Research Needs Assessment of Ontario 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 Ontario data with the national average. Where appropriate, these two documents share entire passages. The national study can be found at www.oacc.info.

Distribution of this survey would not have been possible without assistance from the organic certifying bodies in Ontario who mailed survey packages to members or clients or provided us with mailing lists: Organic Council of Ontario (OCO), Ecological Farmers Association of Ontario (EFAO), and Canadian Organic Growers (COG).

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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

In Ontario, over 832 surveys were distributed to organic producers, including uncertified producers who defined themselves as using ecological or organic methods, with a response rate of 17.7%. The top research needs in this survey will be used to inform a prioritization process for research projects in the various producer sectors.

Many producers were relatively new entrants to the organic sector with 39% of the respondents indicating that they had 5 years or less of organic farming experience. The majority of these respondents were between the ages of 50-69 (53%), which may suggest that many of the respondents had entered organic farming as a second career. Ontario respondents on average farmed 153 acres (including cultivated, pasture and other land on the farm), 112 acres of which was certified organic. The cultivated acreage varied by production category from <20 acres for herb and spice producers to approximately 200 cultivated acres for dairy producers.

Producers were most interested in *research conducted on-farm* in *partnership with researchers* and through *producer advisory boards*. Many researchers indicated that *research conducted using farm scale equipment* was of high priority as it related more directly to on-farm practices. Assessing and receiving extension information and research on organic issues was also of great importance; with Ontario producers identifying the use of *websites, email* and *use of fact sheets* of greatest benefit. Farmer comments indicated that this allowed them to access the information on their own time.

Among animal related issues, *parasites*, *breeds* and *grazing* were the most highly ranked issues of need. *Dairy* producers were overall most interested in research relating to *grazing* and *parasites*, while *livestock* producers were proportionately more interested in *feed* and *disease* related issues.

Crop production needs emphasized that research relating to *rotations*, *insects, disease* and *weed* management were all of high priority to each of the production sectors. *Rotations to manage specific problems* and for *weed control* ranked the highest among plant-related issues, while *organically approved substances* were overall ranked lowest. In most cases *cultural controls* were ranked more highly by respondents from all sectors than the use of *biological controls*.

Within the soils category, management involving rotations was highly ranked by all producer sectors. Overall, *soil fertility and crop rotations* was ranked highest, followed closely by *biology to improve existing life*. Several respondents expressed a need for soil tests for assessing the soil's biology, an important component in organic agriculture. Respondents also commented on the need for more information on nutrient management and how to better understand soil tests.

Ratings for research on the *quality and nutrition of organic foods* overall was scored highly by all producer sectors, though overall it was ranked eighth as an important research need across all producer sectors in Ontario. R*esearch on the quantity and nutrition of organic field crops* ranked highly. Respondents tended to rank their production sector more highly, with the sectors ranking *value-added product research* as a section of interest, except for dairy farmers who ranked this category lowest.

Ontario producers' top two *marketing* priorities were *consumer education on organic benefits* and *consumer education on the standards*. Overall, *production economics* were ranked low by all producer sectors. Whereas, producers indicated that *market information on market trends and demands*, and *information on commodity prices* were of greatest priority. Producers also indicated that all areas of *processing* were of need with *livestock* producers highly ranking the need for both more and *mobile slaughter facilities for organic cattle.*

Respondents in general had an overall positive outlook on the future growth of the organic sector. Many farmers commented on the renewed consumer interest brought about by campaigns such as "*Buy Local"* which many suggested has heightened public awareness and increased "excitement" for products provided by the organic sector. Increased demand brought about by these campaigns has provided an "entry point for new, young individuals" to enter farming. With this overall positive outlook on the organic sector many farmers commented that there are still many barriers to overcome. One of the larger barriers identified by producers were government regulations and standards. Many Ontario farmers commented that the standards are more stringent for Canadian farmers and "too lax for foreign" competitors. Others also noted the "inconsistent regulations" among certifying bodies, and the "need for a common national standard". With this farmers indicated that more education is needed for the public on the standards and cost associated with organic products. Many commented that the "consumer's perception of organics is related to the cost in the supermarkets" and that there needs to be a better understanding in regard to the "health" and "environmental benefits of organic agriculture".

Ontario Research Needs Survey Summary

In the winter and spring of 2008, the Organic Agriculture Centre of Canada (OACC) conducted a research needs survey of organic producers across Canada. This document is a summary of the results of all Ontario respondents of 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 development of organic in Canada rests firmly on the success of the farmers. In considering this, the Organic Agriculture Centre of Canada (OACC) has endeavored to consult with 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 representation from across the country and from all sectors of organic agriculture 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 cross-country project has resulted, involving identification of trends affecting the Canadian organic sector, opportunities and threats arising from these trends, strengths and weaknesses in the organic sector for addressing the opportunities and threats, and finally a research prioritization process arising from the preceding process. A key component of this process has been conducting a national survey of organic producers in Canada, asking them to rate the importance of different areas of research. This report outlines the findings for the province of Ontario.

1.1. Survey Description

This survey was designed based on the known key subject areas requiring research in organic agriculture (Appendix 1). The survey primarily included questions relating to 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. Questions also were included to characterize the farmers by their categories of production and demographics.

The respondents were asked for 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 (*).

The report is divided into six sections to match the sectors identified by the Expert Committee on Organic Agriculture. 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

With the assistance of our partners, OACC distributed 832 surveys to organic or transitional producers in Ontario. The Ecological Farmers Association of Ontario was one of the major partners assisting with survey distribution. The EFAO membership includes both certified organic farmers and non-certified farmers whose practices are expected to be close to organic. Both of these groups were included. There were a total of **147** respondents in Ontario, for a response rate of 17.7%.

For each sector (i.e. crops, livestock, vegetables, etc.) the analysis included respondents from both current producers and those planning to enter the sector in the near future. The analysis considered that a producer who either currently produces or plans to produce a commodity in the near future was part of a given sector. The 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.

1.3. Respondent Demographics

The 147 respondents were classified into six major production sectors based on the organic products they currently produced or intended to produce in the near future (Table 1). Of these producers, approximately 1/3 indicated that they were using organic methods but were not formally certified. The distribution of surveys in Ontario also included uncertified producers who defined themselves as using ecological or organic methods. Their responses have been included in this analysis.

The dominant sector consisted of ***field crop*** producers with 62% of all respondents. Of particular interest is that the majority (86%) are producing or plan to produce forages. Pulses were least commonly grown by Ontario field crop producers (Table 1). This was followed closely by ***vegetable*** producers (58%); approximately half of these producers' utilized greenhouse processes.

Livestock producers accounted for 50% of all the respondents, indicating that *beef, sheep* and *poultry* were commonly raised by Ontario farmers, whereas *swine* production was least common. Of all the Ontario respondents 42% were ***fruit and berry*** producers, while 33% were ***herb and spice*** producers. The **dairy** sector had the lowest response rate (15%); however they represented 2/3 of all current dairy producers in that responded to this survey (sent to all provinces except Quebec and Newfoundland and Labrador.

Table 1. Summary of 147 Ontario respondents by sector and product.

	Current producers	Future producers*	Total producers: current plus future		
			number	% of all respondents	% of sector
All			**147**	**100%**	
Field crops**	**78**	**13**	**91**	**61.9%**	
Fall cereals	47	16	63		74%
Spring cereal	57	6	63		74%
Pulses	6	4	10		12%
Forages	71	7	78		86%
Corn	35	4	39		46%
Soybean	39	7	46		54%
Vegetables	**74**	**14**	**88**	**59.9%**	
Vegetable	73	13	86		98%
Greenhouse	24	13	37		42%
Livestock	**61**	**12**	**73**	**49.7%**	
Beef	29	4	33		45%
Swine	12	10	22		30%
Sheep	24	1	25		34%
Poultry	34	16	50		68%
Dairy	**20**	**2**	**22**	**14.9%**	
Fruit and Berry	**40**	**22**	**62**	**42.2%**	
Fruit	29	21	50		81%
Berry	35	17	52		84%
Herbs and Spices	**42**	**7**	**49**	**33.3%**	

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

**only six producers were not producing any other grain crops

Table 2. Summary of survey respondents by producer category.

	Field Crops	Livestock	Dairy	Vegetable (incl. greenhouse)	Fruit/ berry	Herbs/ spices
	---number or percentage of producers---					
Current producers plus those who intend to produce in the future	91	73	22	88	62	49
	61.9%	**49.7%**	**14.9%**	**59.9%**	**42.2%**	**33.3%**
Currently producing organic products	78	61	20	74	40	42
Plan to produce in future	13	12	2	14	22	7

Farm size by sector was calculated in an inclusive manner (Figure 2). For example, the field crop sector included all producers of field crops regardless of what other crops or livestock they produced. Between the agricultural sectors, the average certified acreage was greatest for **dairy** farmers, at 313 certified organic acres (Figure 3). This declined to 182 certified organic acres for **field crops** and 106 for **livestock** producers. **Vegetable**, **fruit and berry** and **herb and spice** producers were the lowest, on average reporting 27 to 53 acres certified organic. Only 12% of farms were reported to be less than 10 acres in size.

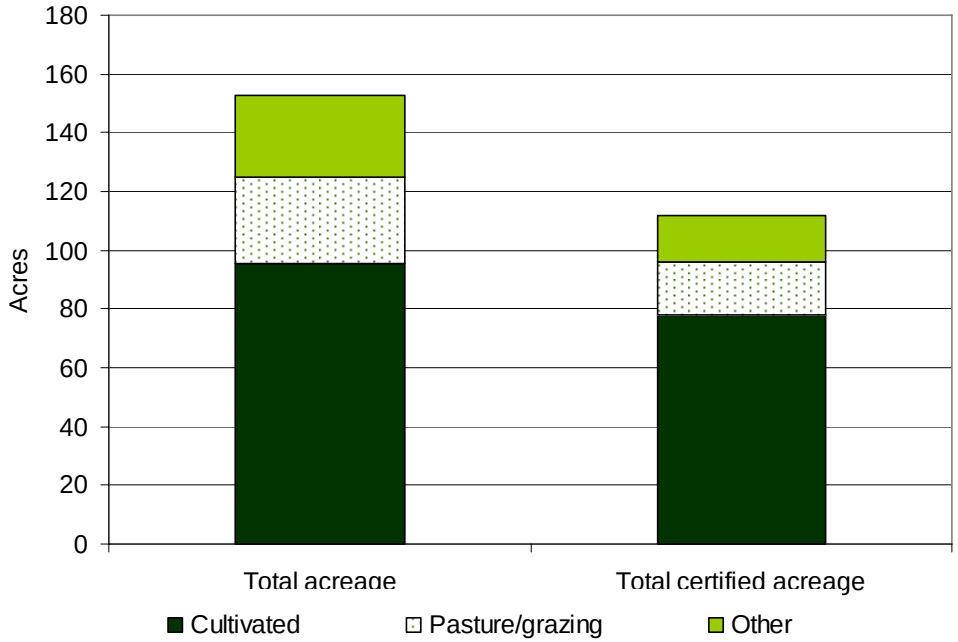


Figure 1. Average acreage by type among respondents.

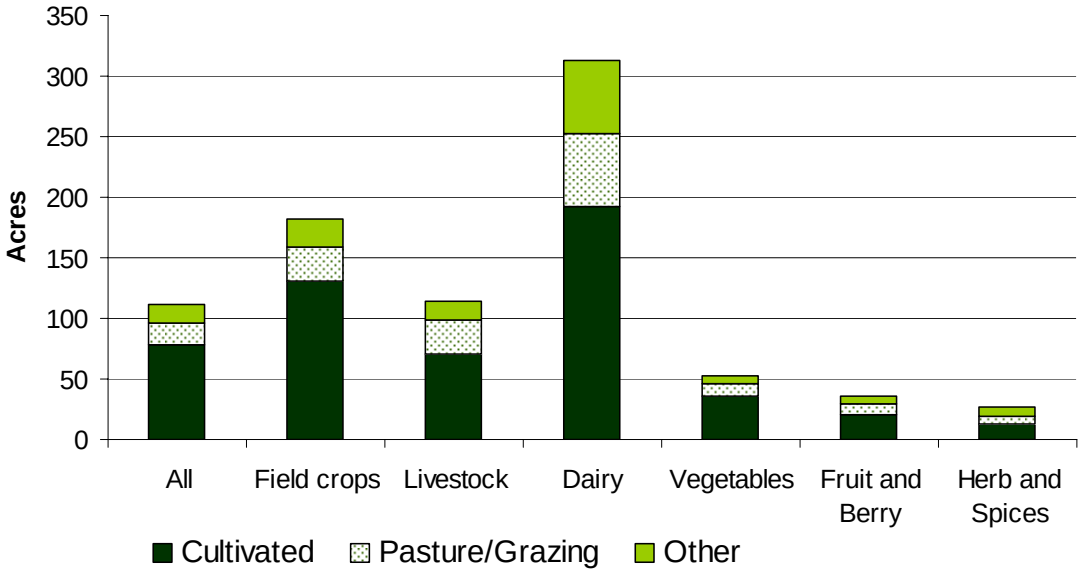


Figure 2. Average certified organic acreage of respondents by agricultural sector.

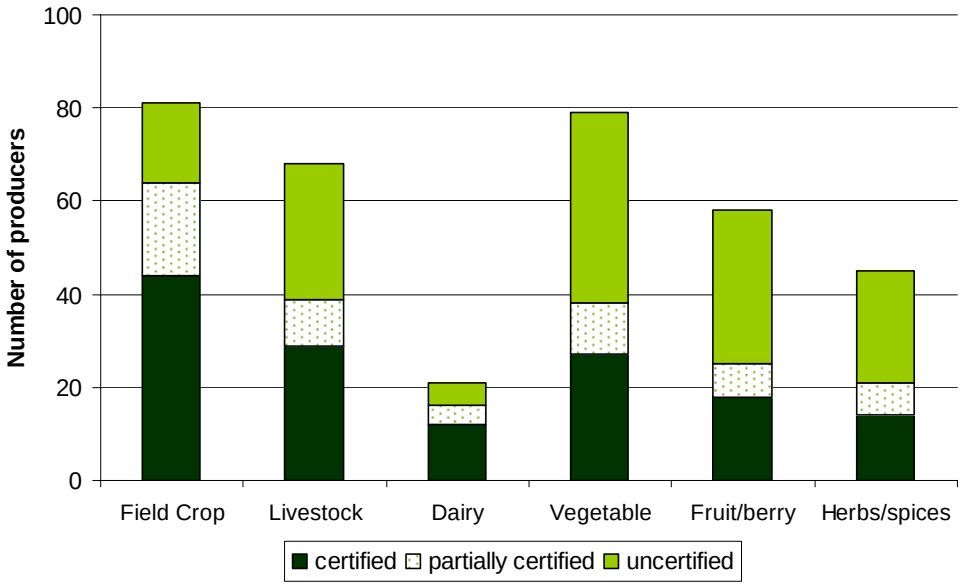


Figure 3. Total certified and uncertified acres by producer category.

