important need, 1 indicates a less important need.

10. Extension / Technology Transfer

This section attempted to assess how producers prefer to receive research and extension information. The majority of the BC producers ranked obtaining *information through email and online* as the most supportive and needed. Farmer comments suggested that this method allowed them to access the information when it was most needed and when they had time available. Many farmers also mentioned that accessing information from magazines such as BC organic growers, Canadian organic growers, and new farm newsletter is of importance. The majority of producers also ranked sessions where they could interact with presenters directly above information available at a distance or on their own time. Farm mentorship programs (learning from an experienced organic grower) were ranked third in this section, perhaps as a result of existing successful initiatives in this region.

Conferences and distance education programs generally were ranked low, although many comments noted that these would be useful for new entrants into agriculture.

Farmers commented that information that they would like to have access to and receive updates on included: soil test fact sheet, nutrient management budgeting, soil building and closed loop fertilizer systems. They were also interested in obtaining information on specific pest control information for their region and agricultural sector, including experimental research and growing tips. One area that farmers appeared to repeat in their comments was the need for more information on how to market their product, and buyer's preferences and marketing habits/trends.

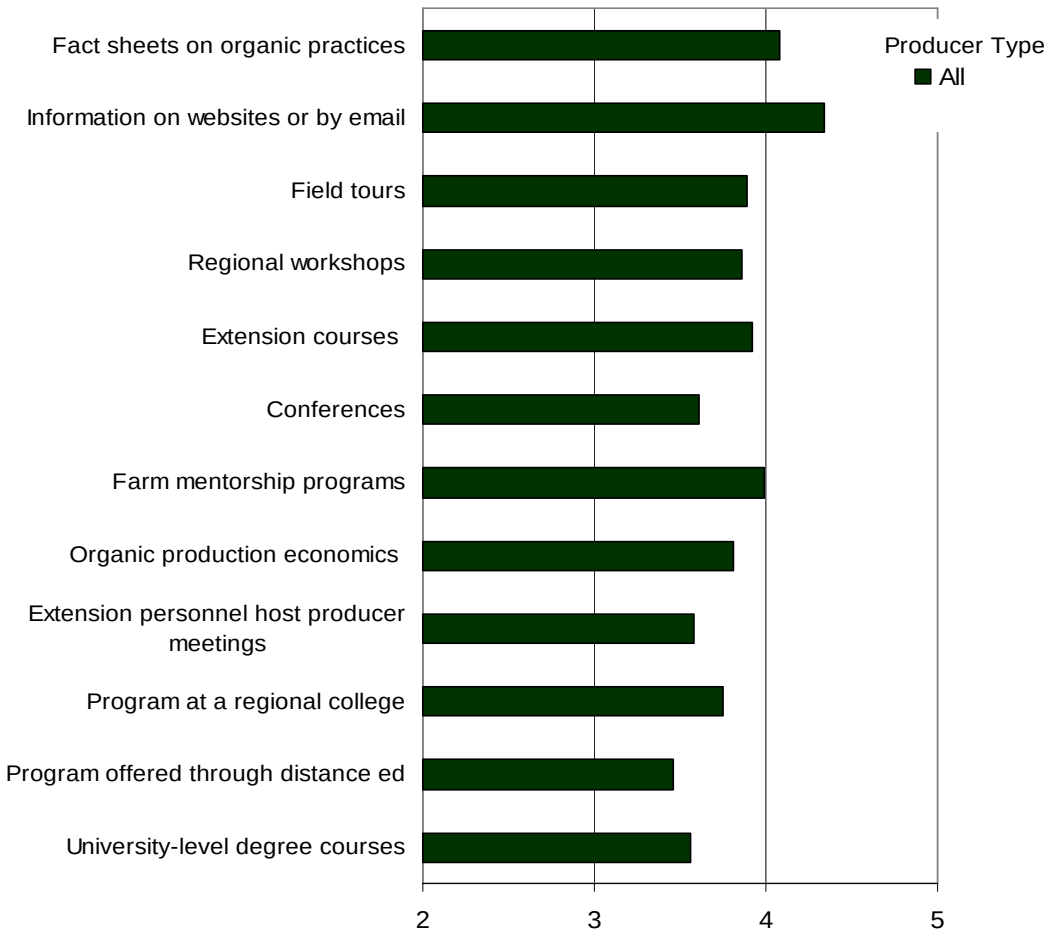

Figure 13. Extension and technology transfer needs ratings.
Note: The livestock category includes all livestock except dairy production. A rating of 5 indicates a very important need, 1 indicates a less important need.

- Indicates a need that was not included in all provincial surveys.

10.1. What barriers do you see for the growth of organics?

In BC, the most significant barriers to the growth of organic agriculture described by the farmers were the lack of entry by young farmers. This was echoed in the demographics section in which 0% of farmers indicated that they were under the age of 30. Many farmers described the cost of farming as a major factor for turning away young prospective farmers, due to the increased production costs associated with transportation, rising land costs, labour, livestock, and purchasing organic materials. They saw this as a challenge for themselves and especially for new entrants.

Farmers also noted a variety of challenges which have emerged, associated with certification and regulation. Many farmers commented that the cost of certification was a barrier, but also the conflicting regulations due to overlap between various agencies and lack of government support. One farmer suggested some of these barriers are “COABC paperwork and the Canadian national organic regime”.

Another major concern communicated by farmers was the “less stringent regulations for importers” of organic products. This was of concern as it competes with Canadian organic products in the marketplace, and the less stringent regulations for importers leads to the “questionability of the food available” to Canadians. Farmers also pointed to the “monopoly of US based organic processed goods in supermarket chains” and the need for our supermarket chains to support more Canadian organic farmers and their products. Many also noted that “too many large corporations are getting in on the trendiness of organics for the wrong reasons and it is hurting the small farms”.

A further challenge to the growth of organics expressed by farmers was the need for greater awareness and education of the consumer about “organic versus conventional, free range” and “natural products”. Farmers indicated that there is too much misinformation around the word “organic” and there needs to be more safeguards to protect the integrity of the organic label and practices. Farmers also commented that the consumer should be more aware of the standards, the cost associated with organic farming, and the benefits of organics to increase support and understanding of the costs associated with organic products.

10.2. What opportunities do you see for the growth of organics?

Farmers commented that the most significant opportunity for growth in the organics sector is the increasing demand and awareness for organic products by consumers. Farmers commented that the growing demand for organic products and consumer support has been improved by "popular authors" and the "buy local" campaigns. These campaigns have created an "increasing awareness on the importance of small scale, local, organic food production" and the "benefits of organics". One farmer commented that this leads to a "sustainable economy base" by "keeping money local, within the community".

