

A Survey Report on the Research and Educational Needs of Organic Grain Producers in Montana



Conducted by the Organic Advisory and Education Council (OAEC) in the winter/spring of 2012/2013

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The Organic Advisory and Education Council is a 501(c)(3) non profit organization, that encourages sustainable and responsible organic agricultural practices, through investments in research and education.

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Table of Contents

INTRODUCTION	1
METHODS	1
RESULTS AND DISCUSSION	1
SUMMARY	2
ACKNOWLEDGMENTS	3
Chapter 1: General Questions	4
Question #1: What county or counties do you primarily operate in?	4
Question #2: How long have you been growing organic crops?	4
Chart 1 (39 answers).....	4
Question #3: Is your farm all organic or mixed organic and non-organic?	5
Question #4: How large is your organic production area?.....	5
Chart 2 (39 answers).....	5
Question #5: How much average annual rainfall does your area receive?.....	6
Chart 3 (39 answers).....	6
Question #6: What is the primary make up of your soil structure?	6
Question #7: What tillage practices are most effective in managing soil conservation?	6
Question #8: What is the most challenging agronomic issue for your organic operation?	7
Chart 4 (69 answers).....	7
Chapter 2: Crops and Crop Rotations in Your Organic Operation.....	8
Question #9: Which crops have you had success producing?.....	8
Table 1	8
Question #10: What factors influence your yields the most?.....	9
Table 2	9
Question #11: What factors influence your grain quality the most?.....	9
Table 3	9
Question #12: Describe what grain, seeds, legumes, forages, or green manures, and their sequence, that makes up your rotation?	10
Table 4	11
Question #13: What factors influence your selection of crop rotations?	11
Chart 5 (53 answers).....	11

Chapter 3: Green Manure/Cover Crops in Your Organic Operation	12
Question #14: Have you grown a green manure crop as part of your rotation?	12
Question #15: Please list the crops grown as green manure?	12
Chart 6 (85 answers).....	12
Question #16: How much of your cropland is in green manure each year?.....	13
Chart 7 (33 answers).....	13
Question #17: What are the greatest benefits of your green manure crops?.....	13
Table 5	13
Question #18: What are your biggest challenges with your green manure production?.....	14
Question #19: Was terminating the green manure an issue, and how was it done?	15
Chart 9 (46 answers).....	15
Question #20: Do you think green manure compromises soil moisture and nutrient availability?	15
Question #21: Would you consider incorporating livestock to manage green manure/cover crops?	16
 Chapter 4: Weeds in Your Organic Operation	 17
Question #22: What crops are influenced the greatest by weeds?	17
Table 6	17
Question #23: List up to 10 weed species on your farm and rank how hard they are to manage	17
Table 7	17
Table 8	18
Question #24: Would you consider incorporating livestock to manage weeds?.....	19
Question #25: What weed research do you feel is most needed?	20
Chart 10 (52 answers).....	20
 Chapter 5: Diseases in Your Organic Operation	 21
Question #26: What crops are influenced the greatest by disease?	21
Table 9	21
Question #27: List up to 5 diseases on your farm and how hard they are to manage	21
Table 10	21
Question #28: What disease research do you feel is most needed?	22

Chapter 6: Pests in Your Organic Operation	23
Question #29: What crops are influenced the greatest by insects?	23
Table 11	23
Question #30: List up to top 5 insects you see, and how hard they are to manage	23
Table 12	23
Question #31: What pest research do you feel is most needed?	24
Table 13	24
Chapter 7: Soil Nutrition in Your Organic Operation	25
Question #32: Do you do soil fertility testing?	25
Question #33: How frequent do you do soil testing?	25
Table 14	25
Question #34: At what density do you do soil testing?.....	25
Table 15	25
Question #35: Do you believe you have nutrient deficiencies in your soil?	25
Table 16	25
Question #36: If you know, list the top 5 nutrient deficiencies affecting your organic crops ..	26
Chart 11 (76 answers).....	26
Question #37: How do you address the deficiencies in your soils?	27
Chart 12 (53 answers).....	27
Question #38: What factors determine whether you add organic fertilizers or not?	28
Chart 13 (33 answers).....	28
Question #39: What soil fertility research do you feel is most needed?	29
Table 17 (26 answers).....	29
Chapter 8: Marketing Issues in Your Organic Operation	30
Question #40: What crops face the biggest challenge to market?	30
Table 18	30
Question #41: What market strategy has worked the best for your operation?	31
Table 19	31
Question #42: Do you feel there are accessible markets for all your organic production?.....	32
Chart 14 (39 answers).....	32
Question #43: What marketing research do you feel is most needed?.....	33
Table 20 (13 answers).....	33