Broken down by producer type, vegetable producers had the greatest number of producers with land that was not certified (n=41), followed by

fruit and berry producers who indicated that thirty-three producers operated on non-certified land. Field crop (n=17) and dairy (n=5) producers had the least number of producers operating on uncertified land. Field crop producers had the largest number of producers with certified organic land on their farms (n=44), followed by livestock (n=29) and vegetable producers (n=27). Field crop producers also had the largest number of producers with land partially certified organic (n=20).

In terms of overall annual gross farm income across all of the six sectors, approximately 28% reported their gross income to be less than $10,000, 45% averaged between $10,000- $100,000, and 27% reported greater than $100,000, including 15% (n=131) with gross incomes >$250,000 (Figure 3).

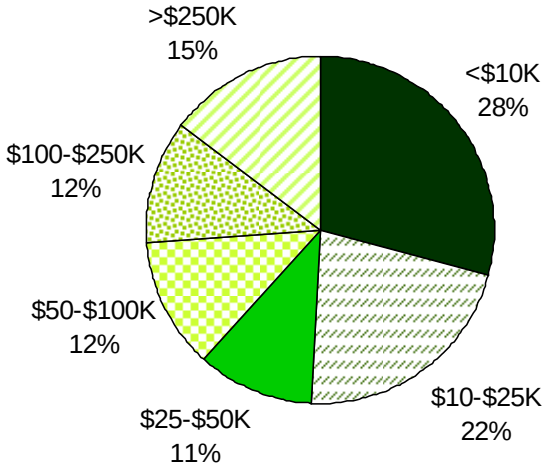


Figure 4. Gross income of respondents.

When broken down into the six sectors the gross income per sector changes. **Field crop** producers were equally distributed across the different income brackets, however, half (49%) of the **dairy** producers indicated a gross income over >$250,000 (Figure 4). The gross income patterns among **vegetable**, **livestock**, **fruit and berry**, and **herb and spice** producers were quite similar to each other; the majority of these respondents reported farm income below $25,000. This suggests that these agricultural sectors are smaller farm operators, with only 4-11% of these producer types grossing over $250,000 in Ontario.

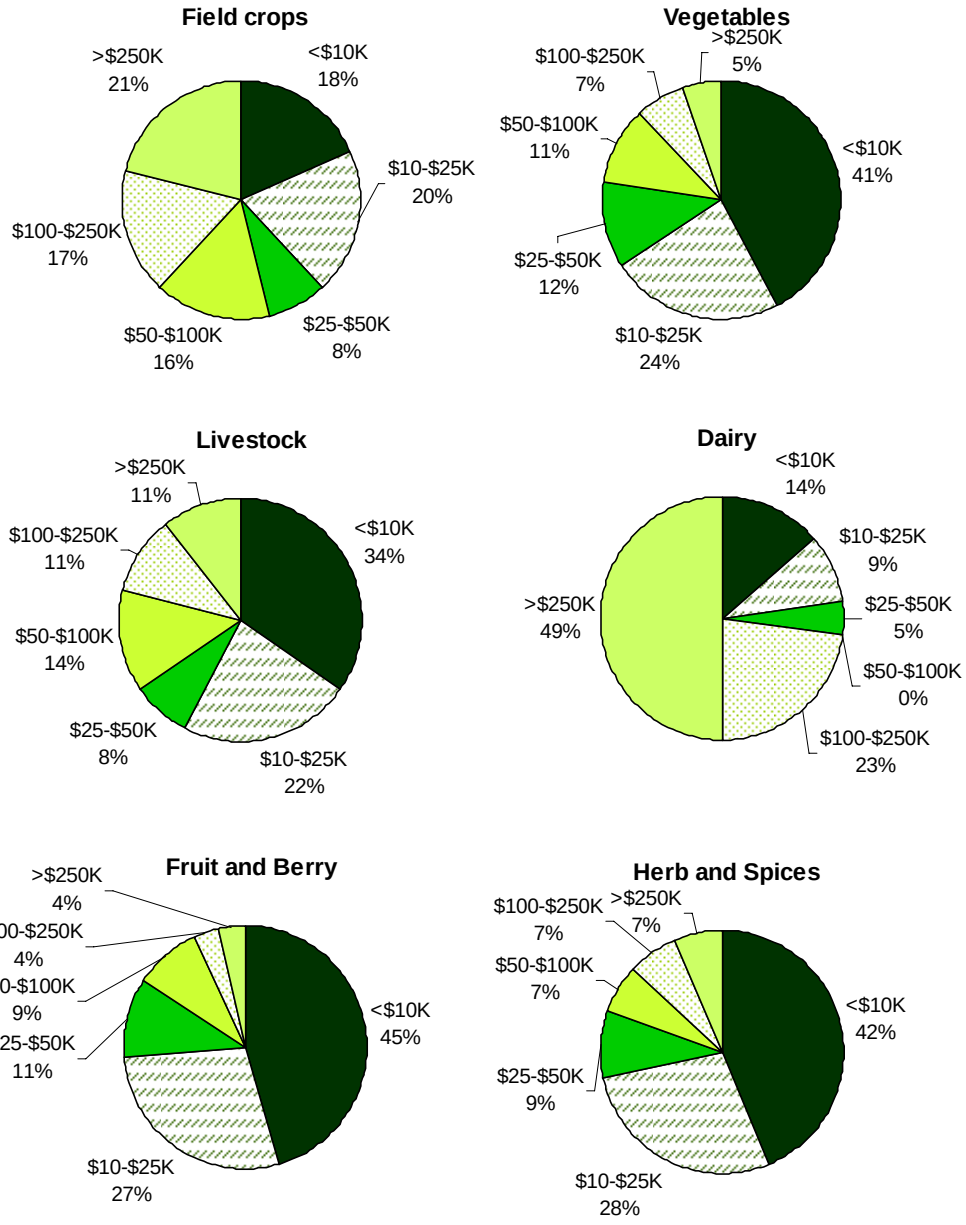


Figure 4. Gross income of respondents by sector.

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 (Figure 5). “Direct to consumer” was the most popular answer with 71% of respondents indicating this was their chosen marketing channel (n=134). About one-third of respondents sell some product at a farmer’s market or to a processor, while one-quarter reported selling their product wholesale and 14% sell directly to a retailer.

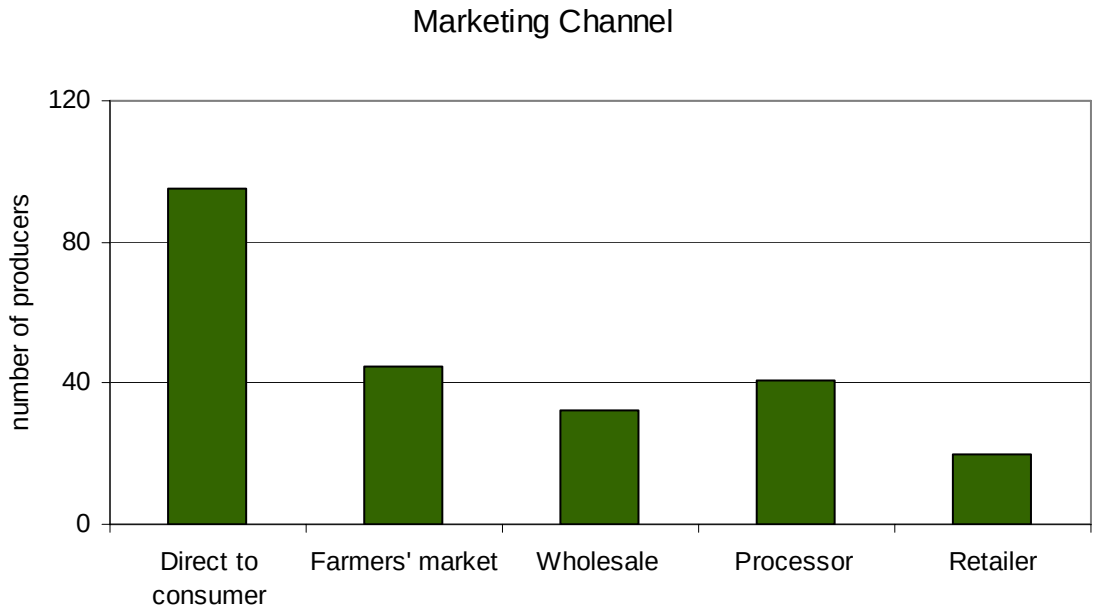
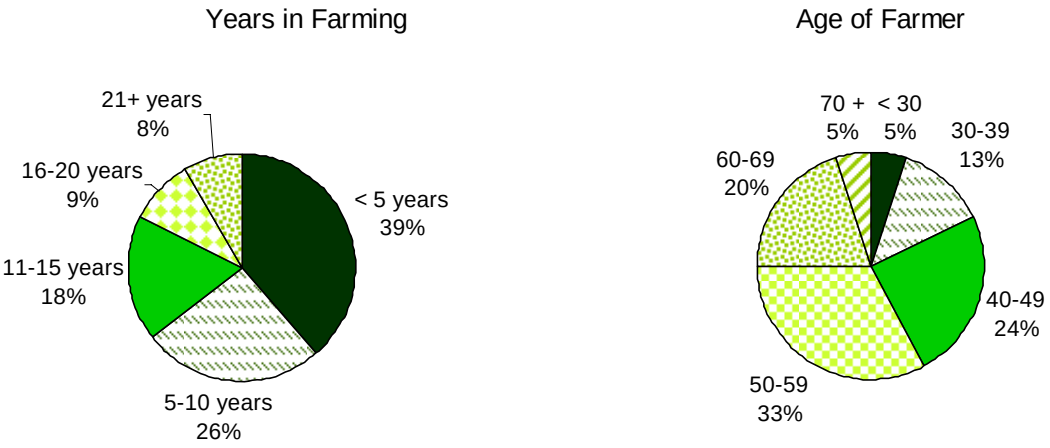


Figure 5. Marketing channels used by respondents.
Note: Each respondent could indicate multiple marketing channels.

The majority of the producers who replied to this survey were relatively new entrants to organic farming with 65% (n=132) indicating that they had been farming organically for less than 10 years (Figure 6). Of these respondents, 39% had been farming for fewer than 5 years organically, with only approximately 27% having been farming between 10 – 20 years.

In terms of farmer age, 58% of producers were over the age of 50 (n=140). One-third of all survey respondents were between 50-59, while one-quarter was between the ages of 40-49. Only 18% were below the age of 40. 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 whether the farmer entered farming as a second career, or chose to transition into organic from conventional farming.

Figure 6. Respondent number of years in organic farming and age.



Survey respondents were predominantly **male** (73%), with just over one quarter **female** (n=140). Although not a survey choice, several producers indicated that they were a partnership between a couple or several family members. These answers were divided evenly between 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 reported being interested in having *research conducted on organic farms* (highest priority) as opposed to research conducted at *regional research and demonstration farms*. Generally, producers were supportive of working with researchers, either through *direct collaboration* or *through producer advisory committees for research projects*. Research utilizing *farm scale equipment* was also considered a high priority as farmers felt it related more directly to on-farm practices.

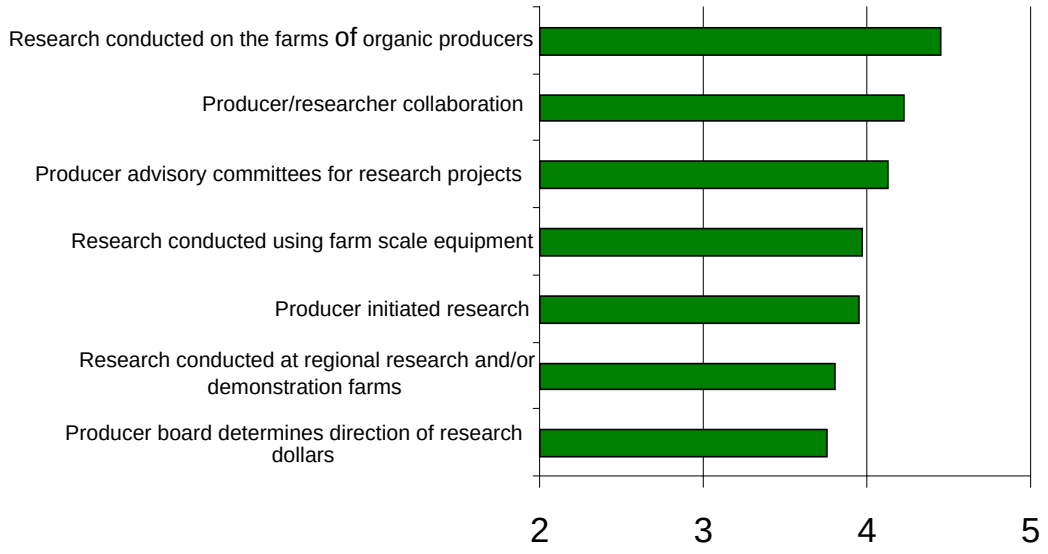


Figure 7. Research management need ratings.
Note: A rating of 5 indicates a very important need, 1 indicates a less important need.

Farmers commented that they felt producer involvement should incorporate both “large (corporate) and small (family farm) producers”. Further comments by Ontario farmers suggest that there is a greater need for “producer input and involvement” not only through the use of land but also research boards where all farmers were equally represented. Many indicated that using their land and other farmers land would provide more valuable results that were applicable, especially small farms.

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

This is a brief overview of the top ranked research needs across all sectors for Ontario. The sections following will go into greater depth about each of these research need rankings. Similar to results reported for the National survey report, Ontario respondents emphasized holistic management systems including rotations, soil quality, ecological interactions and energy use as their top issues. Farmers also indicated a high need for consumer education about organic benefits as their fifth highest priority, which needs to be supported by analysis of the quality and nutrition of organic food.

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

Priority	Section	Project	Average	n
1	Soil	Soil fertility and crop rotations	4.61	114
2	Plants	Ecological interactions in rotations	4.58	132
3	Plants	Beneficial rotations for specific problems	4.58	131
4	Ecological Systems	Soil quality	4.56	128
5	Marketing	Consumer education on organic benefits	4.54	128
6	Marketing	Buy local campaign	4.49	130
7	Soil	Biology - improve existing soil life	4.49	131
8	Health and Food Quality	Quality and nutrition of organic foods - overall	4.48	108
9	Ecological Systems	Biodiversity	4.46	118
10	Ecological Systems	Energy use	4.45	119
11	Plants	Long term cropping systems research	4.41	115
12	Plants	Rotations for weed control	4.39	138
13	Animals	Livestock parasites	4.39	64
14	Ecological Systems	Pesticide reduction	4.35	119
15	Animals	Livestock breeds	4.34	62

[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.