Another farmer commented that consumers' "current concerns for the degradation of our natural and man-made environments" will increase the want for sustainable methods such as organics. Farmers noted that consumers are becoming increasingly aware and educated about the benefits of organics, not only the health benefits but the benefits to the soil, plants and animals. As there is a growing awareness about the environmental issues (i.e. greenhouse gas) and the link to farming more consumers "want to know who grows what they eat". So many farmers noted that now it is "just a question about being able to meet the demand".

Farmers also suggested that opportunities for organics are growing not only because of the "buy local campaign" but more "consumers understand the benefits of local food system" and this "increases consumer pride in their community". Many farmers suggested that this will help increase organics status and open opportunities for growth. However many farmers mentioned that even though the opportunities are still large, the costs are also very large.

Finally, BC farmers commented that organics will see an increasing demand and growth due to the "global food shortage concerns", "international food scares" and the concern about "the integrity of organics from other countries". Farmers suggest this concern will lead to consumers wanting more food security and "bioregionalism", which will increase the growth of the local and organic food production.

Overall, farmers were optimistic about the upward direction organic agriculture is taking, however many still noted the disadvantages with the advantages. This suggesting that BC farmers are cautious, yet excited about the direction organic agriculture will take in the future.

11. Summary

The diverse organic sector across BC consists of field crop, livestock, vegetable, dairy, fruit and berry, and spice and herb producers. The respondents to the BC survey identified their key needs areas for further research. Research areas identified as high priority including soil quality and the use of rotations for management for soil fertility, pest control and disease management. Safeguarding of the soil both physically and through biological interactions was of importance as many farmers operate mixed farms, relying on the soil for crop production and pasture for their livestock.

Access to market information and research on organic issues was considered important to respondents of the survey. BC producers identified the internet, email and the use of paper handouts (i.e. bulletins, magazines) as the most effective means for information transfer, oppose to conferences and academic courses. Producers also suggested there was a need for access to market information, increased consumer awareness and processing facilities.

The majority of survey respondents were new entrants into organic farming and more than half were over the age of 50. Of concern was that of the 97 respondents in BC none were under the age of 30. Most respondents were entering organic farming as a second career or as a transition from conventional farming, while none were entering as young farmers. Further analysis of these demographics is required as it can have considerable impact on the nature of organic operations new entrants are undertaking, and the turnover rate of producers.

12. Appendix 1. Canada Organic Needs Assessment Survey

OACC recognizes that the value in agricultural research and other farm services comes from **meeting the needs of farmers**. The purpose of this survey is to help us to more effectively meet your needs. The results of the survey will

- ✓ give you an opportunity for direct input into the priorities for future funding initiatives
- ✓ help researchers plan their research programs with your concerns in mind
- ✓ help extension staff provide extension materials relevant to your needs

Please answer as many questions as you wish. This information helps us to understand your needs, but if you feel that you do not wish to share some information, or feel that it doesn't apply to you, please skip that question, and go on to the next question.

Your responses to this survey are completely anonymous. Any release of this information will be aggregated to assure anonymity. Please return this questionnaire in the enclosed envelope or fax it to 902-896-7095. If you have any questions, comments or concerns about this process, please contact Margaret Savard, at 902-893-7256 (office) or oacc@nsac.ca.

Thank you for your time and thought in completing this survey.

SECTION A: Products

A1. What organic products do you currently produce? (Check all that apply.)

In Saskatchewan, Manitoba, Alberta and the Maritimes, the options were:

___ Cereals ___ Oilseeds ___ Pulses ___ Forages ___ Fruit

___ Vegetables ___ Herbs/Spices ___ Beef ___ Bison ___ Dairy

___ Swine ___ Sheep ___ Poultry Other: _____

In Ontario, the options were:

___ Fall cereals ___ Hay ___ Vegetables ___ Dairy ___ Poultry

___ Spring cereals ___ Pasture ___ Fruit ___ Beef ___ Sheep

___ Soybeans ___ Corn ___ Berries ___ Bison ___ Swine

___ Pulses ___ Herbs/Spices ___ Greenhouse/hoophouse Other: _____

In BC, the options were:

___ Cereals ___ Oilseeds ___ Pulses ___ Forages ___ Fruit

___ Vegetables ___ Herbs/Spices ___ Beef ___ Bison ___ Nuts

___ Swine ___ Sheep ___ Poultry ___ Dairy (cow, goat, sheep)

___Greenhouse Other: _____ Other: _____

A2. What organic products do you intend to produce in the near future? (Check all that apply.) (As above for each region)

For the pages that follow, we have asked two types of questions.

- ✓ We would like to know how much interest there is in each type of research. For these questions, please circle the number that indicates how important each is to you as an organic producer, on a scale of 1 to 5
- ✓ We would also like to know of any specific sorts of research or other concerns that you have. Please write in any comments you would be willing to share with us.
- ✓ If you have more comments than will fit, please include another page, or contact OACC directly. Our phone, fax and email contacts are listed above.

Thank you! We really appreciate the time and effort that you give us to help us help you.

NB: on the original survey distributed, the rankings of 1 – 5 were reversed (i.e. 1 was the most important and 5 was the least important)

SECTION B: Production Research (production research is directed to all those areas that help you grow a crop or raise livestock)

	Very Important				Less Important
B1. Managing soil fertility and soil quality/health	5	4	3	2	1
Soil Biology – management to improve existing soil life (e.g. mycorrhizae)……	5	4	3	2	1
Soil Biology – adding living organisms (e.g. inoculants)	5	4	3	2	1
Soil Chemistry – N, P, K, S management	5	4	3	2	1
Soil Chemistry – other (specify _____)	5	4	3	2	1
Soil Chemistry – trace elements	5	4	3	2	1
Soil Chemistry – salinity	5	4	3	2	1
Manure Management	5	4	3	2	1
Minimizing Soil Erosion	5	4	3	2	1
Rotations (green manures and crop rotation for soil fertility)	5	4	3	2	1

What other soil research would you like to see?

_____

_____

B2. Managing weeds	5	4	3	2	1
Mechanical (tillage) controls	5	4	3	2	1
Mechanical (tillage) controls in perennial crops *(BC only)*	5	4	3	2	1
Biological controls (natural and introduced diseases and predators of weeds)	5	4	3	2	1
Cultural controls (seeding rates, varieties, cropping management)	5	4	3	2	1
Rotations (green manures, crop order)	5	4	3	2	1
Organic herbicides	5	4	3	2	1
Other (specify_____)	5	4	3	2	1
Designing weed control programs to manage specific weeds					
Canada thistle	5	4	3	2	1
Wild mustard	5	4	3	2	1

Field bindweed (*BC only*) 5 4 3 2 1
Other (specify_____) 5 4 3 2 1

What other weeds research would you like to see?