Chapter 9: Summary	34
Question #44: Have you taken acres out of organic production, and if so, why?	34
Question #45: What are your experiences or thoughts on organic no-till?.....	34
Table 21 (33 answers).....	34
Question #46: What specific research would have the most impact on your organic production system?.....	35
Table 22 (58 answers).....	35
Question #47: Have you noticed any links between crops, nutrients, insects, or weeds, which you would like to see more research on?	36
Question #48: What educational efforts/topics do you deem most important/ beneficial in advancing your organic farm production?	36
Table 23 (29 answers).....	36
Appendix	37

INTRODUCTION

The Organic Advisory and Education Council (OAEC) surveyed organic grain producers in Montana to determine the greatest challenges in their organic production and marketing systems. The results will help OAEC to identify and steer future research and education toward the most challenging issues. The results may also be useful to researchers and educators in justifying requests for funding. The survey was conducted by the Organic Advisory and Education Council (OAEC) in the fall/winter of 2012/13.

METHODS

The survey questions were drafted by the OAEC Board of Directors. In formulating the questions, several faculty members at the Montana State University, College of Agriculture were asked to help identify questions of importance within the different sections of the survey. The faculty members were very helpful, and gave many good suggestions that are incorporated in one way or another throughout the survey.

The survey contains 48 questions divided into nine different sections: General, Crops and Crop Rotations, Green Manure/Cover Crops, Weeds, Diseases, Pests, Soil Nutrition, Marketing, and Summary. Producers were presented with multiple choice and essay type questions, and were encouraged to answer any question that was relevant for their operation. Although a few questions or sections were left unanswered by a few producers, the majority of the surveys returned were complete.

The survey was sent out to 93 different organic farmers in Montana and two in western North Dakota, nearly all are certified organic. A few of the farmers had converted back to conventional farming, or had stopped farming all together.

Getting farmers to respond to a survey is a challenge, as producers are frequently asked to complete detailed surveys for crop, acre, and production estimates, and other food and agricultural data. To help insure a high return of these surveys, several follow up phone calls were made, along with a few extra surveys sent out. A total of 40 surveys were returned. OAEC had hoped to receive back surveys from producers who have gotten out of organics, as they might have the most to say, but none were returned. Knowing their message was important, direct contact to around 10 of these producers was made. Their feedback corresponded well with the information/data that was in the returned surveys and it is clear that the challenges they experienced are also the same problems and challenges which current organic producers face.

RESULTS AND DISCUSSION

In this report, each section of survey questions is analyzed with summarized responses, statistical conclusions as well as any discussion following each question. A blank copy of the survey is attached as Appendix 1.

SUMMARY

This survey report is based on responses from organic grain producers in Montana and it shows very clear and evident messages about organic issues. The surveys represent an experienced group of organic grain producers with many having over 10 years or even 20 years of experience. The majority of farms are relative large with 2000+ acres, nearly all in dryland production.

Spring/winter wheat, barley, and hay are crops organic grain producers grow very successfully. For organic producers, the biggest agronomic issues are weeds, followed by fertility, and then moisture shortages. The market place is the main factor for the kind of crop a producer chooses to grow. In selection of an organic crop rotation there are nearly as many kinds of rotations as there are farmers. Nearly all the organic producers say that there are accessible markets for the different crops they grow and most organic producers market crops directly to food processors or broker/resellers. The easiest organic crop to market is spring wheat followed by peas, winter wheat, flax, lentils, and barley. Organic hay and seed are, at times, difficult to market.

Most organic producers take soil tests on a regular basis; a large majority of the producers believe that they have nutrient deficiencies in their soils like nitrogen and phosphorus. Most organic producers address nutrient deficiencies through the use of green manure crops and rotation. Organic producers use peas and yellow sweet clover as the two main green manure crops. A few producers had some success with no-tilling peas for green manure. Most organic producers indicated that green manure has great benefit on building soil fertility and the ability to break weed, disease, and insect pest cycles. The challenge that most producers have in regards to green manure is terminating the crop at the right time. There are some producers that are considering the use of livestock to terminate the green manure crop.