Compared to the National survey, Ontario respondents indicated that the holistic management of the system was of greater need whereas consumer awareness and marketing were ranked 5th and 6th overall. The National survey indicated that the need for ensuring soil fertility though use of rotations was of as much need as marketing to the consumer.

Animals

Parasites, breeds and grazing were the three most highly ranked research needs for all the animal producers. When broken down into the two animal sectors, **dairy** producers were most interested in *grazing*, followed by *manure management*, and *parasites*. Compared to other dairy producers, the **livestock** sector was proportionally more interested in *parasites* and *feed*, followed by *breeds.* **Livestock** producers were least interested in *housing*, whereas *dairy* producers rated *breeds* lowest (Figure 8). Compared to the National survey, respondents indicated similar needs rating for animal issues with *breeds* and *parasites* ranked highly by all producer sectors.

Specific *parasites* of concern noted in the comments were gastrointestinal nematodes for sheep, face flies, and horn flies. Many farmers also indicated the need for more research into methods of fly control for both beef and dairy.

For *breeds*, **dairy** producers were interested in research involving Holstein, Jersey, Brown Swiss and crossbreeds; sheep producers were interested in Dorset, Polypay, Katahdin and Corriedale. Poultry producers were interested in finding breeds that would be better for meat production, and also wanted more research on methods for raising poultry on pasture. Respondents were also interested in how global warming may affect the spread of newer insects and trapping methods to identify these threats.

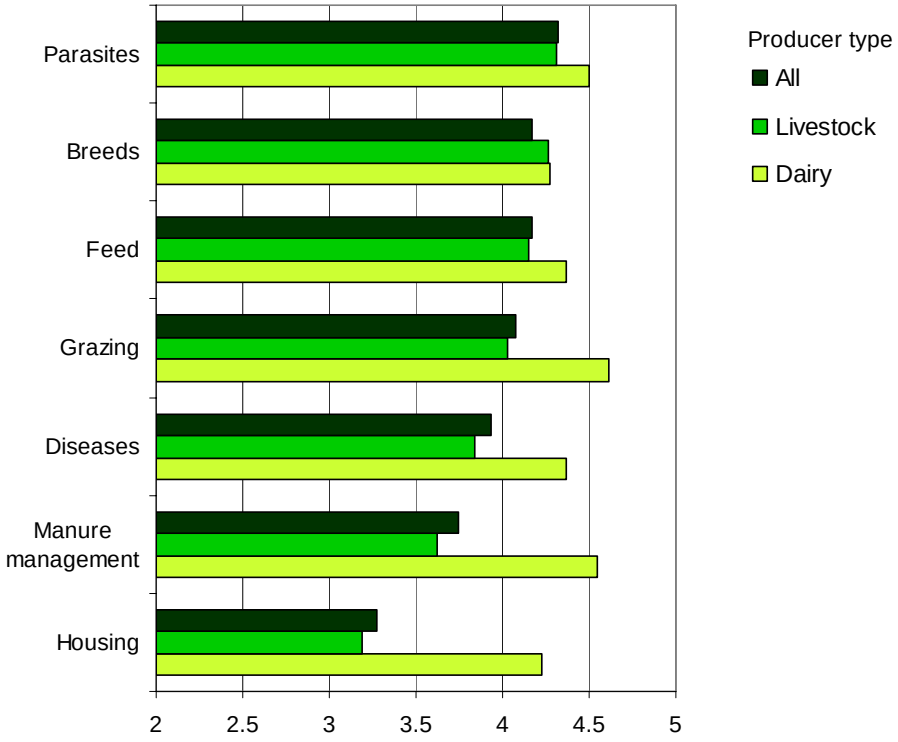


Figure 8. Research needs ratings for livestock issues by producer category. Note: The livestock category includes all livestock except dairy production. Rating of 5 indicates a very important need, 1 indicates a less important need.

4. Plants

4.1. General

Organic crop producers indicated that research relating to rotations, insects, disease and weeds were of interest. The top four priorities over all sectors and regions were related to different aspects of crop rotations:

- *Understanding soil, weed, insect, disease interactions in rotations*
- *Identifying beneficial crop rotations for specific problems*
- *Long term cropping systems research*
- *Managing weeds with rotations (green manures, crop order)*

In the cross-Canada survey, these were also the top 4 priorities (although in a different order). The **vegetable**, **herb and spice**, **fruit and berry** and **field crop** sectors ranked *ecological interactions in rotations* as one of their top priorities as these producers view the soil and its biology as important to the maintenance of their crops (Figure 9).

4.2. Weeds

All respondents indicated a need for weed control, with weed control of more concern for **field crop** and **herb and spice** producers, particularly regarding *Canada thistle* and wild mustard. Whereas, **vegetable** and **fruit and berry** producers ranked *wild mustard* and *field bindweed* as more important weeds on their farms. The use of *organically approved herbicides* was of low priority for all producers including **field crop** producers with the use of *rotations* and *cultural controls* ranking higher.

Producers commented on many weeds which were troublesome to their operations e.g. crabgrass, sow-thistle, quackgrass and ragweed. Producers also commented on a greater need for innovative methods to control weeds such as the use of animals (ducks, geese, and sheep) to graze weeds in orchards and berry patches; and a greater understanding of economic thresholds with respect to weed pressure.

4.3. Insects

In Ontario, **herb and spice** producers had the greatest interest in *natural* and *cultural insect controls* ranking them as their top priorities, followed by **vegetable** and **fruit and berry** producers. As reported for weed control, all producers ranked *biological* and *organically approved insecticides* low on their priority list. A few farmers commented that they felt that insecticides (organic or not) had no place in organic systems as they upset the biology (e.g. food web) of the soil. Farmers commented that more research into the use of compost teas and natural deterrents/attractants for specific insects are needed.

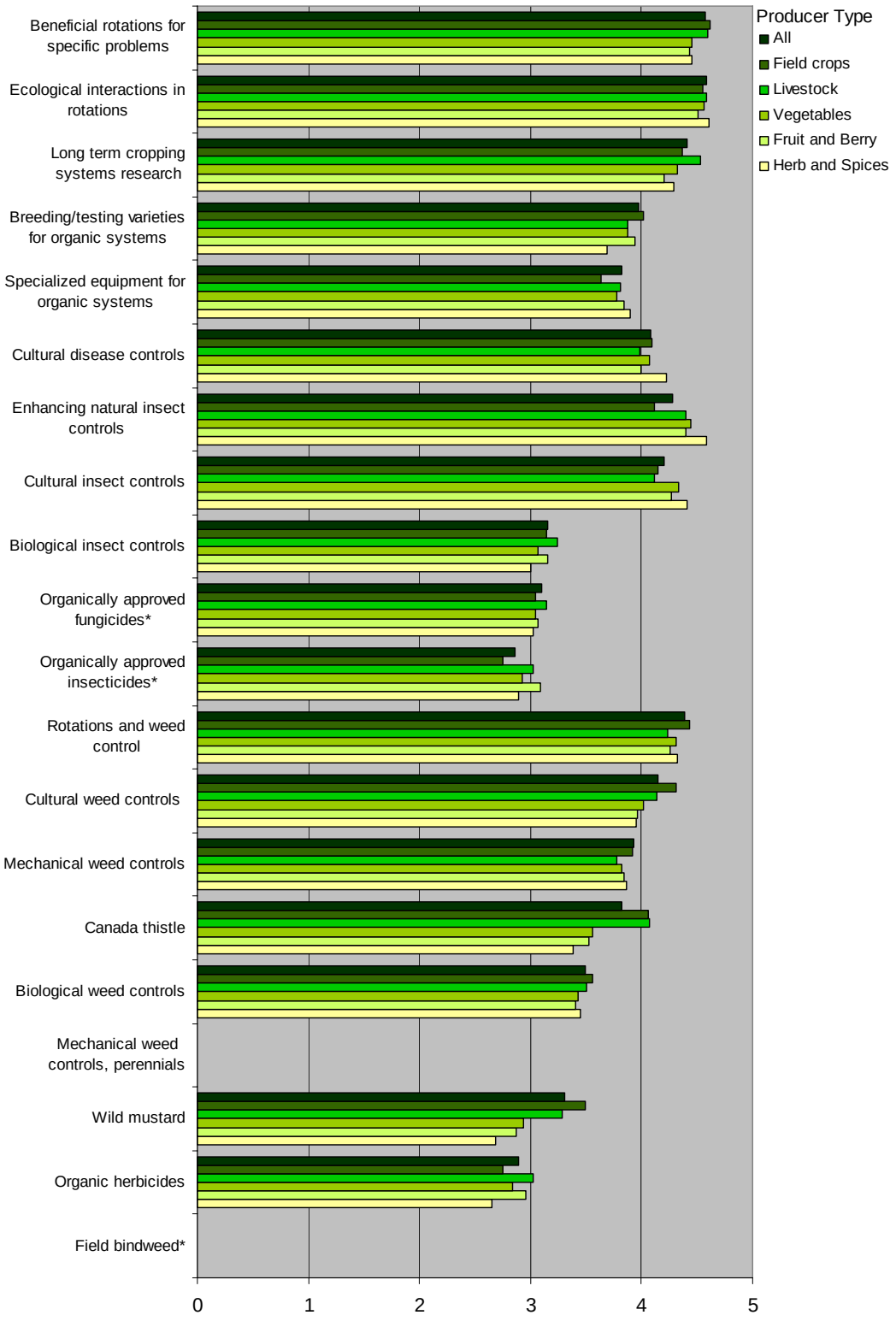


Figure 9. Research needs ratings for plant issues by producer categories. Note: A rating of 5 indicates a very important need, 1 indicates a less important need.

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

Insects of main concern for Ontario producers were reported as cucumber beetle, flea beetles, aphids and wireworms. Farmers also commented that further research into natural controls for livestock and dairy barns would be of great interest. Many farmers wanted more research into alternative methods of insect control, such as releasing beneficial insects, use of traps and baits, grass strips and trap crops. Other respondents also mentioned that there is a need for understanding of how "global warming affects on insect populations" and "how this may affect their spread and evolution".

4.4. Disease

Herb and berry producers of Ontario reported that natural and cultural disease control methods were of importance to their system. Whereas, **vegetable** and **fruit and berry** produces wanted more cultural control through the *use of rotations* and *specific rotations* for diseases such as downy mildew on cucumber and onions. However, **vegetable** and **fruit and berry** producers also ranked the use of *organically approved fungicides* slightly more important than **field crop** producers.

Farmers commented that research into the use of "compost teas to control disease" and the relationship between the soil life and crop quality further explored. Many farmers commented that there is a need for a better understanding of the ecological interaction between the soil, plant and insects to minimize disease and improve disease resistance.

4.5. Other

All producers reported that *organically approved fungicides*, *herbicides* and *insecticides* were of least importance to them concerning plant issues, indicating that they preferred to use ecological methods to deal with any plant issues that would arise.

Other crop issues commented on by farmers included the need for specific equipment. Many farmers noted the need for equipment specialized for small land/ acreage sizes, as well as equipment that "leaves a small footprint on the land" and low tech equipment that requires less use of fossil fuels (e.g. green equipment). The use of moveable housing such as chicken houses and greenhouses were of interest, this may be because of the small land sizes. Moveable housing would allow for more rotation capabilities.

5. Soils

Producers identified *rotations (green manures and crop rotation for soil fertility)* as their most important soil research interest (also ranked 1st in the overall Ontario and the Canada analyses). This was followed closely by *soil biology – management to improve existing soil life (e.g. mycorrhizae)* which was 7th overall for Ontario. Overall, *salinity* was ranked lowest by all producer categories.

Field crop producers were overall more interested in each of the categories including: *basic soil chemistry*, *adding living organisms* (i.e. inoculants) and *minimizing erosion* than growers from the other production sectors. **Herb and spice** producers ranked *soil fertility and crop rotations* as well as *improving the existing life of the soil* as their highest needs interest. **Vegetable** and **fruit and berry** producers ranked the categories similarly, also ranking the use of *crop rotations* and *soil biology* as important factors in maintaining healthy soil.

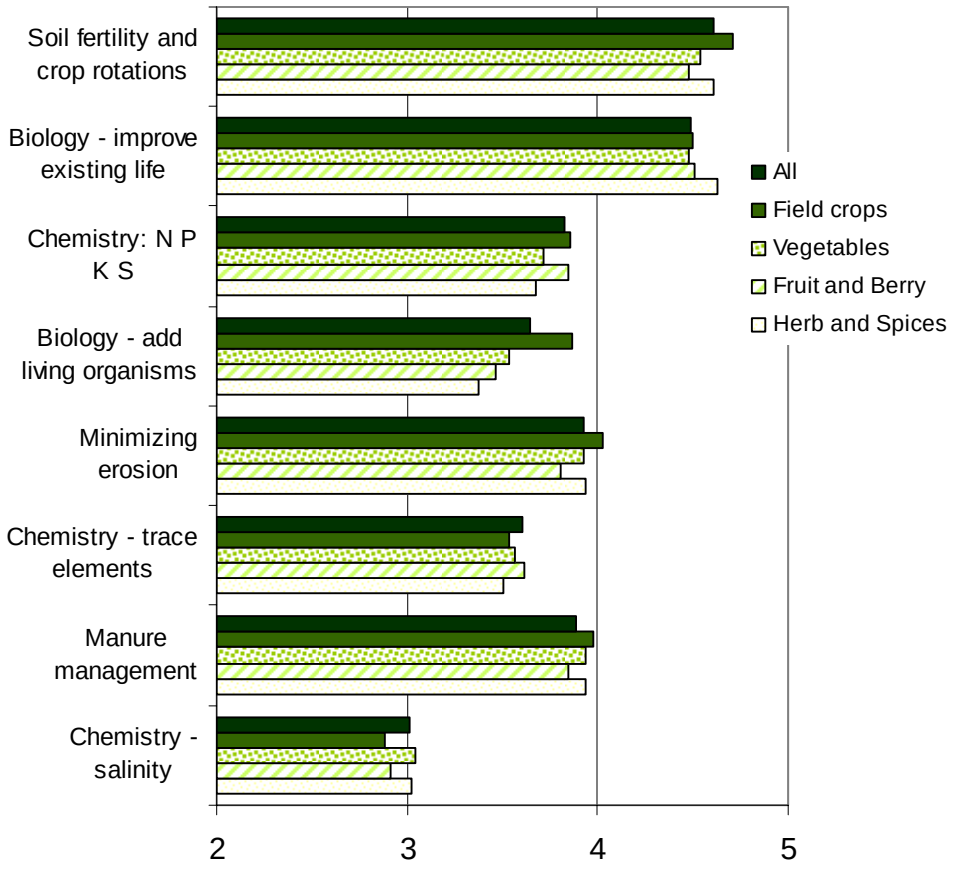


Figure 10. Research needs ratings for soil issues among producer categories.

Note: A rating of 5 indicates a very important need, 1 indicates less important.