_____

	Very Important				Less Important
B3. Managing crop insects pests	5	4	3	2	1
Enhancing natural controls (e.g. encouraging grasshopper predators)	5	4	3	2	1
Cultural controls (crop rotations, intercrops, crop management)	5	4	3	2	1
Biological controls (e.g. releasing insect diseases or predators)	5	4	3	2	1
Organically approved insecticides *(BC and Ontario only)*	5	4	3	2	1

What other insect research would you like to see?

_____

_____

B4. Managing crop diseases	5	4	3	2	1
Enhancing natural controls (e.g. encouraging beneficial bacteria)	5	4	3	2	1
Cultural controls (crop rotations, intercrops, crop management)	5	4	3	2	1
Organically approved fungicides (*BC and Ontario only)*	5	4	3	2	1

What other disease research would you like to see?

_____

_____

B5. Crop rotations	5	4	3	2	1
Understanding soil, weed, insect, disease interactions in rotations	5	4	3	2	1
Identifying beneficial crop rotations for specific problems	5	4	3	2	1
Long term cropping systems research	5	4	3	2	1

What other crop rotation research would you like to see? _____

_____

_____

B6. Breeding/testing varieties for suitability in organic systems 5 4 3 2 1

Which crops would you target for this research?

_____

What specific variety or breeding research would you like to see?

_____

B7. Specialized equipment for organic production systems 5 4 3 2 1
What types of equipment would you like to see researched (e.g. weed clippers, chaff collectors,

crimper/rollers, hoophouse, season extension techniques etc.)?

_____

_____

Very Important ... less Important

Do you raise livestock? If not, please go on to C. …… Yes No

B8. Animal health and nutrition 5 4 3 2 1
(For the questions below, please specify the animals (beef, dairy, sheep, etc.) in which you are interested)

Breeds (specify animal: _____) 5 4 3 2 1

Parasites (specify animal :_____) 5 4 3 2 1

Diseases (specify animal :_____)..... 5 4 3 2 1

Grazing (specify animal: _____)..... 5 4 3 2 1

Feed (specify animal: _____) 5 4 3 2 1

Handling (specify animal :_____) 5 4 3 2 1

Housing (specify animal :_____) 5 4 3 2 1

Manure Management (specify animal :_____) 5 4 3 2 1

What other livestock research would you like to see? _____
_____

_____

SECTION C: Other Research

C1. Production economics (quantifying cost of production, comparing costs of options; identifying new enterprises and ventures) 5 4 3 2 1
- Grain production 5 4 3 2 1
- Mixed farm 5 4 3 2 1
- Horticulture production 5 4 3 2 1
- Livestock production 5 4 3 2 1
- Dairy production 5 4 3 2 1

Which crops or animals would you like to see researched (e.g. hemp, camelina, carrots, ostrich ***examples not used in ON and BC surveys***)?

_____
_____

Value added research 5 4 3 2 1

Which value added projects would you like to see researched (e.g. cleaning plant, custom operations,
birdseed, wild oat oatmeal – ***examples not used in ON and BC surveys***)?

_____

_____

		Very Important				Less Important
C2.	**Quality and nutrition of organic foods**	5	4	3	2	1
	Field crops	5	4	3	2	1

Please specify which crops:_____

	Animal products	5	4	3	2	1

Please specify which animal products:_____

	Horticultural crops	5	4	3	2	1

Please specify which crops:_____

What other organic food quality research would you like to see?

_____

_____

C3.	**The contribution of organic to sustainability**	5	4	3	2	1
	Biodiversity (diversity of wildlife and soil organisms)	5	4	3	2	1
	Sequestering carbon	5	4	3	2	1
	Energy use	5	4	3	2	1
	Soil quality	5	4	3	2	1
	Pesticide reduction	5	4	3	2	1

What other sustainability research would you like to see?

_____

_____

SECTION D: Research Management (Where should research be conducted? How should organic producers be involved in organic research?)

D1.	**Research conducted on the farms of organic producers**	5	4	3	2	1
D2.	**Research conducted at regional research and/or demonstration farms**	5	4	3	2	1
D3.	**Research conducted using farm scale equipment**	5	4	3	2	1
D4.	**What level of organic producer involvement is important to you?**					
	Producer advisory committees for research projects	5	4	3	2	1

Producer / researcher collaboration 5 4 3 2 1
Producer initiated research 5 4 3 2 1
Producer board determines direction of research dollars..... 5 4 3 2 1

Additional comments? _____

_____

SECTION E: Post Production Needs (includes processing and marketing information)

	Very Important				Less Important
E1. Information on commodity prices and volumes	5	4	3	2	1
E2. Information on buyers/brokers	5	4	3	2	1
E3. Information on market trends and demands	5	4	3	2	1
E4. Assistance in developing value added products	5	4	3	2	1
E5. Processing facilities for organic field crops	5	4	3	2	1
E6. Processing facilities for organic fruits and vegetables	5	4	3	2	1
E7. Slaughter facilities for organic cattle	5	4	3	2	1
E8. Mobile slaughter facilities for other organic livestock	5	4	3	2	1
E9. Buy local campaign	5	4	3	2	1
E10. Provincial Organic logo *(not asked in ON, BC or Maritimes)*	5	4	3	2	1
E11. Local procurement for institutional buyers	5	4	3	2	1
E12. Buyer/seller matchmaking services	5	4	3	2	1
E13. Consumer education on organic standard	5	4	3	2	1
E14. Consumer education on organic benefits	5	4	3	2	1

What other initiatives would you like to see?

_____

SECTION F: Extension/Technology Transfer (How does research information reach farmers?)

F1. How important are organic extension and education services?	5	4	3	2	1
Extension courses on advanced specific aspects of organic production	5	4	3	2	1
Fact sheets on organic farming practices	5	4	3	2	1
Information on economics of organic production	5	4	3	2	1
Organic information available on websites or by email	5	4	3	2	1
Extension personnel to facilitate specialty producer meetings	5	4	3	2	1
Organic Farm Mentorship programs (experienced organic farmers)	5	4	3	2	1
Field tours of organic production	5	4	3	2	1
Conferences (regionally appropriate examples listed)	5	4	3	2	1
Regional workshops	5	4	3	2	1
Organic Agriculture program offered through distance education	5	4	3	2	1
Organic Agriculture program at a regional college	5	4	3	2	1
University-level Degree courses in Organic Agriculture	5	4	3	2	1

How do you prefer to access information? _____

_____

What specific information would you like to see (soil test fact sheet, nutrient planning, buyers' preferences, etc.)? _____

_____

SECTION G: Barriers and Opportunities for Growth

What barriers do you see for the growth of organics?