Organic grain producers have very few to no issues with diseases and only moderate to minor problems with pests. Grasshoppers, sawflies, and alfalfa weevils are the most prevalent. Weeds are one of the bigger problems in organic grain production and the most problematic weeds are perennial bindweed/morning glory and Canada thistle. These weeds seem to be the biggest factor forcing acres out of organic production.

Wild oats followed by cheat grass are the main annual weeds that present problems and other problematic annual weeds come from the Goosefoot and Mustard families. Organic producers also state that cereal crops receive minor to moderate influence from weeds whereas lentils and flax are influenced the greatest by weeds.

The most requested research item by organic producers is on perennial weed control especially pertaining to bindweed/morning glory and Canada thistle. Other organic research/information requests are: crop rotations, cover crops, intercropping, weed competitiveness, original wheat genetics, drought resistance genetics, and fertility issues. Most producers say that getting current/new research information in an easy and timely manner is also of importance.

ACKNOWLEDGMENTS

The Organic Advisory and Education Council want to acknowledge all the organic grain producers in Montana for all their great accomplishments within organic farming as well as say “Thank You” to all those producers that took the time to fill out the survey forms that provided valuable information.

Acknowledgment of and gratitude go to faculty members at the Montana State University, College of Agriculture who provided valuable help in formulating the questions, comments and review that led to a much improved version of this report.

Thank you to Dr. Patrick Hatfield, Professor Perry R. Miller, Professor Bruce D. Maxwell, Associate Professor Clain A. Jones, and Associate Professor Fabian D. Menalled.

The OAEC Board of Directors was responsible for the survey and final report. Directors were Ole Norgaard, Chair; Sam Schmidt, Vice Chair; Catherine Odden, Treasurer; Lise Rousseau, Secretary; Steve Baril; Jan Boyle; Wes Henthorne; Daryl Lassila; Warren Lybeck; and Ty O’Connor.

Chapter 1: General Questions

Question #1: What county or counties do you primarily operate in?

Blaine County	6 organic producers	Liberty County	2 organic producers
Carter County	1 organic producer	Madison County	1 organic producer
Cascade County	1 organic producer	Phillips County	2 organic producers
Chouteau County.....	4 organic producers	Pondera County.....	3 organic producers
Daniels County.....	1 organic producer	Richland County	2 organic producers
Dawson County	1 organic producer	Sheridan County	2 organic producers
Fergus County.....	3 organic producers	Teton County.....	2 organic producers
Glacier County	1 organic producer	Toole County	2 organic producers
Hill County	2 organic producers	Valley County	2 organic producers
Judith Basin County	2 organic producers		

The organic grain producers are primarily operating in the Central, North Central, North East and Eastern parts of Montana and along the Highline.

Question #2: How long have you been growing organic crops?