Farmers commented that there is a need for more soil laboratory testing capabilities, particularly with regard to soil biology. Others commented on the need for a larger suite of soil tests which include soil texture, conductivity and moisture retention are needed to allow them to assess their soil more holistically. Famers'

also commented on the need for further research into ways to minimize tillage, e.g. "use of green manures and cover crops". More information on how to maintain soil fertility and overall soil health with on-farm products to increase soil biology and minimizing the use of organic fertilizers was of importance.

6. Ecological Systems

There was a high degree of interest by all producer types in research related to environmental sustainability of organic farming. The needs identified in this section were scored very highly by all Ontario producers; the top four needs were also all ranked in the top 15 research needs across all sectors.

The top four needs were quite similar, but *soil quality* was of slightly greater interest among all producers**. Herb and spice** producers ranked *biodiversity* and *soil quality* more highly than other producer's categories, whereas **dairy** producers ranked *pesticide reduction* and *energy use* as higher needs. **Fruit and berry** and **vegetable** producers ranked the ecological systems similarly, with *soil quality* and *biodiversity* ranked as their greatest needs.

Farmers indicated they needed more research into ways in which they can become more sustainable without affecting their ability to farm. Many farmers were concerned that not enough research into alternative power that is reliable and as efficient as fossil fuel (oil) machinery. One farmer commented that "at a time when we are trying to move away from fossil fuels and more generally the combustion engine, we should be finding ways to reintegrate ammonal power into agricultural systems." Many also commented that reuse of materials on the farm is under utilized (grey water/waste water) and how it can best be recycled on the farm.

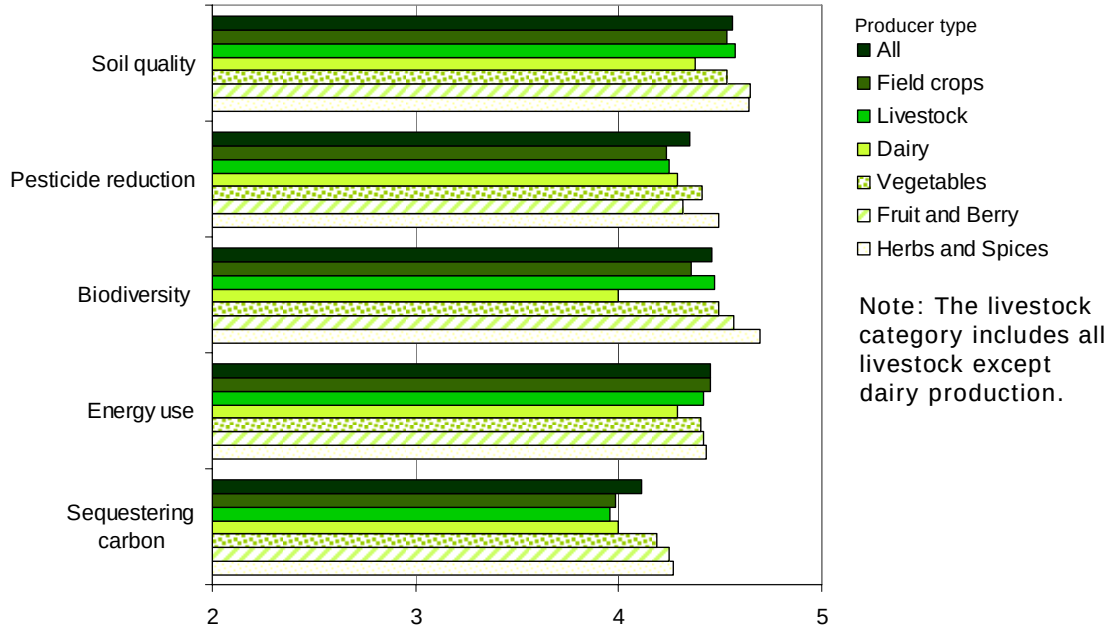


Figure 11. search needs for sustainability issues by producer category.
Note: A rating of 5 indicates a very important need, 1 indicates less important.

7. Health and Food Quality

Quality and nutrition of organic foods scored high; the 'overall' sub-category was the eighth most important research need across sectors in Ontario. *Value-added product research* scored below the other needs in this category, although **field crop** producers were comparatively more interested in this field. The distribution of respondents by sector meant that quality and nutrition of field crops scored more highly than did horticultural and animal products, however, people in the sector 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) (Figure 5).

Farmers suggested that more research into the benefits of organic versus conventional products in "environmental benefits" but mainly the "health benefits" to the consumer is needed. One farmer mentioned that the "nutritional value of organic crops/meat/milk etc compared to conventional" is required while others also mentioned that there needs to be more testing on how pesticides affects humans and persist. They suggest this would aid in educating more consumers about the quality and nutritional value of their food.

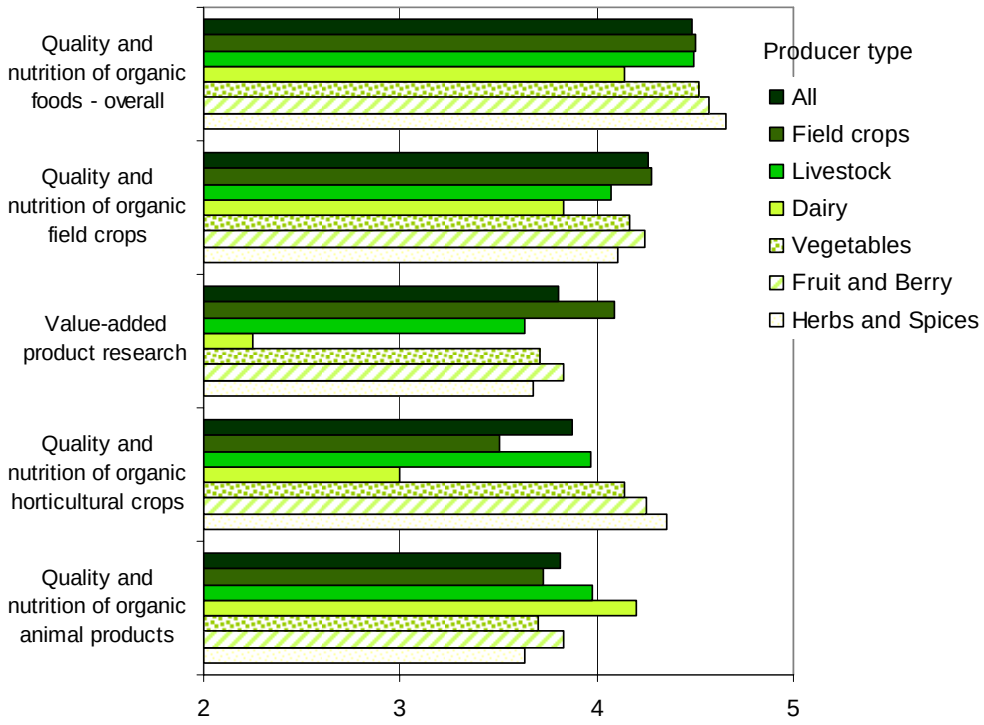


Figure 12. search needs ratings for health and food quality issues by producer category.
Note: The livestock category includes all livestock except dairy production. A rating of 5 indicates a very important need, 1 indicates a less important need.

8. Marketing, Economics and Processing Needs

All producer categories ranked *consumer education on organic benefits* as their highest need for the **Consumer Market** category (5th and 6th in the overall Ontario summary, respectively), with the *herb and spice* producers ranking this category the highest of all the producers. *Consumer education on organic standard* and developing a *buy local campaign* were ranked second and third overall by all producer categories.

Overall *information on commodity prices and volumes* was the greatest need expressed by all producer categories under the **Markets** section. *Field crop* producers ranked *information on market trends and demands* and *information on commodity prices* as their greatest priorities and needs.

Farmers indicated that all areas of **Processing** were of need to Ontario farmers. *Livestock* producers were particularly interested in *slaughter facilities for organic cattle* and *mobile slaughter facilities for organic cattle.* This is expected as the demographics suggested that many farmers run mixed farms incorporating animals. While *field crop* producers rated highly the needs for *buyer/seller matchmaking, mixed farm production economics*, and *local procurement for institutional buyers*

Overall the **Economics** section was rated the lowest by all producer categories. However, all producer categories ranked their own category as requiring the greatest need (e.g. *dairy* farmers indicated the importance of *dairy production economics*).

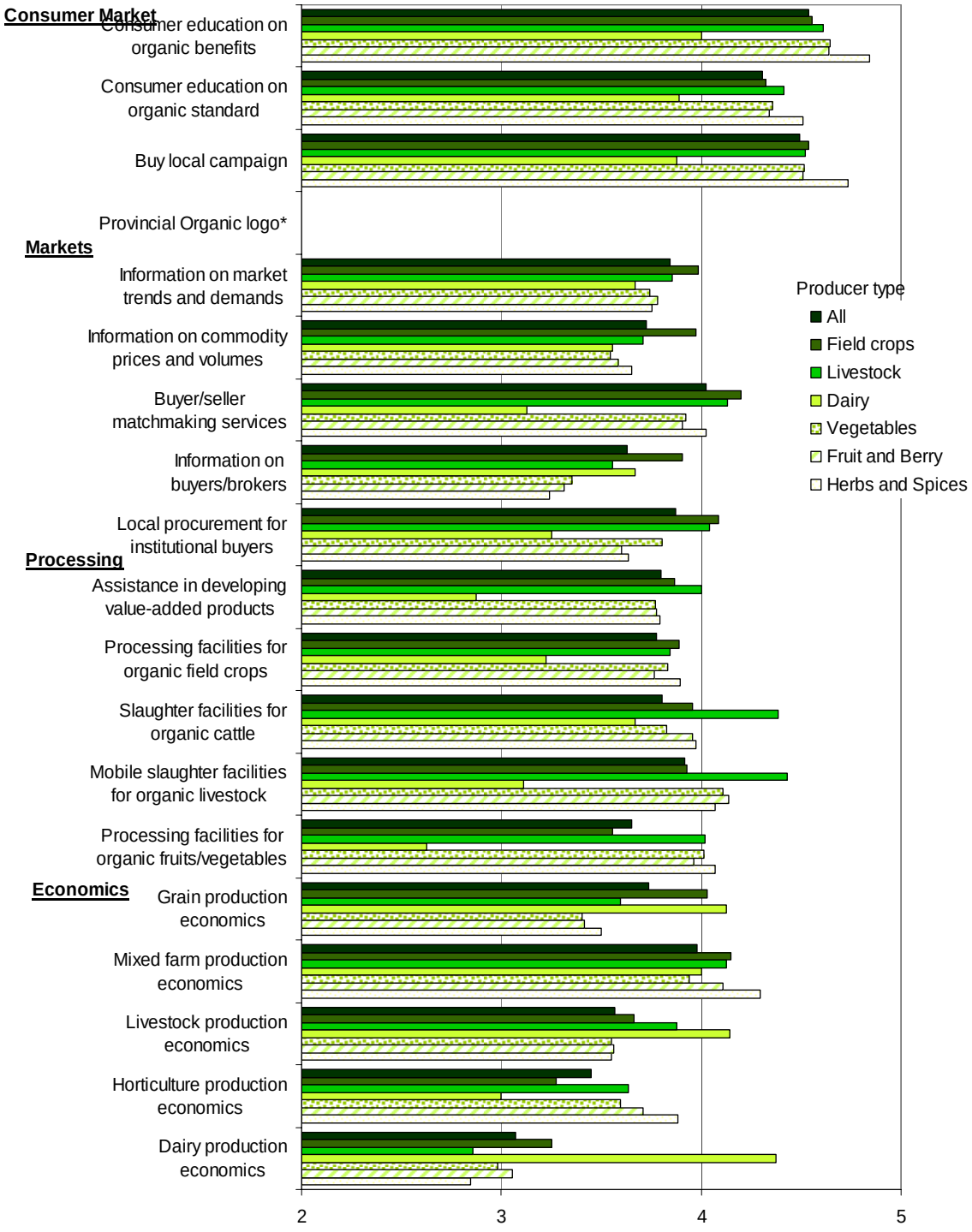


Figure 13. Research needs ratings for marketing issues by producer category

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.

* Indicates a need that was not included in all provincial surveys

9. Extension / Technology Transfer

This section aimed to assess how producers prefer to receive research and extension information. The majority of producers ranked sessions where they could interact with presenters directly above information available at a distance or on their own time. The top two selections (*Regional Workshops and Conferences*) scored 4th and 6th in the National survey summary. This may reflect a higher quality or availability of workshops/conferences in Ontario. *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 (CRAFT, FarmStart) (Figure 7).

C*ollege and university level courses* 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 obtaining information through *online sources* was a top priority followed by *email.* However, farmers/producers also commented that more detailed information that was directly related to their products, soils and climate were of greatest need. A few farmers commented that information currently available on the web/internet is “too general”. Many Ontario farmers also commented that the use of conferences and meeting where they can interact and meet with experienced extension personnel and farmers would be of benefit.

The majority of the farmers commented that extension information they would like to receive included: soil test fact sheets, how to properly interpret the results of soil tests, nutrient management planning and pest control options. Ontario farmers also indicated that information on marketing trends, consumer preferences, and advertising were important extension and technology transfer initiatives.