_____

_____

What opportunities do you see for the growth of organics?

_____

_____

SECTION H: Demographics (we ask these questions in order to categorize your results (for instance, are weeds more important to new entrants in organics?)

H1. How many acres do you operate? Cultivated _____ Pasture/grazing _____ Other _____ acres

H2. How many of these are certified organic? _____ _____ _____ acres

H3. Where does your gross farm revenue generally fall? ____<$10,000 ____ $10,000-$24,999 ___ $25,000-$49,999 ___ $50,000-$99,999 ____ $100,000-$249,999 ____>$250,000

H4. Where do you market your products? *(Asked in AB, ON and BC)*

___ Direct to consumer ___ Farmer's Market ___ Wholesale ___ Processor ___ Retailer

H5. How many years have you been an organic producer?

___ < 5 years ___ 5 – 10 years ___ 11 – 15 years ___ 16 – 20 years ___ 21+ years

H6. What is your age? ___< 30 ___30 - 39 ___40 - 49 ___50 - 59 ___60 - 69 ___70+

H7. What is your gender? ____male ____female

H8. What is your soil type? __ brown __ dark brown __ black _ grey *(Asked in AB, SK, and MB)*

Additional Comments: (Is there anything that you'd like to add, that we missed? Add another page if you'd like!) -

_____

_____

_____

_____

Thank you, again, for your comments.

13. Appendix 2. BC Farmer Survey Comments.

Comments below correspond to above questions in the Assessment Survey. The "n" value reported in brackets for various comments indicates the number of respondents with the same response.

B1. What other soil research would you like to see?

- Composting technology to improve compost
- Longevity of disease organisms in soil and effect of rotations, cover crops, compost in mitigating soil borne disease organisms
- Better soil tests which reflect biological activity and organic inputs, not just substitution of organic for chemical
- Compaction experiments with different types of equipment.
- Dung beetles in southern Canada
- Where can we learn more about life in soil? Who can evaluate it?
- Use of mechanized implements for small scale farming (on farms that are less than an acre)
- Decreasing carbon emissions, using cover crops to mulch (garlic)
- Soil test results interpretation with organic principles / techniques in mind
- What crops remove what elements from soil? If a site has been contaminated with prohibited substances, how can the soil be cleaned.
- More about the soil food web in general - symbiosis between plants and fungi
- Evaluation of Rudolf Steiner's methods
- Soil biology, how to manage for best results.
- Vermiculture
- Hardy native grasses which would provide nutrition to the soil.
- Adding other grasses to native pastures.
- We have taken courses from soil food web (Vulcan AB and Oregon) we would like to implement their composting systems … time and knowledge are a barrier… having a local mentor for soil management would be great.
- Salinity, compaction, NPKS levels, knowledge of soil is organic farming

B2. Other (specify_____)

- Flame weeding technology (n=2)
- Permaculture practices
- Use of allelopathic crops
- Biofilm mulch / drip , mulches
- Promoting knowledge of medicinal weeds

B2. Designing weed control programs to manage specific weeds

- Three farmers mentioned chickweed and four farmers were interested in control programs for couchgrass.
- Farmers also mentioned they were interested in controls for: morning glory, dandelion, chickweed, quackgrass (n=3), polygonum-red knotweed, lamb's quarters, poison ivy, pigweed, mallow, spotted knapweed, buttercup, sorrel, broom, burdock, mullein, foxtail barley, ox-eye daisy, knapweed, grasses, hoary alyssum, bindweed

B2. What other weeds research would you like to see?

- Get an organic herbicide registered in Canada and approved by federal organic certification.

- With weeds, we have no problem as we feed them as silage
- Wild lettuce in fall planted grain
- Sources for small farm rock removal equipment - better and easier tillage
- How different weed infestations reflect on soil imbalances
- Again, reduce carbon emissions - i.e. no till
- control of poison ivy
- Monoculture has created monoculture in weeds as well. Organics still has diversity of weeds. This is least important aspect of organics

B3. What other insect research would you like to see?

- More organic insecticides
- Wireworms
- Planting of annual or perennial plants as hosts / attractors to predatory insects (beneficial) and which plants would do the
- Use of attractants for "attract and kill"
- Specific research on carrot rust flies
- Cherry fruit fly, aphids, pear rust mite
- Clearwing moths are killing our trees
- Pheromones, confusion for codling moth
- Possible use of mycopesticides
- Effect of genetically modified crops on the life cycle of beneficial insects.
- Pest specific management - Colorado potato beetle and flea beetle
- Flea beetles on brassicas clearwing moth, rosy apple aphid, clearwing moth.
- Insect purpose in greater cycle (does the asparagus beetle serve a purpose).
- Our farm is an apiary although our bees are not certified (too close to hwy in a narrow valley). I do not believe in unbalancing a natural insect system i.e. releasing insects. Lots of diversity is where we need to go.

B4. What other disease research would you like to see?

- Brown rot, botrytis, grey mold control on fruit crops.
- Anthracnose canker management for the west coast
- Info on temp and humidity control for reducing fungal pests
- Effect of cover crop management on fungal spores
- Pruning, sanitation and barriers
- Mildew on apples
- White rot
- Mildew in lettuce crops
- Fungal (beneficial and entomoparasites)
- Manasins Allium disease - botrytis, white rot, etc.
- Mildew Big organics means lack of rotational plans to me. I come from a small valley with a high density of organic farmers (Similkameen) and we are all small, not big. Our farms have an old-fashioned sense to them. I wish the big guys good luck because the small guys are losing economically. I don't like big organic but it's better than none.

B6. Which crops would you target for this research?

- Applicable to mushroom growing facilities
- High energy forages, especially grasses
- Tree fruits (i.e. apples) (n= 4)
- Grapes, raspberries (n=2), blackberries (n=2), strawberries (n=2)
- Perennial grains
- Garlic
- Low growing orchard grass

- Vegetables, including:
- corn (i.e. sweet corn),
- tomatoes (n=3),
- onions,
- potatoes,
- carrots (i.e. scarlet nantes),
- cucumber,
- squash,
- broccoli (n=1)
- Focus on regional conditions for vegetables and fruit

B6. What specific variety or breeding research would you like to see?