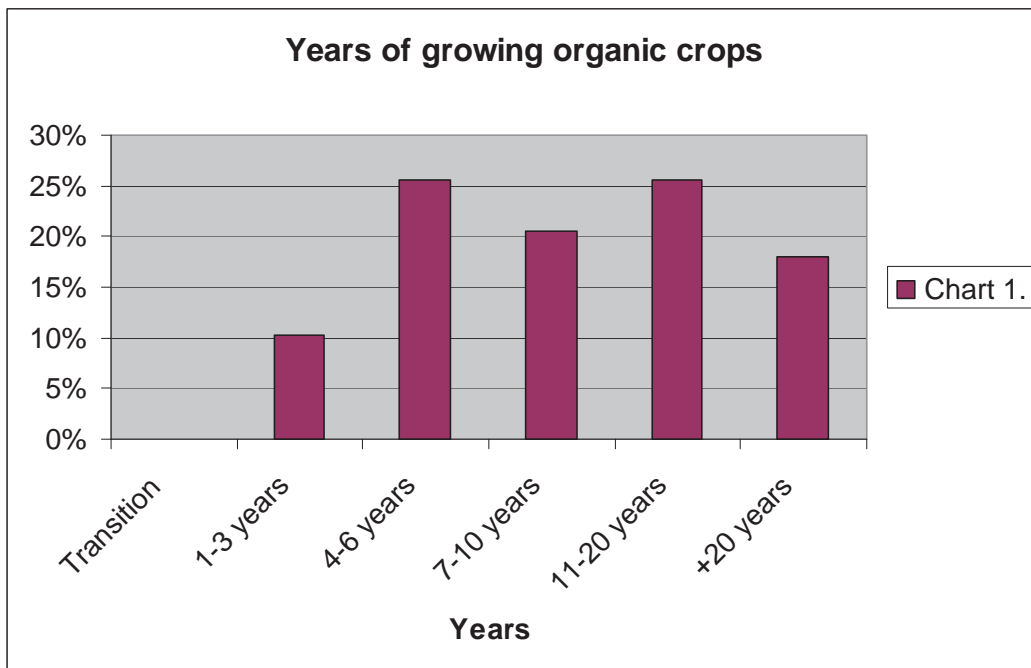


Chart 1 (39 answers)

The data that is compiled in this report is based on a very experienced group of organic grain farmers. There are farmers that have over 20 years of experience in growing organic grain crops and 44% of the producers have more than 11 years of experience. With this amount of experience, one could assume that all problems/challenges have been addressed successfully/unsuccessfully in one way or another and that makes the data in this report very interesting since it shines light on the ongoing challenges/issues there are in organic grain farming in Montana.

Question #3: Is your farm all organic or mixed organic and non-organic?

All organic: 64%
Mixed: 36%
Non-organic: 0%

Looking closer at the data shows that most of the mixed operations either have taken acres out of organic production because of perennial bindweed/Canada thistle or they have cattle that are not certified. As pointed out at the start of this report, we did not get any surveys back from producers that were no longer organic, but we were able to talk with about 10 of these producers over the phone and got an overview of their challenges when they were farming organically. Even though we did not get quantifiable data from these producers, it became very clear the challenges they were experiencing were very similar to the problems and challenges that current organic producers have, and their information corresponded very clearly with the surveys we did get back.

Question #4: How large is your organic production area?

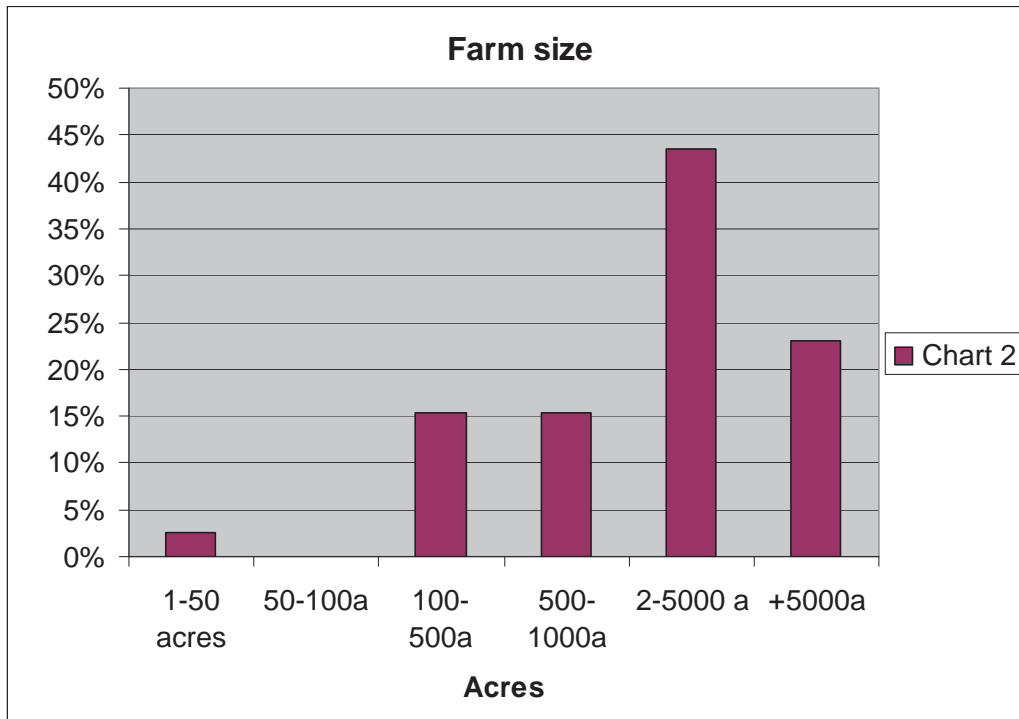


Chart 2 (39 answers)

Most organic grain farms in Montana are relatively large compared to other parts of the United States. There are very few organic grain farms with less than 100 acres, most of the farms are over 2000 acres, and over 20% of the producers are farming over 5000 acres organically.