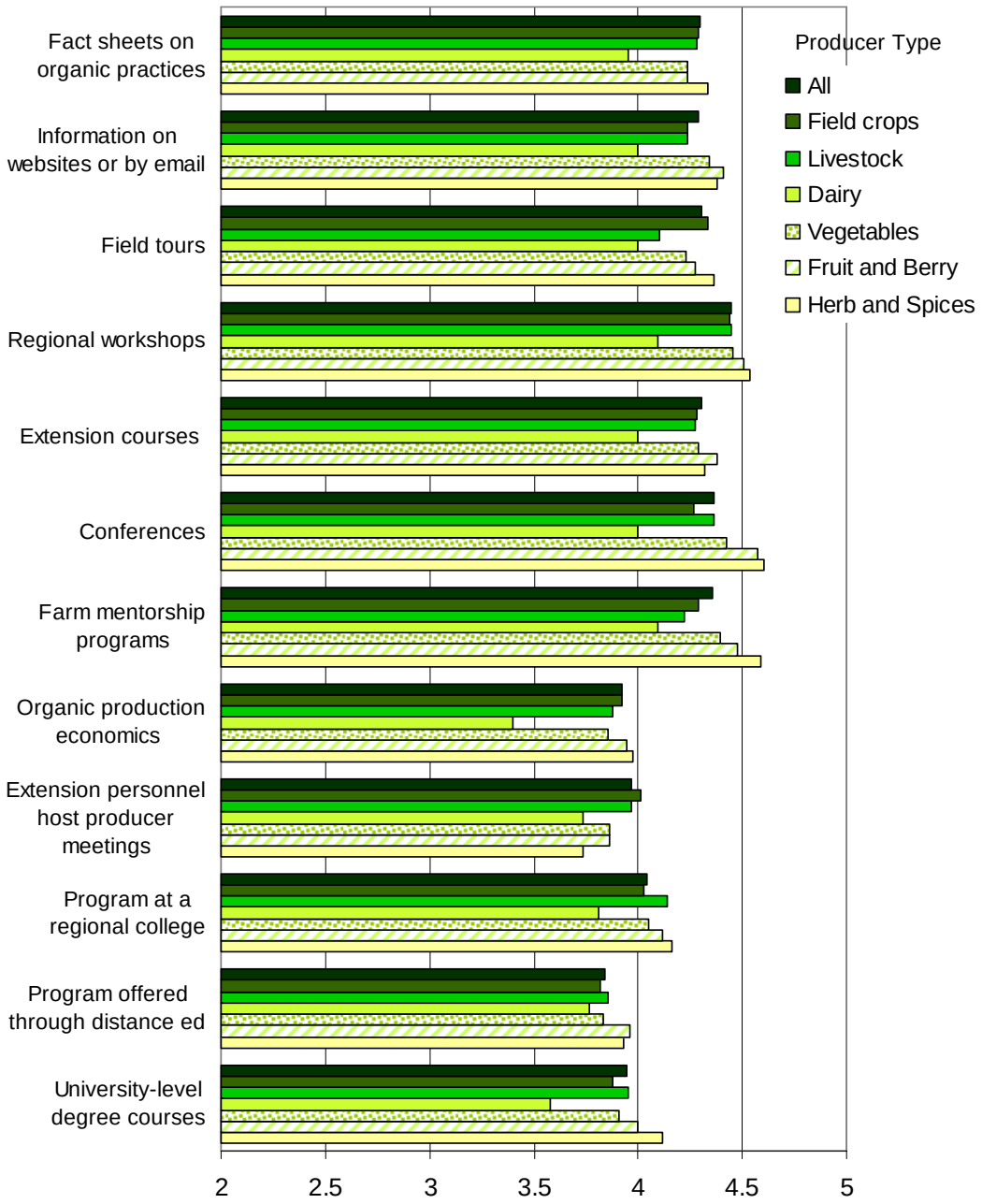


Figure 14. Extension and technology transfer needs ratings.
Note: The livestock category includes all livestock except dairy production. A rating of 5 indicates a very important need, 1 indicates a less important need.

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

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

When asked what barriers you see for the growth of organics, the most significant barriers described by Ontario farmers were government regulations and standards. Many farmers commented that the standards are too stringent for Canadian farmers and "too lax for foreign companies importing into Canada". One farmer commented that agribusiness/ multinationals are moving into countries and "pretending to be organic". These companies are able to "undercut costs" which many producers fear may lead to the "dumbing down of organic standards [creating] a misconception of organic". This "overrides the whole philosophy of organics": "sustainable small farm business that care about the consumer". Many farmers also commented that the government regulations and controls of the market place are barriers to the small farmer, whereas the big companies and conventional farmers get subsidies.

Farmer's commented that government and certifying bodies costs are making it difficult for new farmers to get into organics, and the rules for what products are approved is inconsistent. One farmer commented that restrictions can be unreasonable as he "can no longer use off-farm poultry manure because the hens are caged." A few farmers also mentioned that the standards can get too strict to the point of sacrificing animal welfare and suggest that there is a need for a common national standard.

A challenge of concern to the future of organics was consumer education. Farmers indicated that "consumer's perception of organics is related to [the] cost in supermarkets" and many are "uneducated as to why the costs of organic food is higher". It was frequently mentioned that there is a need for "increase[d] consumer education" and research on organic practices. Particularly, in regard to the "health" and "environmental" impacts, as many consumers remain skeptical about the benefits of organic products. Farmers also felt that the myths about lower long-term yields in a world of food shortages requires further research to show that organic yields will not decrease, especially compared to long-term reliance on industrial agriculture.

A further challenge to the growth of organics commented on by farmers was production costs and facilities. Many farmers mentioned that the costs of land, labour, equipment, transportation and start up costs are making it difficult to expand their operations. Many farmers also noted the lack of processing facilities available to them, which limits their ability to distribute their product. This was also suggested to be a major limitation to new farmers entering the organic sector. A few farmers commented on the need for processing facilities to meet their needs, such as "slaughter house facilities for cattle and other livestock", as this is not as readily available to Ontario organic farmers.

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

Ontario farmers commented that the most significant opportunities to the growth of organic agriculture are the renewed consumer interest. Many farmers commented that the heightened public awareness and consumer "excitement" has been brought about by the "*Buy Local* campaigns". More consumers are becoming "concerned about what they eat" and "where it is coming from" as they become more educated. Farmers commented that this has gained momentum for the organic sector as it is a demand driven market that has gained "great consumer respect and appreciation". Communities are beginning to support organic farmers in the 100 mile radius. One farmer commented that this is "the future for sustainable local quality food production" as more "people make the connection between food and health". Interest in organic agriculture was also noted to be increasing as prices for conventional products rise due to the increased cost of transportation.

Many farmers also indicated that the growing demand in the organic sector is opening new opportunities for "young, new farmers with low equity" and is offering them the ability to grow higher quality crops. "Farmers who can not afford to purchase or rent more land can turn from conventional to organic production without the extra land payments". This has opened up doors as it is becoming a "viable way to make a living". The only short fall that organic producers noted was that they are unable to keep up with consumer demand; however this is a positive note offering opportunity to "young people and entry point [into] agriculture (farming)".

Ontario farmer's comments were optimistic noting that there are many opportunities for the growth of the organics sector. Many indicated that as people become more concerned about the energy crisis and general environmental awareness, consumers will look at how and where their food is produced. This is a great opportunity for organic agriculture, as the organic movement has provided the consumer with small, local production that involves a connection to the community.

Overall, Ontario farmers had a positive outlook on the future growth of organics, noting that there are still many areas which need to built upon (e.g. processing facilities) but with more community involvement farmers are seeing a "viable way to make a living" producing "food with superior taste and nutrition".

10. Summary

The range of organic producers in Ontario consists of field crop, livestock, dairy, fruit and berry, and herb and spice. Respondent's from Ontario identified key areas for future research in the areas of soil fertility and crop rotations, further understanding of ecological interactions in rotations and beneficial rotations for specific problems. Ontario producers also indicated that further consumer education is a high priority.

Respondent demographics indicated that the majority of farmers entering the organic sector are over the age of 50 with less than 10 years of organic farming experience. This suggests that entrants are transitioning from conventional farming practices or entering organic farming as a second career. This may be of concern in the future as the survey indicated that out of the 147 respondents less than 5% of organic farmers are under the age of 30. Therefore, relatively few are entering organic agriculture as a first career, which may impact the turnover rate of producers.

This survey identified that producers were interested in *on-farm research* conducted in *partnership with researchers* and through *producer advisory boards* was of greatest need. Many producers also indicated that research at smaller scale is of importance as many organic farmers operate small scale farms. Respondents noted that assessing and receiving extension information through *websites or by email* and *use of fact sheets* was of greatest benefit. This allowed them to access the information on their time and also to keep up to date on current research.

Overall, respondents indicated that there were positive about the opportunities for the future of organic agriculture in Canada; however they also commented that many areas are still in need, such as slaughter and processing facilities.

11. 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?)

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

_____ 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.

12. Appendix 2. Ontario 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. Soil Chemistry - other (specify_____)

- Calcium (n=2)
- Timely limited cultivation organic matter, magnesium, ph management
- Biodynamic - ream way, ocean water
- Residuals from past farming,
- C:N ratio
- Organic matter

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

- An accredited lab for organic soil testing of all types
- Chromatography testing for soil quality and compost quality
- If chemical nitrogen (residue from past use) ever breaks down- or just ends up in wells.
- Effects of pollution.
- Impact of biodynamic soil management practices
- Managing crop rotations with green manure / cover crops rather than tillage - very important
- More on P weeds, fertility
- How do we maintain soil fertility without bringing in nutrients? We need a system to increase and maintain fertility using farm grown materials.
- I do not trust the soil tests - there should be a special test for organic soils. As our land is near gold mine sites (and we have one on our property) testing methods for arsenic would be helpful.
- Expand research and implementation of biodynamic practices, which exceed all standard 'organic' cultivation practices, in our experience and opinion.
- Living organisms added to soil derived from same or neighboring farm. See biodynamic method.
- Anything that is new re ideas.
- How to get the best out of grass fields for cattle.
- The first duty of all that live by the land is to leave it far better than you started.
- Any long term stats (evidence based) available on nutrients present in biodynamically grown produce
- More rotations, green manures, options for vegetable growers
- Development of organically approved high N granular fertilizers
- Synergies and impact of soil biota on nutrient availability and form.
- Good practices already exist for manure mgmt, not enough use.
- Research on novel cultivation and other cultural management practices and equipment more appropriate to various soil types (e.g. Clay or sandy loam)
- Vibrational (homeopathic) herbicides etc.

- I understand that there is an electronic machine to make and distribute insects weed pests (?) Kits to do on-farm testing with immediate results Ways to increase N availability to winter cereals (wheat, spelt)
- Soil water retention
- Cover crops as sole fertility input for vegetable crops
- Improvements in soil texture and soil properties (conductivity, ph, moisture retention)
- No-till in organic production
- Optimal bacteria/fungi balance for difference crops
- Proof that 'Joel Salatin' approach is (not) most cost efficient and eco friendly
- Research connected to crop quality not quantity or swollen, water-filled looks- Brix levels
- Weed species variation with respect to changes in soil nutrient analysis.

B2. Other (specify_____)

- Better flaming technology
- Biodynamics
- No till methods
- Use of poultry and livestock to control weeds
- Homemade vinegar spray
- By hand cover crops and understory plantings

B2. Other (specify_____)

- Bindweed (n=3)
- Biodiversity use to manage lands
- Broadleaf,
- Burdock,
- Cocklebur ragweed
- Corn spurry
- Crabgrass ,
- Crop management
- Field bindweed
- Foxtail
- Garlic mustard
- Golden rod (n=2)
- Hairy galinsoa,
- Knapweed (n=2)
- Sow thistle
- Lambs quarters (n=3),
- Mouse eared chickweed,
- Mustard
- Ox-eye daisy,
- Pigweed (n=4)
- Quack grass (n=8)
- Ragweed (n=5)
- Redroot,
- Russian knapweed

- Sow thistle (n=4)
- Twitch grass (n=5)
- Velvet leaf,
- Viper's bugloss
- Winter annuals,

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

- An online of control methods and specific weed management
- Bindweed,
- Couch grass
- Cover crops to control weeds, under seeding clovers, bands of cover crops Giant foxtail,
- Cow parsnip
- Crabgrass understory plantings compatible with garlic
- Curly clock
- Dandelions
- Developing a hand held steamer or torch with enough control to use around berry bushes like blueberries
- Ecologically based approach
- Field bind weed
- Finding an understory ground cover type of plant that would establish a weed barrier when intercropped with main crop yet not compete too much Research focused at the economic thresholds with respect to weed pressure. How much time is it worth spending cultivating/weeding? At what point or level does weed pressure start to really impact profitability?
- For weeds, X tilling, late planting.
- Fungus and virus weed controls
- Garlic mustard,
- Grape vines (wild)
- Have heard of biodynamic methods where portions of weed you want to get rid of is made into a spray to kill off the same weed
- How to motivate people to get involved with their own food production and to think farming is good, desirable work
- Lambs quarters, pig weed
- Nutrition data on different weed types- education about wild plants and medicinal properties.
- Nutritional value of weeds in forage (medicinal?)
- Pasture weeds
- Ph of soil, prod fertility balancing
- Pigweed
- Quack grass (n=3)
- Ragweed twitch grass,
- Redefining weeds- living with nature.
- Relationships between weeds (species, density) and soil biology/chemistry parameters, especially for perennials (thistles)
- Soil balance - e.g.: NPKS on weed pressure. Soil life balance on weed pressure and weed types.

- The use of ducks, geese, or sheep to graze weeds in orchards or berry patches.
- Tillage methods that reduce fuel use
- Twitchgrass
- Walk the fields, walk walk walk!
- We have a small plot - mulched mostly which works well
- Weed control for market gardens
- Weed control on intensive gardens
- Weed control with less tillage,
- Weed nutrient analysis/palatability
- Weed/crop interactions.
- What do specific weeds indicate regarding soil health/quality/fertility? Herbicides throw the system out of balance, should not be used in organic system.
- Would like to know which 'weeds' are beneficial to cattle.

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

- Any long term stats available on compost teas as a "natural" insect/scab deterrent
- Anything that completely eliminates the use of chemicals/herbicides/ insecticides/fertilizers.
- Aphids- soybeans check plant tissue ph, repellant, microbes, companion plants
- Bee flight distance to nectar source
- Changes that global warming makes on insect populations
- Cucumber and flea beetle - best practices?
- Cucumber beetles
- Effects of insecticides on humans- especially in relation to cancer and allergies.
- Flea beetles on crucifers
- Fly control for livestock
- Fly control in dairy barns (horn flies face flies blood sucking).
- How brix levels affect insect damage.
- Insecticides have no place in an organic system.
- Mainly interested in natural controls of flies
- Plant nutrition vs. Pest/disease resistance soybean aphid control/management
- Plant positive approaches- insects are an indicator of farming practices, not pests. Also things like deep soil aeration and trace minerals.
- Research on beneficial insect releases - numbers and timing
- Specific insects i.e. striped cucumber beetle (brought to us by a plant from a nearby nursery/garden centre).
- The evolution of insects and how global warming is affecting their spread.
- Trapping methods using food baits
- We have less insect pest since we have become organic
- Weevil

- Wireworm control I divide my bigger fields with grass strips so the birds and other mammals have shelter. I make bare spots for the field larks, the beautiful birds are all disappearing? Did you notice?

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

- Use of compost tea to control disease
- Insect diseases for pests. Also cultural practices, trace minerals, mulching to reduce blight, etc.
- For both-plant positive- growing vibrantly healthy plants! (soil quality-health, living).
- Apple diseases
- How pollution affects it.
- How to increase brix.
- Horizontal resistance breeding clubs (startup, funding, expertise) - see R. Robinson, Return to Resistance, Ottawa
- Relation proved on soil life and crop quality
- Downy mildew of cucumbers and onions
- Population densities and heat zone differences.
- Effects of fungicides on humans- especially in relation to cancer and allergies. We use horsetail herb tea as fungicide, as per Rudolf Steiner's (biodynamics) suggested practice. Fungicides- this is chemical thinking. You need to lose this thinking to be organic. Present conventional is doing their best - at least they can keep you informed - guide you. Organic bylaw setters would all go broke if they had to farm. There is no guidance, only bylaws. It seems strange you must be certified to call your produce organic now unless you are certified. What happened? We need experience and proof things that give results that work.
- Potato scab, tomato blight and especially viruses of summer squash
- Less diseases since we've become organic how managing soil biology will decrease the use of fungicides

B6. Which crops would you target for this research?