- Apple scab resistance, powdery mildew resistance on tree fruit
- Varieties from local seed producers to evaluate against non-local organic seed
- Blight resistant potatoes and tomatoes
- We need research into breeding open pollinated seed of different crop varieties that farmers can then save the seed from for themselves
- Sunflowers for oilseed, spelt, barley, oats, other grains for northern climates
- Better storage (longer post-harvest shelf-life)
- To determine if traditional/conventional breeding techniques are adequate.
- Peppers
- Potatoes

B7. What types of equipment to be researched (e.g. weed clippers, chaff collectors, crimper/rollers, etc)?

- Weed trimmers (n=6) and clippers (n=3), flamers (n=2), rock pickers
- Development of well built small farm hand tools - Scythes, hoes, rakes, hole diggers
- Small scale vegetable seed cleaning/seed harvesting machines
- Tillage equipment that will allow for minimum tillage for vegetables
- Small scale insect vacuums (i.e. Colorado potato beetle) (n=1)
- Equipment focused on small scale production (i.e. smaller scale seed harvest/cleaning equipment for beans and clover; small harvester for grains)
- Mechanical / electric insect control
- Herb harvesting equipment
- Planting machinery, small farm machinery - most equipment is geared towards large production
- Small fuel-free machinery - or alcohol burning equipment
- In row burners for tree fruits
- Weed badger, propane weed torch
- Hemp harvesting equipment
- Compost tea brewers

B8. Animal health and nutrition (For the questions below, please specify the animals (beef, dairy, sheep, etc.) in which you are interested)

Farmers were interested in animal health and nutrition information for:

- goats (i.e. dairy goats) (n=2),
- poultry and laying hens (n=7),
- thoroughbred horses (n=1),
- beef (n=3),
- dairy cows (i.e. Holstein) (n=1),
- sheep (n=3),
- and swine (n=1).

B8. Breeds (specify animal:_____)
- goats (i.e. dairy goats) (n=2),
- poultry and laying hens (n=4),
- thoroughbred horses (n=1),
- beef (n=3),
- dairy cows (i.e. Holstein) (n=1),
- sheep (n=2),
- and swine (n=1).

B8. Parasites (specify animal_____)
- Farmers were interested in parasite information for:
- goats including dairy goats (n=3),
- chickens/poultry and laying hens (n=7),
- dairy cattle (n=3),
- beef (n=3),
- sheep (n=2),
- swine (n=1),
- and honeybees (n=1).

B8. Diseases (specify_____)
- Goats (including dairy goats) (n=2),
- poultry and laying hens (n=6),
- dairy cows (n=1),
- sheep (n=2),
- swine (n=1),
- honeybees (n=1),
- and beef (n=2).

B8. Grazing (specify_____)
- Dairy,
- goats (including dairy goats),
- chickens and laying hens,
- dairy cattle,
- beef,
- sheep,
- swine,
- and honeybees.

B8. Feed (specify_____)
- Dairy cattle,
- goats (including dairy goats),
- chickens and laying hens,
- beef,
- sheep,
- swine,
- and honeybees.

B8. Handling (specify_____)
- Dairy,
- goats (including dairy goats),
- chickens,
- dairy cattle,

- beef,
- laying hens,
- sheep,
- swine,
- honeybees.

B8. Housing (specify_____)
Dairy, goats (including dairy goats), chickens and laying hens, dairy cattle, beef, dairy goat, sheep, and swine.

B8. Manure Management (specify_____)
Dairy, goats (including dairy goats), chickens, dairy cattle, beef, dairy goat, laying hens, sheep, swine, spent mushroom compost and horses.

B8. What other research would you like to see?
- Do chickens have natural roosting instincts?
- Spent mushroom compost
- Beef - lice control
- Research into the management/control of hoof wart (mortellaro) for dairy cows.
- Re manure management - Canadian Standards over the Certified organic association of British Columbia (COABC) - why change?
- Want to see more poultry breeds that are good for pasture worms and ticks.
- Organic sheep parasite control and approving products like Garlic Barrier, etc.

C1. Which crops or animals would you like to see researched? (e.g. hemp, camelina, carrots, ostrich)?
- Apples, sweet cherry, table grapes, wine grapes, vegetable seeds, garlic, organic grain and fruit
- Dairy goats, lambs, earthworms, honeybees, swine, chicken, turkey, beef (i.e. Angus- Herford)
- Sheep - lamb: increase carcass yields and parasite management
- Greenhouse and market garden operation

C1. Which value added projects would you like to see researched (e.g. cleaning plant, custom operations, birdseed, wild oat oatmeal)?
- Cheese production, herbs, sprout production, hard cider production, solar / fruit drying, organic tree fruits, pickling, and dried products
- A cannery to use up #2 culls fruit and vegetables
- Organic bakeries using regional products
- Wild foods
- Often value-adding to a product incurs high cost in terms of equipment, time and labour to be able to sell large enough volumes. And all the regulations for processing products and researching are very costly. In some ways I am quite skeptical of value-adding!
- The more value-added projects, the better

C2. Please specify which crops you would like further information on quality and nutrition?
- Alfalfa (n=1)
- Apples (n=1)
- Barley (n=1)
- Beets (n=1)

- Berries (n=1)
- Brassicas (n=1)
- Carrots (n=1)
- Corn (n=1)
- Forage (n=1)
- Grains (n=2)
- Greens (n=2)
- Legumes (n=1)
- Peas (n=1)
- Potatoes (n=2)
- Spelt (n=1)
- Tree fruit (n=1)\wheat (n=1)

C2. Please specify which animal products you would like further information on quality and nutrition?

- Goats (and dairy goats) (n=1),
- Beef (n=6),
- Poultry (n=6),
- Broiler chicken (n=1)
- Lamb (n=2),
- Eggs (n= 1),
- dairy cattle (n=2),
- and pork (n=2).
- Grass-fed and finished beef broiler chicken, beef, and pork

C2. Please specify which horticultural crops you would like further information on quality and nutrition?

- Tree fruits (i.e. apple, peaches, pears),
- Vegetables (n= 8)
  - Cucumber (n=2),
  - Squash (n=2),
  - Eggplant (n=1),
  - Peppers (n=1),
  - Carrots (n= 3),
  - lettuce, spinach and salad greens (n=3),
  - beets (n=1),
  - potatoes (n=2),
- mushrooms (n=1),
- fruits (n= 5)
  - tomatoes (eg. heirloom tomatoes) (n=8),
  - sweet cherry (n=2),
  - blueberry (n=3),
  - cranberries (n=1),
- culinary and medicinal herbs,
- hazelnuts (n=1),
- and cut flowers (n=1).