Question #5: How much average annual rainfall does your area receive?

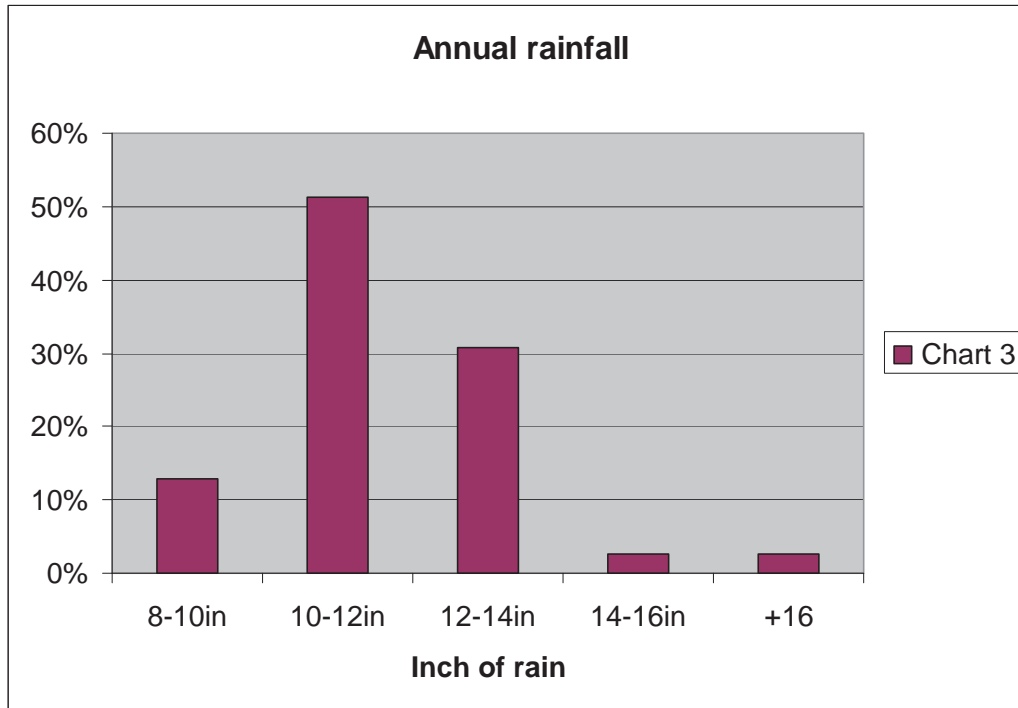


Chart 3 (39 answers)

Nearly all organic grain farms are in a semi dry area, on the plains east of the Rocky Mountains. Over 50% of the producers receive between 10-12 inches of annual rainfall, with around 12% getting below 10 inches. The producers that receive over 14 inches are located in the foothills of the mountains where weather systems can create more moisture when they are pressed against the mountains ranges.

Question #6: What is the primary make up of your soil structure?

Producers answered this question with listing a variety of different soils types for their farms. The most common soils are sandy loam, loam, clay loam, and heavy clay loam. Some producers also report some gumbo, silt, and clay soil at their farms.

Question #7: What tillage practices are most effective in managing soil conservation?

A summary of the answers indicates that there are two main ways that producers address soil conservation on their fields.

One very common practice is through the use of a cultivator with flat angle shovels as well as a rod weeder and keeping the speed down.

The other main practice is the use of a Noble blade with a rod weeder to keep stubble on the top.

A few farmers have used partial no-till. A closer look at the data shows that this practice seems to have been used in no-tilling peas for green a manure crop during spring. There also is one producer who practices contour tillage on his hilly fields.

Question #8: What is the most challenging agronomic issue for your organic operation?