- Alfalfa (n=2),
- Apples (n=3),
- Barley (n=4),
- Beans,
- Brassicas,
- Broccoli,
- Cabbage,
- Canola,
- Cauliflower,
- Cereals (wheat, oats, barley) (n=5),
- Clovers,
- Corn (silage and grain) (n=13),
- Drought resistant or tolerant corn,
- Edible beans,
- Fir trees,
- Flax,

- Food/feed grains,
- Forage,
- Fruit trees,
- Goji berries,
- Grains (n=4),
- Grasses (n=3),
- Ground hemlock (yew),
- Hay and pasture (n=4),
- Heirloom varieties,
- Hemp (n=2),
- Herbs,
- Heritage varieties,
- Hulless oats in sandy loam soil,
- Legumes,
- Lettuce,
- Market garden produce,
- Mixed grains,
- Mustards,
- Non-hybrid heirlooms.
- Oats (n=6),
- Open pollinated seeds,
- Peppers (n=2),
- Perennials of all kinds,
- Potatoes (n=2),
- Pulses,
- Quinoa,
- Ree fruit,
- Row crops
- Rye (n=2),
- Salba,
- Shallots,
- Silage
- Small fruit,
- Sorghum,
- Soybeans (n=7)
- Spelt,
- Spring and fall grains,
- Spring barley,
- Spring spelt,
- Squash,
- Strawberries.
- Sugar beet,
- Sweet corn
- Tomatoes (n=3)
- Tree and small fruit
- Triticale
- Vegetable (n=6)
- Wheat (n=5)

- Winter cereals (n=2)

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

- Aim to increase variety of organic feed for garden
- All seed and other breeding for organic growing is exciting - we need all kinds of plants that grow well without chemicals
- All thickness of final gland and ground shade
- Apples that both resist insects and diseases
- As seed companies embrace gmos, organic sources of seed need to develop their own varieties of superior genetics
- Best crops to use for buffer zones i.e. Crops that would trap the most pesticide or other prohibited substance.
- Complete feed mixture planted together and harvested together re chicken feeds.
- Crops that don't rely on inputs for fertility or pest control.
- Disease resistant
- Fall wheat
- GM free varieties,
- Hardier high bush blueberries. Customers don't want to pick lowbush. Grafting ground hemlock (yew) for potency in cancer fighting Note: healthy biologically active soils and proper nutrients and mineral amendments can sustain any variety/crop.
- HU soybeans,
- Hulless oats.
- I'd like to see breeding for hardy great tasting stabilized varieties- aiming for open-pollinated varieties.
- Increasing biodiversity by breeding varieties for specific conditions and encouraging landowners to do this for their own property.
- Lavender,
- Non-hybrid corn varieties
- Nutrient density, crop quality.
- Oats,
- Open-pollinated, regional seeds and pasture based livestock including poultry
- Organic feed to beef,
- Patentable varieties get us in trouble.
- Plants suited to deal with harsh environmental stresses to cope with climatic shifts (change).
- Plants that can produce quickly in cold climates or variable climates
- Please focus on preserving diversity and making heritage varieties available. Crops and varieties that perform well in biological soils high in humus.
- Poultry,
- Prescott oats.
- Reduce wheat dependency on synthetic nitrogen.
- Rosemary,
- Soil building crops that build not mine Heirloom vs. Hybrids - " pros/cons" More work on crosses with hairy trichome varieties.

Resistance buildup / more organic F options needed with hybrid vigor virus resistance and bush cultivar size in all major summer/winter squash varieties (zucchini, pattypan, butternut, acorn, kabocha, Hubbard, delicate natural disease resistance Development of peach and other soft fruit resistance to leaf curl. Winter/spring hardiness of peaches and cherries in SW Ontario heirloom varieties not sure

- Soybeans that are medium tall and bushy.
- Soybeans with lowest pods at least cm off the ground, to make harvest easier and reduce harvest losses.
- Spring cereals,
- Strong reliable varieties, developed with open-pollinated varieties.
- Swine,
- That give good seed quality and high brix readings.
- Thyme
- Use of heritage livestock- in outdoor settings and unheated barns.
- Varieties that can compete against weeds- e.g. Cereals that are medium tall in height and more stems and leaves.
- Weed competitive spring cereals
- Wet land alfalfa that is not genetically modified
- Winter barley and winter oats would work for us in the south as feed grains. European varieties
- Work out economics of raising organic pork on pastures.
- Winter survival of the barley and oats

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

- A tiller is destroying too much life,
- Alternative equipment which leaves a small footprint on the land.
- Bean harvest equipment (pullers, windrowers).
- Bubble green houses,
- Chaff collectors (n=3),
- Chicken tractor.
- Compost production.
- Cover crop management rollers, mulch planters, etc.
- Crimp/rollers (n=7),
- Crop rollers for rye no-till experiments (Rodale)
- Cultivators,
- Cultural and nutritional benefits of movable green houses and chicken tractors.
- Current nets kill too many birds that get caught. We need a better cost effective system,
- Deer fencing.
- Equipment appropriate for an acre intensive operation.
- Everything to avoid high fuel cost of plowing.
- Fingerweed timing and proper equipment for weed control,
- Floating row caster,
- Green equipment
- Greenhouses

- Hand held steamer or torch with enough control to use around berry bushes, also equipment or techniques for managing bird damage to crops.
- Hoop house (n=16),
- Horse drawn implements
- It would be nice to have tools for small acreages (. Ac).
- Lettuce harvesting,
- Low tech,
- Micro to small scale- affordable relatively simple to install/manage, effective systems-
- Movable green houses,
- Mulch spreaders (esp. For straw mulch) alternative energy powered equipment seed cleaning devices on combines, tine weeders (inexpensive) Small-scale minimum tillage equipment, i.e.: crimper/roller, modified planters and drills, weed clippers that could be modified for cutting hay. Water collection systems that could be used in cooler temps.
- Organic mulch for weed control to replace plastic.
- Passively tested mulch/row cover application techniques especially for more delicate covers or biodegradable mulches
- Pedal-powered vehicles, -wheel tractors reciprocating spader,
- Physical barriers for pest control (et. Row cover).
- Row crop cultivation
- Season extension (n=25)
- Seed cleaners for small operations
- Small (appropriately sized) machinery for cultivation, seeding, harvesting, etc.
- Small rolled oats mills mechanical weed control
- Small scale seeding systems
- Small seed cleaning equipment.
- Someone needs to make new cultivating tractors
- Stress non-fossil fuel systems e.g. Horse hoophouse,
- Swathing grain early
- Testing of available equipment (in-depth) would also help a lot (see German magazines for examples - "dlz", "profi"
- Tine weeders (n=2)
- Use of flamers for weed control.
- Vegetable fruit cultivation equipment
- Weed burning
- Weed clippers (n=7)
- Weed control in cereals and beans - cultivators, harrows, rotary hoes, etc.
- Weed control, erosion control, high residue handling.
- Weeders for soybeans
- Wild blueberry harvester and honey gathering - there has to be an easier way that is not hugely expensive. Crop drying systems - garlic

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

- Beef,
- Broiler chickens,
- Cattle,
- Chickens,
- Goats,
- Sheep (Katahdin),
- Turkeys

B8. Breeds (specify animal:_____)

- Beef (n=8)
- Beef highland cattle,
- Beef horses standard breed,
- Boer goats,
- Broiler chickens,
- Brown swiss (n=2),
- Canadian horses,
- Cattle (beef) (n=3),
- Chickens (n=4),
- Coccidiosis chicken,
- Dairy (n=4),
- Dairy sheep,
- Dairy (beef holstein) (n=3),
- Dairy (jersey) (n=2),
- Dairy brown Swiss,
- Dairy sheep (n=2),
- Dorset/buffalo,
- Goat- saanen/alpine,
- Goats (n=3),
- Hogs Berkshire,
- Holstein (n=5),
- Lamb,
- Laying hens (n=2),
- Lincoln sheep,
- Meat chickens (n=2),
- Meat chickens,
- Meat sheep,
- Older hog breeds,
- Pigs (n=6),
- Polypay sheep
- Poultry (n=4),
- Rideau arcott,
- Sheep (n=6),
- Sheep (Corriedale breed),
- Sheep (Katahdin),
- Shetland sheep,

- Small beef breeds,
- Southdown sheep,
- Swine (n=2),
- Turkeys (n=3)

B8. Parasites (specify animal_____)

- Beef (n=9),
- Boer goats,
- Broiler chickens,
- Cattle (n=3),
- Dairy (n=5),
- Dairy (beef Holstein) (n=5),
- Dairy (Jersey),
- Goats (n=3),
- Hereford beef,
- sheep- round tape,
- Horses (n=2),
- Poultry (n=9),
- Sheep (n=16),
- Sheep (Katahdin),
- Sheep worms,
- Shetland sheep,
- Swine (n= 8),
- Turkey (n=3),
- Warble fly,
- Worms in goats,
- Worms intestinal

B8. Diseases (specify_____)

- Boer goats,
- Broiler chickens,
- Beef Cattle (n=11),
- Dairy (n=7),
- Dairy (beef Holstein) (n=4),
- Dairy (jersey),
- Dairy cows
- Dexter cattle
- Goats (n=2),
- Lincoln sheep
- Mastitis control without antibiotics
- Post lambing acidosis (sheep)
- Poultry (n=11),
- Sheep (n=6),
- Sheep (Katahdin),
- Shetland sheep,
- Swine (n=6),
- Turkey (n=4)

B8. Grazing (specify_____)

- Beef (n=14),
- Boer goats
- Broiler chickens,
- Brown Swiss (dairy)
- Cattle (n=5),
- Check which breed is better suited
- Dairy (n=10),
- Dairy (beef Holstein) (n=4),
- Dairy (jersey),
- Dexter cattle
- Goats (n=3),
- Holstein rotation methods,
- Horses (n=2),
- Lincoln sheep,
- Meat birds,
- Swine (n=6),
- Poultry (n=12),
- Sheep (n=10),
- Sheep (Katahdin),
- Shetland sheep,
- Turkeys (n=3)

B8. Feed (specify_____)

- Beef (n=9),
- Boer goats
- Broiler chickens,
- Cattle (n=2),
- Dairy (beef Holstein) (n=5),
- Dairy (jersey),
- Dairy (n=11)
- Dexter cattle,
- Duck,
- Geese
- Goat (n=3)
- Grass feed chickens (meat birds),
- Hay, silo, vegetables
- Laying hens,
- Lincoln sheep
- Meat birds
- Poultry (n=11),
- Poultry pasture,
- Sheep (Katahdin),
- Sheep (n=7)
- Shetland sheep,
- Small non-GMO grain
- Swine (n=3),
- Turkey (n=5)

B8. Handling (specify_____)

- Beef (n=7),
- Boer goats,
- Broiler chickens,
- Cattle (n=3),
- Chicken (n=4),
- Dairy (n=7),
- Dairy (beef Holstein) (n=4),
- Dairy (Jersey),
- Dexter cattle,
- Gate system,
- Horses
- Lincoln sheep,
- Poultry (n=2),
- Sheep (n=8),
- Sheep (Katahdin),
- Shetland sheep,
- Stalls,
- Swine (n=4)
- Turkeys (n=3),

B8. Housing (specify_____)

- Beef (n=8),
- Boer goats
- Broiler chickens,
- Cattle,
- Dairy (n=6),
- Dairy (beef Holstein) (n=5),
- Dairy (jersey),
- Dairy (Dexter's),
- Goats,
- Hen house,
- Hogs,
- Horses
- Lean to's,
- Pigs barn,
- Poultry (n=9),
- Poultry pasturing (n=2),
- Sheep (n=8),
- Sheep (Katahdin),
- Sheep (Shetland),
- Swine (n=4),
- Turkeys (n=3),
- Winter exercise

B8. Manure Management (specify_____)

- Beef (n=9),

- Boer goats,
- Broiler chickens,
- Cattle (n=2),
- Compost systems,
- Dairy (n=7),
- Dairy (Holstein) (n=3),
- Dairy (Jersey),
- Goats (n=3),
- Horse (n=2),
- Poultry (n=8),
- Sheep (n=11),
- Sheep (Katahdin),
- Shetland sheep,
- Swine (n=2),
- Turkeys (n=3)

B8. What other research would you like to see?

- Pigs
- Cost/benefit ratios
- A combined nutritional and environmental study on the difference between grass fed and grain fed beef
- Animal positive- how cultural practices take care of much else- so many 'pests' are symptoms of malpractice.
- Poultry
- Poultry for fenced farm range that are good foragers, disease free, and that have acceptable production.
- Educating the buyers they must pay what it is worth.
- Meat rabbits- organic feed?
- Hog
- Breeding and culling selection
- Research on how to deal with liquid pig/goat manure - how do you compost it?
- Developing a non-hybrid meat chicken that grows a bit larger and faster than the old dual purpose breeds biogas with solid manures disease - calf scours, pigs
- Duck and quail custom incubating for organic livestock.
- Slaughter minimum stress, including on-farm slaughter.
- Research into breeding for a great bird that fits well in the organic system. All manures should be treated better.
- Composted properly or treated.
- Need better access to heritage breed information - listings of where to get them, raising them, etc.
- MIG grazing as parasite control
- Gastrointestinal nematodes and caseoius lymphadentis in katahdin sheep organic products for horses to replace all chemical products and treatments An assessment of the Joel Salatin Polyface farming system and the application for Canadian organic producers.

- Hogs Breeds - Holstein and Jersey, parasites - face flies, horn flies, fly control.
- Mastitis.
- Swine pastures and free range chickens
- Composting bed pack for dairy.
- Buffalo, emus bird flu, protect bees against bears and hard winters
- Thermal composting of manure in windrows to assist farmers interested in or starting to compost - assist with ingredients, C to N ratios and understanding the composting process.
- Field application of compost and benefits to enhancing soil.

C1. Which crops or animals would you like to see researched? (e.g.. hemp, camelina, carrots, ostrich)?

- A wide variety of heat unit soybeans, spring and fall cereals The mixed farm would be the most economical and sustainable farm
- Beans (edible), cereals
- Beef production, especially the finishing phase, using grass or forages to obtain a quality beef carcass to meet market demands.
- Beef, hogs
- Benefits of raising 'rare breeds' on verge of extinction
- Biodynamic farming
- Cow,
- Dairy - crossbreeding suitable for reduced grain and forage / grazing operations hay, wheat Sheep dairy.
- Dairy- raw milk- nutrients
- Dairy sheep O
- Economics of pasturing raising heritage pigs and wintering in untreated barns. Compare with pig factories.
- Flax seed, hemp, goji
- Genetics in dairy cattle focused on pastured animals for healthy milk, forage fed
- Goats
- Goats
- Goats - very little info available - understand parasites common and would like effective organic treatment
- Gooseberry
- Grains
- Grains and hay
- Herbs
- Heritage breeds of hogs and poultry I would like to see more research on green, sustainable organic farming practices
- I have a good knowledge of my costs
- In addition to research, lobbying would be useful here to level the playing field.
- Integrating all animals from Section B
- Is it possible to grow hemp organically? Does hemp need fertilizer to the degree that makes it a non sustainable crop?