C2. What other organic food quality research would you like to see?

- Food safety, natural pathogenic disease reduction
- Nutrient retention under processing conditions
- Effects on general health and well being of children
- Random testing on all crops as a way to see the organic standards are being upheld

- Hothouse cucumbers
- Comparing baked goods that don't use animal products (no dairy/eggs) health benefits
- Identify and highlight differences between conventional and organic produce/production. Fresh vs. processed mushrooms
- Taste and nutrient levels
- Understand its importance to consumer's hence economic relevance to organic growers

C3. What other sustainability research would you like to see?

- Small scale local production sustainability vs. large scale organic production
- Effects on human health
- How can we reduce petrochemical use? Changes in farming practices
- "Closed loop" production on small scale for local consumption
- Water conservation- is water use less in organic systems?
- Farm production of fuel for equipment
- Keeping small organic farms independent through economic viability
- Buying locally versus importing from the US and long haul trucking distribution
- Local self sufficiency, bioregionalism
- No till farming with grain, corn, beans
- Testing of residual pesticides (organic and conventional) to prove differences
- Less dependence on fossil fuels
- Sustainability of shipped organic (max 1 miles) vs. chemical local

D4. What level of organic producer involvement is important to you?

- Emphasis on applied research
- Farmers should not control the money and what projects are funded
- Please do research on the clear wing moth; we are desperate
- Practical, useful help (being able to send samples - weeds, insect, damaged crop) for ID, analysis and assistance would be a help.
- Producers should be involved as much as possible to keep the research relevant to current production issues.
- Who has time: Regional / Producer research very expensive?
- Would like only research projects having widespread application approved.
- Timely and relevant research is crucial for ensuring value for research dollars. Too often, academia is years behind industry.
- If OACC can initiate current projects, that would be great!
- A research centre that is open to input from producers and information is easily accessed
- Working farms and study within a working farm with a producer makes the most sense.

D4. Other initiatives?

- Lower fees for certification, more freedom
- Promotion of the federal organic certification to consumers in stores - signs, etc.
- Food safety training implementation
- Generally creating awareness to consumers of differences between conventional and organic
- Farmer economics involve cost of land. Reduce land speculation ability, assist young farmers
- Less emphasis on processing
- Farmer producer educational programs - i.e. development of farm based educational facilities

- Product testing to verify organic status. Test for prohibited substances in end product.
- Testing of organic and conventional to prove (hopefully) differences.
- Advice on how to attract larger supermarkets to buy from certified organic processors
- Cheap, recyclable bags and wax boxes, generically organic, available in reasonable quantities.
- There is a real lack of market analysis information. An annual analysis of the market for each crop would provide valuable info to both organic and conventional producers - example of carrot sales in BC - a few large organic growers retired and no one filled the gap.
- Value-adding that will produce a profit in economic terms as well as financial terms.
- That certified is incorporated into advertising and regulations to distinguish from the use of organic.
- Transportation pools for delivery of produce.
- Funding for inspection fees.
- Anything that makes organic easier (like processing facilities for organic only) is good, so long as organic doesn't get too diluted in the grab for money.

F14. How do you prefer to access information?

- When the farmer's were asked how they would prefer to access information a majority answered that they would like to use the internet or through email. As many more people have access to online information at anytime of the day, this method appears to becoming accepted (i.e. internet to be used as I find the time).
- Many farmers's still mentioned that accessing information from magazines such as BC organic growers is of importance.
- Email (n=8),
- Fax (n=1)
- Mail (n=8),
- Online/websites/internet (n=17),
- Books/bulletins/magazines/newsletters (n=13),
- Workshops (n=3),
- Conferences (n=3),
- Field visits to other farms/ extension personnel (n=2),
- Like to know where we can go to get this information - when it becomes available
- No extension services available from BC government. Never has been anything, really.
- Self directed research worked for me
- I would like to see more extension courses and regional workshops that I could send my employees to, to improve their skill and knowledge.
- Good source mentorship for soil management
- Internet networking of farmers communally

F15. What specific information would you like to see (soil test fact sheet, nutrient planning, buyers' preferences, etc.)?

- Organic veterinarian programs / workshops
- Nutrient planning
- It would be great to see extension personnel
- Natural farming techniques, science, permaculture techniques
- Updated information on insect (bee) pollinators and alternative species.

- Vegetable pest management (flea beetles, aphids), improving feed value of fodder for dairy goats, parasite management in goats, plant breeding, seed saving
- Soil test fact sheet,
- It is hard as a small farmer to afford to go to conferences and events, funding would be helpful
- Buyers' preferences/ marketing strategies
- A list of farmers willing to take interns for a full growing season as part of college -university education programs - Part of the requirement to complete any organic agriculture programs.
- Specific pest control information, including experimental.
- I'm increasingly in need of business management info in order to sustain the continued growth of my business.
- One of our challenges is growing healthy and vigorous vegetable transplants on a consistent basis. Would like to invest in equipment and techniques/improvements but can't find info on state of the art transplant production for our scale.
- Northern species testing for cold climates.
- Practical applications for pest management, growing tips, marketing strategies
- Buyers preferences and marketing habits/trends
- How to market
- Cover cropping, trap crops, green manures, rotation effects
- Soil test fact sheet as related to soil foodweb program (Dr. Elaine Ingham)
- Soil building and closed loop fertilizer systems
- What steps are in place to monitor organic produce from other countries XX Markups by wholesalers and retailers?

G1. What barriers do you see for the growth of organics?