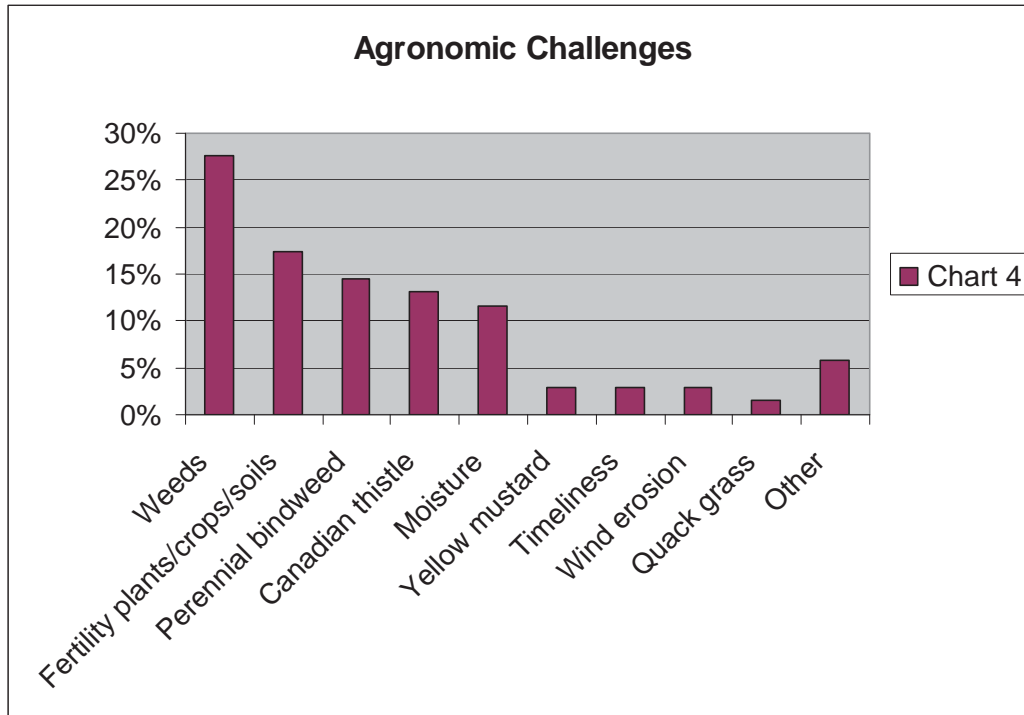


Chart 4 (69 answers)

Many organic grain producers listed several challenges when answering this question. Looking at the chart it is very clear that weeds, fertility plants/crop/soils, and moisture are the most challenging issues.

The weed issues are clearly the most challenging, when combined they add up to 59% of the answers (weeds, perennial bindweed, quack grass, Canada thistle, yellow mustard). The chart shows that perennial bindweed and Canadian thistle are clearly the most challenging of the weeds.

The other main agronomic challenge is the fertility of plants/crops/soils in the organic production.

Moisture is clearly an issue too, but that should be no surprise since most producers are in a low rainfall area.

The issue of timeliness relates clearly to the size of the organic grain operations in Montana because it is difficult to get over all acres in one day.

Chapter 2: Crops and Crop Rotations in Your Organic Operation

Question #9: Which crops have you had success producing?

Crops	Very Successful	Moderately Successful	Unsuccessful	None or limited experience	N/A	Number of farmers
Spring wheat	20	17	0	0	0	37
Hay	17	9	1	1	4	32
Barley	17	12	1	1	3	34
Winter Wheat	16	11	2	1	7	37
Peas	6	21	4	1	3	35
Lentils	4	9	12	3	4	32
Seed	3	14	0	4	5	26
Flax	1	14	5	2	9	31
Other	10	6	4	0	0	20

Table 1

Table 1 shows the eight main crops listed in the survey by producers to indicate their level of success. Spring wheat, hay, barley and winter wheat are ranked very high in success. Those are crops that are commonly known to grow well in Montana. Most spring wheat producers are located along the Highline and in the eastern part of the state, whereas the winter wheat producers are mainly located in the central part of the state.

Regarding legumes, producers have more success growing peas than lentils. 74% of producers have been very successful or moderately successful in growing peas whereas 40% of the producers say that they have been very successful or moderately successful in growing lentils. It is worth pointing out that 38% of the producers have been unsuccessful in growing lentils in their organic systems.

Seed production is meant as a general term referring to all different kinds of seed production that the organic producer might have done or is doing. There is no one that has been unsuccessful in producing seed. About 2/3 have been very successful or moderately successful and about 1/3 have no or limited experience or did not grow seed or did not answer.

Producing flax seems to be moderately successful for about for 48% of the farmers that indicated that they have grown this crop, some have been unsuccessful and 35% say that they have no or limited experience or do not grow flax.

Some producers also listed other crops that they have produced very successfully such as Kamut, oats, durum, spelt, rye, and triticale. Some producers have had moderate success producing crops such as buckwheat, safflower, and millet. Other producers have listed chick peas, waxy barley, and safflower as unsuccessful crops.