- Maintaining wide diversity- I grow over 200 varieties for commercial markets e.g. Flax, oats, rye, buckwheat tomatoes, peppers Spelt, soybean, cover crops, legumes
- Medicinal herbs - we get too much import at prices we cannot compete with
- More dairy cattle research, conception rate
- Organic dairy,
- Organic poultry
- Pen pollinated corn, seed saving methods, ideal mixed farm combinations Ecology of tree fruit production in eastern Canada.
- Potato and celery production
- Poultry pasturing
- Poultry,
- Raspberry,
- Sheep and goats do not get as good visibility as cattle, pigs and chickens
- Sheep/lambs
- Small acreage - more diverse crops for niche markets
- Strawberry,
- Sweet corn,
- Swine
- The major production economic factor is the absurdly and artificially low prices for food. Focus on low energy inputs.
- This should be done by the individual operator as there are too many variables to develop relevant model animals,
- Wheat, spelt, horticultural crops and small frame beef cattle.

C1. Which value added projects would you like to see researched (e.g. cleaning plant, custom operations, birdseed, wild oat oatmeal)?

- Apples/pears/vegetables
- Canned beans, breakfast cereal
- Compost
- Dairy and dairy products (n=2)
- Garlic (n=2)
- tomato,
- winter squash
- Herbs, herbal teas, medicines, health products.
- How to maintain nutritive value through processing
- Lamb (n=2)
- Make Canadians aware that we are still one of the "cleanest" countries.
- Any natural products from certified organic farms.
- Making cheese
- Maple syrup, straw
- Marketing structures – co-ops, packaging / processing / distribution Preserves, sauces, pickles, condiments
- Milk- transforming on the farm (e.g. cheese, butter, etc).
- Nutrient content would be important in processed food products.
- On farm processing marketing
- Peeled potatoes for restaurants

- Quality of seeds, quality of beef or pork
- Raw milk mixed farm operations
- Small farm produced- how getting government regulations that deny consumers the right to buy direct from farmers of their choice.
- Small grains, agroforestry projects
- The actual business of farming - organizing all the paperwork, figuring out timing and quantities to plant etc. (2nd year farmers, part time) sheep, wool, lambs
- The farmers should work better together in smaller or bigger co-ops, sell what they produce
- Value added Tea, eggs, honey, etc.
- Vegetables apples elderberry products - nutritional value, this should be done by the individual operator as there are too many variables to develop a relevant model
- Wool products

C2. Please specify which crops

- Alfalfa (n=2)
- Heritage wheat,
- Asian pear
- Barley (n=2)
- Beans
- Berries
- Cattle feed (hay, pasture)
- Corn (n=9)
- Edible beans,
- Cereals
- Edible flowers, spinach, greens, squash
- Fall rye
- Fall wheat
- Feed/food grains spelt (n=2)
- Forage
- Garlic,
- Grain (n=3)
- Christmas trees
- Grains including 'alternatives' e.g. Amaranth
- Grasses
- Hay
- Hemp
- Herbs
- Oats (n=9)
- Feed grains
- Pasture hay
- Potatoes, all grains
- Rye (n=2)
- Silage corn
- Soy
- Soy vegetables

- Soybean (n= 9)
- Spelt (n=9)
- Timothy
- Vegetables
- Wheat (n=11)

C2. Please specify which animal products

- Barley,
- Beef (n=11),
- Broilers lamb,
- Cheese,
- Chicken hormone-free meats (beef, poultry, pork)
- Corn beef,
- Dairy products (n=4)
- Dairy, meat re goats
- Eggs (n=4),
- Goat,
- Grass fed beef
- Grass fed products and or minimal grain feeding to ruminants
- Grass fed vs. Grain fed beef, chickens, and pigs
- Grass-fed beef
- Lamb (n=4),
- Mastitis control pneumonia,
- Meat (n=7),
- Milk (n=3),
- Mutton (n=2),
- Oats,
- Poultry (n=11),
- Raw milk,
- Sheep,
- Swine (n=4)
- Turkey,
- Wool

C2. Please specify which horticultural crops

- All fresh market vegetables
- All vegetables i.e. Does 'organic' carrot have more vitamin C in it than California/Holland Marsh chemical carrot?
- Apples (n=6),
- Barley,
- Bean,
- Berries (n=3),
- Carrots
- Clover
- Common vegetables and fruit
- Corn,
- Fruits,
- Gooseberry

- Hazelnuts
- Herbs (n=2),
- Lettuce,
- Milk products
- Peaches
- Pears (n=2),
- Peppers,
- Perennial fruits,
- Potato(n=2),
- Raspberries (n=2),
- Soft fruits (peaches),
- Squash,
- Strawberry,
- Sweet corn,
- Tomato (n=5),
- Vegetables (n=4),
- Vegetables and fruit grown in Ontario
- Herbs- medicinally relevant compounds.
- Zucchini

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

- Flour milling (seed and food grain cleaning)
- Purity of organic food without herbicide/pesticide residues
- Any research is good but more based on quality not necessarily quantity. Use of chromatography testing or other picture methods.
- If its not quality food its filler- quality is where small farms can shine
- Are there more vitamins/minerals, trace elements in 'organic' than non-organic? And advertise results!
- The need to certify organic vs. 'Organically grown'
- Nutritional value of organic crops/meat/milk etc compared to conventional.
- How nitrates and uranium in water affects meat and organ meat. How can we get abattoirs to be honest (DNA testing)?
- Comparison of vitamin retention of organic foods vs. Non-organic
- Compare the quality of biodynamic foods with organically grown foods
- Shelf life, packaging
- "organic vs. Organic" - Compare low input with advanced/high-tech/intensive management in relation to food value
- More teaching consumers on organic products (meat, veggies) comparing them to conventional (pesticides, way animals are raised)
- Is the nutrient density of organic food declining?
- How can we manage soil fertility to be sure crops and livestock have proper balance of macro and micro nutrients to create healthy people?
- An honest quality test - organic raw milk versus organically processed milk Comparisons between cow and goat milk (why is goat milk more nutritious but less of it is produced compared to cow dairy?)
- Quality and nutrition of all organic products need to be top priority.

- Nutritional value of organic, testing for GMO residue in high risk organic crops (corn, soy) to confirm organic inspection effectiveness.
- Useful research to support Ontario producers when challenged by skeptics Levels of trace elements, antioxidants, probiotics, etc. That organically grown should be naturally superior in - proof would be nice nutraceutical qualities of culinary herbs In particular, nutrient levels in organic food vs. Conventional. Use properly grown organic products from farms you can visit (i.e. Not PC organics)
- There has been enough research that has shown the benefits of eating organic foods.
- Pressure instead needs to be put on government and media to put the word out.
- I'd like to see organic info become more mainstream
- Research on GE labeling which would allow Canadians to make informed choices.
- Grains, fruit and vegetables
- Organic wines and liquors from berries, fruit, and herbs.
- Bees.
- Hazelnuts and hazelnut oil
- Brix readings,
- Sugar content of food which also gives us valuable info on the nutritional value

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

- Pollution to soil
- Sustainability of organic vs. chemical fertilizer especially natural N
- How sustainable is farming when numbers of farmers is decreasing, cost is rising and most still regard it as a 'lesser' activity (not really a profession).
- How to grow crops without fossil fuels and therefore purchased fertilizers.
- Self sustainability for young new farmers on organic farms
- Reconnecting local farms to local food systems
- I don't believe that 'organic' necessarily is 'sustainable.' I'd like to see research into soil building (organic matter/humus) on larger scales.
- An honest report on conventional farm chemicals and their effects on farmers who apply and the public who eat the food and the immediate stop of their use if health is at risk.
- Role of forests adjacent to agricultural fields to help in food/hog production…and friendly ways to keep deer out.
- Pond management- recycling grey water.
- How can we sustain ourselves with less energy (oil) without using horses? Sun powered batteries? Hybrids?
- Carbon accounting for different rotations, tillage systems Waste (garbage) reduction. Demonstrate the suitability of draft horses on farms. Only organic agriculture is sustainable - wait another 10 years all grass fed animals. Viability of farms providing more of their food product to local consumers, thus reducing the need for imported goods

of same variety. Soil microbiology, soil ecology, seed germination. Biological weed control, sustainable soil fertility research. Sustainable fiber production. Cultural practice and ecological footprint. Why is spring wheat now $1200 a tonne? Effect on social structures, community vitality. soil moisture Use of microbes, soil mineralization Water source protection - alternatives to tile drain Draft animals! I think they have not been given enough attention or truly considered. At a time when we are trying to move away from fossil fuels and more generally the combustion engine, we should be finding ways to reintegrate ammonal power into agricultural systems. Many farmers are doing this successfully already. Studies relating to economic sustainability of small farm operations (crop/livestock mix, scale of production, marketing sources and returns, labour resources) How to and how much can we produce with perennials. A book called tree crops indicates potential to supply all of man's needs from trees. We are so entangled by the almighty dollar dictating what we do, Economy speaks of frugality and careful management. promotion of buy local food How about a system to get every town to compost it's fall leaves and grass clippings and then sell or give the compost away. Naturally, it would have to be tested for herbicides and pesticides. Family farm as best model for sustainability Surface water quality, groundwater quality, wastewater treatment Water reduction, retention Ways to replace and improve soils to enhance natural drainage - water retention, control erosion, improve pH and nutrients. Its all about healthy soil.

D4. Additional comments?

- More knowledge transfer from European well established research sites
- Research for different heat unit areas.
- The couple of ag types who have done research here were ignorant of production systems and not sensitive to being in someone else's garden-farms (the best ones) are living things, not plots and labs
- In a depression, there will be no research dollars
- Producer involvement should be split evenly between large (corporate) and small (family farm) producers. Research should be focused on regionally specific techniques for building local food systems.
- Research on injecting tractor exhaust into soil
- Fairly neutral however I think research should be publically funded, not geared to selling inputs
- Ideally, independently funded research based on producer input (e.g.. Through brainstorming sessions) Farm research with farm apprentice's Practical on-farm research using various organic inputs is a must. The wisdom is out there on the farms.
- This is my first year of framing so I am not experienced- but am open to research using my land.
- A lot of the demonstration, learning and research farms have little in common with actual working farms.
- Producers need to be fairly compensated for their time/expertise. Conventional scientific research with focus on efficiency and high

productivity and with neglect of almost all else, e.g. at Guelph U is a major factor in the destruction of small farms and obsession with high tech shows common sense has been left behind.
- Highly efficient productive pig producers are going broke! all are needed time is a issue for producers I would be willing to consider involvement in said research boards obviously depending on timing and time commitment Many producers don't have the time for research 2nd year transitional to organic.
- I don't know enough to know what I don't know.
- Make research at demo farms readily available to the public
- Extension
- Need focus on small producers, no matter which research is selected
- Regional education sessions available to farmers followed up with support to farmers to continue with research on individual farms.
- Soil and plant lab analysis.

Other initiatives?
- Something that promotes organic for what it does/is- most people know and describe it by what it doesn't do
- Very important the people, consumers need to educate because they will pay the premium price, and love what they are eating.
- Farmer education on organic standards.
- 'Ethics' has to be first priority not financial gain.
- Training and education facilities
- I am an older farmer (58) and my customer base is well established. I realize some of these items are very important for newer farmers, especially in areas where organic is not well recognized/supported great! local organic forum
- Producer selling directly to consumer - local organic products
- Over all the years I had very bad experiences with buyers.
- Almost all of them!
- They're all cheating and holding the money back for months and months. These guys should be in tighter control.
- Producing food for Canadians first, export after. Let's get our own house in order.
- Shared storage facilities of organic seeds until sale.
- More consumer direct sales to keep more dollars in farmers' pockets.
- Why are commodity prices flashed on TV- for greedy people to drool over? Why is food something to be manipulated and controlled?
- Something to Research: Is food safety scale neutral? (i.e. should the same regulations apply to both small and large operations?)
- Mobile slaughter facilities is really important! It will help keep food locally produced! local organic education for consumers
- More proper understanding
- Would love to get access to industry average wholesale prices for vegetables through growing season (to understand big competitor's prices, like Sunopta) Biodynamic Support for the NFU, support for small and family farms

- These production needs have to be directed to various regions of Canada to make them effective and viable
- Really need support for local processing facilities for crops, fruits, veggies and livestock.

F14. How do you prefer to access information?

- Accessible causes and conferences are not held in central Ontario. They all appear to be held in South Western or Far Eastern Ontario.
- Books (n=5)
- Books (old and new) for producing vegetables e.g. From COG library. Accessing other growers' web sites.
- By experience
- By reading material, books etc. And from experienced persons
- COG (n=2)
- Colleges
- Conference (n=5)
- Courses in person
- Courses (n=2),
- Craft or other apprentice programs
- Current news by email, but also find seminars, extension info days and farm tours helpful.
- EFAO (n=2)
- Electronically networking,
- Email (n=13)
- Extension personnel must have organic mindset without chemical baggage.
- Fact sheets (n=4)
- Farm tours (n=2)
- Farmer meetings
- Internet directly from experienced farmers or through keen extension personnel (management club).
- From agents offering services, networking, meetings, workshops, farm groups, etc.
- 'Growing for Market' monthly newspaper produced by growers in USA.
- Hands on- learn by doing, meeting other farmers at farm tours.
- Hardcopies
- I find the government fact sheets unhelpful (I prefer an involved in-depth approach). I am not impressed at all about their knowledge and help, it's only a money grab with little return.
- I hardly know any farmers who went to farmer school!
- If brief by email or web referral.
- In person. 'Research' I've encountered reflects small market gardening with quality as a focus- most is hung up on size and volume.
- Internet (n=33)
- Internet is more for general info and private industry products
- Internet- less paper.
- Internet too slow, no access to high speed.