- Misuse of organics - it has to be for the right reasons
- Not all ingredients required or recommended are readily available organically; high production costs
- High cost of organic materials, high standards for Canadian organic certification and easier standards for imported certified organics.
- For local production to meet local demand while retaining ecological integrity and sustainability
- Lack of up and coming young farmers, due to lack of access to $$ land.
- Food safety being considered too big to overcome. Cost of living.
- Too many nitpicking rules that will prevent seeing the big picture of organic sustainability
- The misinformation that is out there re: organics
- Cost of land
- Still challenging to find suppliers of certain inputs that are approved for organic use.
- Consumer awareness!!!! Example: consumers generally do not know the difference between organic and free range poultry
- Overlapping oversight by too many regulatory bodies - i.e. organic/spca/cfia/marketing board, etc.
- Consumer acceptance of the fact that many organically certified crops are more costly to produce
- Lack of farmers who are young to enter, exorbitant land prices, lots of conflicting government regulations, subsidies
- Multinational agro-industry
- For us, processing facilities, transportation costs

- Not enough young farmers
- Cost of organic pesticides and herbicides. Promoting organic practices make it very difficult with the cost of these products
- High land costs, shortage of people wanting to farm
- Marketing board preventing small farms from joining, not understanding organics inherent differences
- Entry of young farmers, low food prices (consumer) and lack of government policies to support organic sector
- Labour cost keeps escalating
- Not enough conventional farmers converting to organic
- Educating consumers about what it actually means to grow organically and standards that farmers have to adhere to.
- Public education, government regulations in handling of produce at market
- Labour shortages, increasing production costs, physical difficulty of work, profitability, predominance of corporate agriculture reducing feasibility of small-medium size farms
- Competition from China, California. Certification is expensive
- Financing. Starting from scratch (not being handed down a farm) is very difficult. We are not able to sustain a comfortable living farming (due to increased cost of land and equipment and feed, and seed). Financial incentives from government / other funding bodies is needed and essential to the sustainability of a small farm.
- Cost-effective distribution for smaller scale producers
- Organic possible for cosmetics
- Barriers are COABC paperwork, Canadian national organic regime, CFIA agreements with other international organic programs. Public does not know what they are eating or where it is from. Country of origin must be on all products - where it is grown and not who processes it.
- Availability of investment funding for agri-value added which serve as an infrastructure support system.
- Land Prices
- Economic pressures of land values deterring young farmers from land ownership
- Consumer education (lack of). Large wholesale buyers dictating prices
- Codling moth, lack of info with conventional farmers
- Consumer not willing to pay for risk
- The monopoly of US based organic processed goods. We need to have more Canadian organic foods available through supermarket chains.
- Cost, changes to standards, GMO should not be legal
- Too many large corporations are getting in on the trendiness of organics for the wrong reasons - mainly greed! It is hurting the small farms.
- People unwilling to pay what food is worth. The public is disconnected with food. Also labour - my own vs. the cost of employees
- Land for new/young farmers. BC farmland is going to development. Taxing of small farms at highest land value
- Factory farming methods and costs influencing consumer purchasing
- Farmers are not good bureaucrats or management systems specialists. The current management system - COABC and certifying bodies is extraordinarily poorly managed
- Access to land, low prestige of farming, complex structure of local government/Ag Land Reserve for innovative land ownership solutions, cost of farm set-up and operation, lack of 1-stop shopping for equipment, lack of Canadian organic reciprocation program, lack of extension for advice on

equipment (Use in soil type, etc), no source of reasonably priced supplies for small farmers,

- BC allowing the growing of GM crops especially without the posting of fields growing these crops. Imported organic products produced in countries where standards are not enforced as strictly as Canada high cost of feed, fuel (products out of reach for most consumers)
- Lack of supply in my opinion is the most significant barrier to growth. We need to continue to build production capacity in Canada (and a qualified workforce) by providing information and encouragement/assistance to existing organic growers and promoting organic conversion to conventional growers. Market analysis showing market opportunities/ growth could help here. GMOs, current biofuel policies being reviewed, FDA, corporate markets
- Foreign competition
- Lack of subsidies for farmers
- The pressure from crossover producers to lower standards
- Future control of seed stock, increasing government regulations for the small producer Cost, lowering standards of organic to suit big stores
- Low prices fuel prices, land prices, restrictions on inputs becoming more stringent
- Lack of nationally accepted standard - able to market brand (Canadian Organic) and educate consumers. This in my opinion should be the #1 priority.
- Competition from large corporations taking the local out of small scale organic operations
- Production capacity, financial barriers to new farmers, rhetoric media confusing people over the real value of organics (i.e. studies questioning, disproving value, benefits)
- Cost of land, shortage of younger farmers
- Not distinguishing certified from those using "organic" without proper certification Government involvement
- Farm Labour, land prices, low financial returns control at the retail level by large interests The integrity of the organic label
- Labour and young people entering organic farms, land costs
- The biggest barrier is the control the petrochemical companies have by their lobbying of the Provincial and Federal governments. The next biggest barrier are the high prices of farm land now. Young people may be deterred by that I don't see barriers for growth. On the contrary, organics is growing. But what kind of organics and what philosophy? A certain sincerity is being lost in going to large scale farming - the allowing of things never considered before/ Organic seed, fertilizer costs, Mexican production

G2. What opportunities do you see for the growth of organics?

- People are beginning to understand the health impacts
- Increased consumer demand, large price spread for farmer for some organic crops
- Local sustainable economy based. Pride in food production, increase in cost of importing, increase in agricultural awareness
- There is lots of opportunity in the growth of organics
- High demand
- Unlimited if consumer awareness is created
- Further expansion of the market
- High cost of oil will make conventional extremely costly and never was sustainable

- Current concerns for the degradation of our natural and man-made environments
- Growing organically is far better but they have to make it affordable to the grower
- The market is there. Public is more aware of food quality and of agriculture's impact on the environment.
- Increasing awareness of importance of small scale, local, organic food production in the general population
- Farmers markets / master gardeners type organizations
- Demand will continue to grow
- Less red tape (e.g.: lengthy renewal applications. Create guidelines with farmers in mind, not bureaucrats making the rules.
- With global food shortage concerns, food producers may enjoy increasing profitability
- Huge! But only if you have the money. Unfortunately, we have a lot of interest from local buyers but we are unable to do this because we have both had to take full time employment. Sad!
- I feel that farmers compete too much within their own local market. A cooperative model may address some of these issues
- Buy local. Regional standards - product testing. Let buyer know who grows what they eat
- It's a wide open field
- Niche markets and home delivery
- 2% per year continuous
- More processed foods for "Value added" market to support organic food producers
- Health, air quality improvement, sell closer to farm (less fuel consumption)
- Eat local has been a big boost. On farm processing
- Many are starting to gain awareness of environmental issues and farming links.
- Awareness of the factory farming methods and products
- Current emphasis on cutting greenhouse gas emissions, water conservation, healthy eating. I think that there are lots of opportunities for growth of organics in Canada. Even just displacing organic produce imports when seasonally possible is a major opportunity and would be a good achievement Local Markets (<2 km), restaurants, personal sales Bioregionalism
- More land trust opportunities
- Interest in locally produced food, international food scares
- Local consumer demand, 1 mile diet, illnesses which are a result of poor nutrition and food quality, fear and loathing of GMOs, lack of labeling
- With nationally accepted standard - able to market brand (Canadian Organic) and educate consumers. Consumer awareness increasing through popular authors and the Buy Local campaigns - more consumer support. Heightened awareness in general public of benefits of farming, especially organics, means markets are there. Just a question of being able to meet demand. Tremendous, based on feedback from retailers Good Higher priced fuel, buy local focus catching on, health benefits Save small farms.
- Consumer preference. Buy local The opportunities are still very large; the costs are also very large
- Environmental concerns, increasing cost of industrial inputs I feel that better health for society once we get away from petrochemicals
- Giant, I hope the whole world jumps onboard.

I1. Additional comments (Is there anything that you'd like to add, that we missed? Add another page if you'd like!)

We are a small organic dairy farm - our cows are grass fed / hay fed only. We process all our own milk mostly into cheese products.

Making proper training available for our young people is key. There should be workshops available for farmers who want to become organic - how to… not just paperwork but interesting and interactive! E.g.. How to treat organically, etc.

A correspondence course with market monthly XXX submitted by students who can choose all or select a minimum of 2 areas (e.g.. Fruit and berries, vegetables) or others to choose from - such as poultry, dairy, cheese making, etc. The course could be over 3 years with a written 8 hour exam to be passed with a mark minimum of 7%, the exam to be written under exam conditions in one day to encourage the farmer to give up the time to be away from the farm and held in towns convenient to those enrolled.

Please work on increasing the number of farmers starting to farm organically by providing information on start up, transition process, land options, market options. We need to increase the amount of local sustainable production!

Certified organic seeds do not germinate unless you have a temperature of at least 17C. Most of our temperatures when we are trying to get germination in spring are 3C to maybe 1C. Conventional seeds will germinate at these lower temperatures - e.g.. Corn beets squash. Chickens: when you try to feed certified organic food, egg production drops below half. Chicken mortality rate on 1 chickens is 1 per month from digestive problems. Hatching eggs - it was % fertile eggs, as the embryo were there. With conventional feed it was % live healthy chicks. I would like to see some research on certified organic feed that is healthy to poultry - should be tested.

My wife (62) and daughter (25) work on the farm also

I'm not a big fan of research mostly because it is so academic. I favor on-farm research and exchange of local knowledge and experience

Federal / provincial policy needs to quickly be turned around to support sustainable small-scale and local production and consumption or Canada will be out of farmers and local food/food security when the next major trigger occurs (drought, war, etc.)

I have farmed all my life organic - we were the first certified in the BC and Alberta Peace River area. We try to farm the way my family farmed in Switzerland for 6 years, taking the old and now the new organic ideas and trying the best ways. (Charlie Lasser, 25 788 27)

Although tax benefits continue to help, there has to be a better way of giving the grower some other benefits. When the grower is trying to sell his product, it is still very difficult to make a decent living with the rising cost of everything and very little increase in selling a finished product to the retailer. P.S. The grower works very hard to produce a quality product and it always seems that the local fruit stands enjoy the profits while the grower gets told that this is all the fruit stands can pay, yet most of these operations spend their winter in south sunshine while the grower is out pruning and doing maintenance in the winter months.

I farm cooperatively with 2 other people

Encourage consumers to grow organic produce in addition to flowers/shrubs. Support farmers markets. Buy Local. Require KM traveled labeling on products in grocery stores

The loss of slaughter facilities locally, caused by new provincial regulations will stop production of organic turkey, chicken, beef, and lamb in our local area. Distant facilities are impractical to use.

I believe that education on organic food is essential both for producers and the public. We would love to start an education centre at our farm for the public, school

programs, etc. But again, financially we are unable to do this. Research on funding is also an essential thing. Thanks for your efforts.
If you want a really good response to a survey of farmers, don't send it in the spring, summer or fall.
I want to know what I'm eating, where it was grown, by what standards, and by whom. COABC standards are better than the COR standards especially on inputs like animal manure. Bigger is not better. All imports should be tested by CFIA - no exception. BC Govt should be testing and verifying organics not COABC. COABC has become a business - just check the list of directors over the last 1 years against the list of contractors that are employed by COABC. It's not about organics for most, it's about money. BC Gov should not fund COABC. BC Gov should fund organic farming through universities and testing.
Sorry no time to elaborate
To repeat - we organic growers are losing trees - not just the fruit) from our apple and pear orchards. We are definitely desperate.
I have had strong endorsement for our bakery items from top management here locally (Kamloops BC). However, when I contact provincial offices, it goes nowhere (i.e. Save-On foods, Coopers)
Bees are considered livestock here in BC - don't forget them! Would love more info on organic management of bees - much literature is very drug focused.
Just to reiterate that practical help and assistance in obtaining farm help (skilled, interested people), practical farm extension, and access to competitively priced supplies would take some of the risk out of organic farming. Much of the research you have identified is already available for my needs. As you may have gathered by now, having open communication of the extent and growth trends of the organic producer demand is a big interest for me. I think people will be very surprised to see how much produce we are importing from the US that we could be producing ourselves. With the current interest in local production we have a huge job ahead to increase our production (by providing skills and resources for young people getting started, encouraging conversion from conventional as well as providing ongoing training and encouragement to existing organic producers to expand) to meet demand of even a small % of the pop'n going local. Also could encourage transition from the production of export commodities (conv. hogs and beef for example) to products actually needed in Canada Future markets include local restaurants, not included in "where do you market your product" How important it is to not allow the standard to drop. We are a processor, not involved in farming so we left the questionnaire blank. NutriLoc Dried Foods. I would like it to be easier to determine if a product I am considering using is allowed/registered. OMRI list is so incomplete and coabc regulation lists are too vague. It's becoming harder and harder and taking too much time to find out if the input is usable. Good questionnaire format/content. I'm new to organic and look to national standard as critical for industry taking next step in credibility Thank you for supporting the organic industry Attention to water use and efficient methods of irrigation and monitoring The consumer must be made aware of the threat of terminator seeds and GMO products so that they can make an informed purchase My partner is female How about why people farm organically. Lifestyle, economic, helping the earth? Why. If asked 2 yrs ago, and asked today, you might see a trend. There is a hipness factor. Everyone wants to be a good guy. Being organic is looked upon as being "good." At the farmers market, when you tell someone you are certified organic, their response over the last few years has been "I'm glad". The thing is I'm not organic for people. I'm organic because the earth is headed on a destructive course. Well, not Earth. Earth will always make it. But Earth for the humans is sliding into oblivion.