- Library- books,
- Magazine (n=3)
- Mail (n=9)
- Mail group participation
- Mail or day courses
- Make courses flexible so that we are all able to attend. Also keep the cost of courses affordable.
- Make extensive use of written material from COG and Ridgetown College libraries.
- Meeting (n=2)
- Most university profs use books to teach from.
- Newsletters (n=4)
- Newspaper (n=2)
- On a personal basis
- On-farm kitchen meetings,
- Paper and print and personal contact (n=4)
- Peers
- People
- Personal
- Programs (n=2)
- Seminars
- Several of above useful- web or telephone access for specific questions
- Short courses
- Speakers
- Support books.
- Talking with organic producers, internet, magazines and EFAO courses
- Training sessions
- We belong to CRAFT Conferences,
- Web courses (n=2)
- What about the certifiers, so they could learn a little bit in organic farming.
- Word of mouth- Acres USA. Much is hit and miss and experience and practical thinking.
- Workshops (n= 6)
- Would like to see U of Guelph offer an organic course at Ridgetown College where local producer input could be utilized to help students and other producers

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

- Hands on workshop on this soil test fact sheet
- Alternative energy systems to power farm operations.
- Buyer preference
- Consumer trends,
- Cost effective bird control - most important
- Crop requirements,
- Dealing with deer, coyotes, fishers
- Equipment operation.

- Examples of best practices
- Farm mentorship contact info network
- Grazing info.
- Hay analysis,
- Holistic rotation,
- How public education (schools) can be involved.
- How to bring and maintain the biological aspects of the soil. Rebuilding humus. The soil tests i had were not useful to me. There should be special soil tests for organic soils and correctly explained.
- Human health and organic farming soil test factsheet,
- I don't think production levels/soil management/access to buyers/pests etc are problems for farmers. The problem is depressed food prices relative to costs of production, as a result of international competition.
- Info on dairy genetics related to a healthy cow, grazing, nutrition, crossbreeding
- Information on how to calculate compost application rates for various field crops.
- Information on how to interpret soil tests.
- Information on the farm as a "whole", everything connected in an ecological way.
- Market info on trends, prices, buyers and sellers
- Methods/machinery
- More advertising made to consumers
- I would like to see customized information that fits my soils/ climate/ practices/ farm
- Nutrient planning (n=9)
- Pest control and management (n=4)
- Pest control updates
- Planning addressing fertility,
- Price of end-product, self-marketing, consumer apathy
- Publications like ecological farming in Ontario, cog, Ontario farmer.
- Regular articles in the Ontario farmer weekly magazine on all the above matters would foster organic agriculture greatly and compensate for the overwhelming chemical advertisements flooding Ontario's farm kitchen tables every week. Don't just preach to the converted.
- Soil test fact sheet (n=16)
- Soil test fact sheet, and how does one understand these and how does one fix it at a reasonable cost but stay organic
- Successful farmer profiles.
- The bylaw setters are not cooperating
- To increase phosphorous in soil, which cover crops to plant or what else can I do?
- Water management (n=3)
- Weeds and soil building in a profitable manner.
- What homemade organic spray mixtures for fruit trees are recommended.
- Buyer surveys
- Whole farm approach

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

- A North American- Canada, USA, Mexico- famine. So, how to produce without fossil fuels…see previous statements.
- Access to and cost of land for field crops
- Agribusiness/multinationals moving in, countries like China pretending to be organic. Both tainting the organic name.
- All parts of farming are too expensive
- Cheap food and box stores. Certification data keeping takes the fun out of it.
- Cheap food and farmers forced to produce cheap food.
- Chicken Farmer of Ontario- make small scale poultry production (meat and eggs) very difficult.
- Cost of trucking, cost of fuel, weed management challenges
- Dilution of term 'organic'
- Distance from certifying agents as where we farm it's too expensive to be certified organic even though we follow all procedures.
- Slaughter facilities for cattle/other livestock.
- Value added products too many restrictions/or taxes on municipal level.
- Established farmers 40 and older.
- Foreign competition esp. China
- GMO pollution of seed
- Government regulations and controls of marketplace- barriers to direct sales while ultra commerce gets subsidies
- Government regulations.
- Government, certifier bodies who are in business with profit in mind instead of common sense.
- High prices at retail levels.
- I see giant corporate banana republic farming organically as a barrier to Canadian based organic farming operations because of production costs/costs of labour.
- Imports
- Industrial organics that overrides the whole philosophy of organics- ex sustainable relatively small farms on which the producer really cares
- Labour, machinery, conglomerates
- Land prices
- Land prices- need systems to allow young experienced people to have long term access to farm land
- Large scale producers, processors, create less dependability.
- Less in low income buyer. Not enough funding from government and industry
- Long term foreign so called 'organic' products at cheaper prices.
- Need for mass production, pricing
- None - educating the public on their responsibility to stay healthy - not the government
- Pesticides and government interference, this should be privately done by the individual farmer not commercial.
- Political will power, lack of. Consumer indifference, in large centers.

- Poor quality would create a barrier
- Government regulations
- Unreasonable restrictions; e.g.. I can no longer use off-farm poultry manure because the hens are caged. This is an ethical issue that should be decided by public debate and the marketplace. Standards forbidding me the use of an excellent source of fertility won't free one caged hen.
- End price to consumers (trade margins); hard to start up new markets with large buyers in crop production, main obstacles for growth are thistles and N supply
- Labour shortage in market gardening, shortage of organically approved soil amendments lack of processing and distribution capacity
- Markets Lower returns, excessive regulations, labour shortage
- Consumer not educated - prices too high
- Many growers are small and not positioned to supply institutions or chain stores. The taking over of the inputs and markets by multinational organizations e.g.. Cargill, Wal-Mart.
- More flexibility is needed with our quota system. See NFU efforts.
- The certifiers are not competent and only for the money in the business.
- The government is not interested
- Transportation
- Large chains not interested, price, uninformed consumers and still low $ for farmer/producer of product.
- Quota restrictions and cost of fuel and transportation.
- Unfair government subsidies for conventional production. Lack of financial incentives for farmers.
- Global escalation of food prices.
- Government policies (missed opportunities), marketing locally- too much tracking. Start up costs especially equipment/land purchases.
- Lack of knowledge on the part of general public re sustainability of conventional farming.
- GMO pollution, shortage of labour, shortage of skilled staff, marketing boards (dairy and poultry)
- Terminator seed technology, cross-pollinations from GMO crops, access to royalty-free non-hybrid heirloom seeds.
- Consumer perception of organics related to cost in supermarkets. Consumers not informed on health benefits of organic food.
- Limited government support, large corporate/industrial systems
- Rules for what products are approved is very poor; inconsistent answers, or no answers at all. No common rules are easy to get.
- Culture of conventional agriculture in farm community.
- Agribusiness propaganda, narrow public perception that organic produce is too expensive.
- Governmental regulatory bodies (mentality).
- Lack of government leadership and support for biological agriculture and orderly marketing. Lack of distribution channels
- Not enough farmers going organic.
- GMO crops.
- Equipment that plants or harvests both GMO and organic.

- Consolidation in processing, distribution and retailing; lack of young farmers. Expensive startup, cheap food prices, low farmer social status, celebration of workplace slacking-off
- Keeping up with demand. Getting more producers certified organic. Regulatory structure, cost externalization by large conventional producers at the expense of environment, soil, and tax payer.
- Politics- increased restrictions and regulations on production.
- Cost of certification, availability of information, availability of equipment for small producers <20 acres.
- Foreign i.e. China under cutting North American production.
- Big business especially the large farming operations, uneducated population. Big corporate agricultural corporations, government obsession of high tech solutions. Lack of $ compared with above for propaganda. Not enough farmers/high price of land.
- No access to land for young farmers.
- Many people cannot afford to be certified - be afraid to find - what they could do to rectify no land for young farmers
- Lack of information advice and guidance on how to get certified and by which certifying body.
- Organics becoming mainstream - consumers don't realize there is any difference 0 with lax standards this may even be the case.
- Producer-driven, less government interference, local and slow food movements, smaller size operations
- Misinformation in media, supply/demand imbalance, lax certification in future under pressure from industry heavyweights, lack of processors/slaughter
- For producers, overregulation and certification costs.
- Lack of transparency and public education about the food system. If more people knew
- Start-up costs, "Business of Farming", weather, hard physical work Controlling weeds, GM crops large corporate involvement
- Seed patents preventing use of on-farm seed sources, timely purchase of crops and produce (lengthy wait for payments).
- Encouragement of large scale "industrial" organic to detriment of smaller producers.
- High organic cost to consumers.
- Entry of industrial agribusiness into market
- The requirement to certify the whole farm (all land) - the approach of having inspectors and certifying bodies seems heavy handed and ineffective, rather an approach of diplomatic facilitation at the farm building relationships and integrated understanding (we are all in this together)
- Ministry of agriculture legislation
- Farmers going into organic production just for the extra $$ to be made
- The existing use of pesticides for agriculture. All farming should be organic Customer apathy Cost. If we can grow it as cheaply as regular food it won't seem elitist and there will be no reason not to buy it. Costs

Time: it's coming, it's just a question of when capacity, connecting suppliers to buyers Not enough producers to match demand.

- Dumping down of organic standards in other countries (US/China) leading to misconception of organic
- Lack of facilities to process organic produce, Government regulations Opposition continues to send messages that negate value of organics Multinational corporation involvement
- Matching supply and demand for grains (or grades? Not clear)
- Lack of knowledge on the part of the consumer as to the benefits of Canadian vs. American organic and why they cost more.
- Myths about lower long-term yields in a world of perceived food shortage. Strong research can show organic yields will not decrease especially compared to long-term reliance on industrial agriculture
- Lack of people awareness, not sufficient handouts, material (public meetings) Economy of scale, more attention to small producers, high labour requirements
- Many consumers remain skeptical that organic quality is superior … Increase in consumer education required on organic practices.
- Price of land locally
- Price points, returns to labour investment, marketing
- Promotion of organic dairy products
- Public awareness and education regarding benefits of organics.
- Keeping records - records should be replaced by TESTING.
- Quotas on chicken, turkey and eggs
- Seed availability.
- Pollution.
- Global warming (insects, things aren't as predictable).
  Fuel prices will probably make food wildly expensive (local is not supported by large chains).
- Seems to be no real standards especially in livestock.
- Livestock sellers use their organic standards or certification for crop for livestock. No organic slaughterhouse in Eastern Ontario.
- Standards can get too strict to the point of sacrificing animal welfare.
- Testing and education of consumers
- The co-opting of organics by big business.
- The cost of production, finding people who can work.
- The food systems dependence on consumer convenience
- Time and money- consumer doesn't understand why it costs what it does.
- Too many laws such as quotas! On farm added value to raw goods. Slaughtering on farm.
- Raw milk regulation.
- Used as a means of price only and less than honest producers
- Price, if we get 855 per litre of milk off the farm and pay over $2 at the store after the processors stole most of the cream out of it, there is something wrong.

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

- Mega opportunities
- Increased consumer interest, buy local movement
- Take the information mainstream
- Heightened public awareness of benefits both health and environmental
- A sustainable system in times of scarce energy
- Reduced input costs
- People are concerned about what they eat and where it's coming from. Although i feel it is mostly lip service.
- It's the future for sustainable local quality food production
- Great for local, small, organic/natural growers.
- High costs of fertilizers and pesticides
- Health kick/fads. Tourism to small towns- encouraging local 'tasting'
- Slow-->steady
- Promotion of local food sourcing and rising petroleum prices
- Communities encompassing and supporting organic farmers in the 100 mile radius. The population really understanding how their health will be served.
- Consumer awareness is increasing re the benefits of organics
- Consumer driven preferences, younger farmers.
- I see opportunity in continued promotion of consuming local food and building regional food systems (distribution, abattoirs, grain cleaning, etc).
- Educated consumers.
- Buy local and local farmers' markets (vegetables, beef, not poultry or dairy).
- I see we are just the tip of iceberg, all sectors will grow and so will prices, cheap food will soon be gone.
- Increased general environmental awareness and knowledge of organics leads consumers to look at how food is produced.
- Buy local
- Need for healthy, local foods for immediate geographical markets.
- Some growth up to doubling for now
- Healthy lifestyles, educate people on gmo foods!
- The door is wide open.
- If its local great (because of fuel). Maybe large chains will switch to local.
- Small local production with connection to the community.
- Niche within a niche.
- Unlimited
- Tax breaks for farmers maintaining biodiversity through rare breeds that may be less economically viable.
- The current excitement about 'buying local.'
- More demand for local/organic products.
- Feeding and meeting the needs of local communities once the playing field is leveled.
- Limitless
- Good prices, good time to switch from conventional
- People are starting to know the difference for their health

- Local, sell overseas (Europe)
- Development of local processing for locally-produced field crops
- The consumer is driving organics now
- People make the connection between food and health new technologies for weed and pest control (but conventional producers can use them too),
- Better availability of management protocols, aging and affluent population we must sell the organic way to all consumers and convince conventional farmers to switch to organic ways commit to movement trend to local - local plus organic i think it's a great opportunity for young new farmers with low equity to grow higher quality crops with new technology, e.g.: soil life testing healthier people if more educated opportunities for growth are very good. It offers young people an entry point for agriculture (farming) not much, because governments, multinationals and big retailers taken brutal control and watering down the ethical standards for their own profit. They are at present unlimited.
- Finally away for young people to get involved.
- Building bonds with local consumers.
- Unlimited increased demand for local organic products as prices for conventional products rise due to increased transportation costs.
- Consumer awareness, national standards, consumer demand if organic agriculture can become more viable as career related to income potential, younger farmers may emerge.
- Unlimited endless environmental benefits to society.
- Consumer demand. Pending energy crisis and global climate change. Consumer education. It is a demand driven market that has great consumer respect and appreciation.
- Facilities for local markets (management/promotion).
- We already can not meet demand. Need more production.
- Energy crisis.
- Provide good food for our communities.
- Continued demand is increasing.
- Sustainability is an issue now; public more concerned about food quality, contaminants.
- Unlimited.
- Interest in local food production.
- If public going to 'catch on' then good. Young people seem to be more interested- this has to be improved by education, etc.
- Nutrition in university courses.
- Growing in combination with local.
- Consumer interest, healing planet.
- Teach the farm ways that work well.
- Not only bylaws that cause too much loss and risk urban agriculture like in Cuba cass, buy local programs for grocery stores and restaurants quality testing to prove superior trace elements content and health benefits potentially large in almost all categories demand.
- Rising oil prices.

- Importance of food quality and nutrition - very important to consumers less pollution, healthy eating increased farm gate sales to local purchasers, cass, sales to upscale restaurants direct and local marketing initiatives green movements, consumer awareness of the potential dangers of chemicals and conventional farming practices in general many if pesticides were banned health benefits education - if we could teach in our schools that organics are best for everyone it would be a great opportunity for growth.
- Trend on the rise, healthier living local clusters of farms working cooperatively major opportunities in local, environmental sustainability greater awareness in the cost of food making organic production more profitable continued growth - leader in sustainability consumer demand is increasing - strict guidelines must not be relaxed we need to instill the same sense of craftsmanship in organic production that the grape growers capitalize on in winemaking - then people will respect what we do.
- Strong research into elevated nutritive characteristics of organic food. Increase promotion of local shopping for seasonal products people who cannot afford to purchase or rent more land can turn from conventional to organic production without the extra land payments we see a viable way to make a living (?), a means to grow our farm, and to be able to produce food with superior taste and nutrition