Question #10: What factors influence your yields the most?

Yield Influences	Major influence	Moderate influence	Minor influence	No influence	Number of farmers
Rainfall	33	6	0	0	39
Soil fertility/nutrient deficiencies	21	9	5	0	35
Weeds	14	16	7	0	37
Variety	4	9	14	5	32
Pests	3	6	17	8	34
Diseases	1	5	19	7	32
Other	6	0	0	0	6

Table 2

Table 2 shows the seven factors that were listed in the survey by producers to indicate their level of influence on yields. It is very clear that rainfall is the factor that influences the yields the most with 85% of the farmers indicating that rainfall is a major factor.

Soil fertility/nutrient deficiencies are a major influence to moderate influence on yields with 85% of the answers from producers.

Weeds are a major influence to moderate influence on yields with 81% of the answers from producers.

Most producers indicate that varieties, pests and diseases are moderate influence to minor influence on yields.

Under Other, some farmers listed major influences on their specific operations such as timeliness as well as wild oats and frost as major influences.

Question #11: What factors influence your grain quality the most?

Grain Quality	Major influence	Moderate influence	Minor influence	No influence	N/A	Number of farmers
Protein content	27	5	3	0	0	35
Test weight	12	14	8	1	0	35
Grade quality	9	16	5	2	1	33
Other grading factors	4	4	9	1	2	20
Gluten /milling strength	3	11	8	2	3	27
Color	4	10	9	4	1	28
Oil content	4	0	3	9	8	24
Fiber content	1	2	4	10	7	24
Gluten free	0	2	5	8	9	24
Other	2	1	0	1	0	4

Table 3

Table 3 shows 10 factors listed in the survey by producers to indicate their level of influence on grain quality. Protein content is biggest major influence on grain quality, followed by test weight and grade quality.

Most farmers indicated other factors like gluten/milling strength and color that have moderate to minor influence on grain quality.

The farmers that indicate that oil content is a major influence are also those farmers that grow specialty crops like safflower, and flax.

A lot of farmers indicated that oil content, fiber content, and gluten free have no influence or N/A to their grain quality. These farmers don't grow crops where these factors are of influence. Under "Other," a few farmers listed falling number and ergot as a major influence.

Question #12: Describe what grain, seeds, legumes, forages, or green manures, and their sequence, that makes up your rotation?

Table 4 is a list of all the different rotations provided by the survey respondents. There are nearly as many crop rotations as there are farmers. Each farmer has his own reasons for choosing the rotations that work on his farm. One farmer did not write down his rotations but wrote this instead: "Each year is different and I think it is a mistake to have a definite crop rotation - you always have to work on soil fertility and have to be able to react quickly to moisture events." Another farmer wrote: "-not carved in stone-"

Different crop rotations

#	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
1	SW	Fallow	WW	Pea plow down				
2	WW	Fallow	SW	Pea plow down				
3	Pea plow down	Wheat	Pea (crop)	Barley				
4	WW/SW	Winter Pea plow down	Kamut	Pea plow down	Safflower	Barley + alfalfa	Alfalfa hay	Alfalfa green manure
5	2 year of legumes in a 5 year rotation							
6	Wheat	Pea plow down						
7	2 year grain, 4 year hay							
8	Spring crop w. legume	Green manure	Spring crop w. legume	Fallow	Winter crop	Green manure	Alternative crop	
9	Peas	Wheat	Barley	Buckwheat	Alfalfa/sanfoin			
11	50% grain (wheat, Kamut, barley), 30% fallow, 20% green manure							
12	Hay 5 years	Plow down hay field	SW	Fallow	SW	Lentils	SW	Fallow
13	Green manure	Spring grain	Legume	Spring grain				
14	3-5 years of alfalfa/sanfoin	SW	W. triticale	Peas	Barley+alfalfa/sanfoin			
15	50% grain, 30% fallow, 20% green manure							
17	WW	Fallow	WW	Fallow	WW	Pea plow down	SW	
18	WW	Peas	Barley	Pea plow down	Kamut	Pea/lentil		
20	Grain	Fallow	Grain	Pea plow down				
21	SW	Fallow	Pea/lentil	Fallow	Flax			
22	Clover plow down	Durum	Flax	SW	Barley +clover			

23	SW	Sanfoin/flax	Sanfoin hay	Sanfoin /grass pasture		Fallow	SW + clover	Clover plow down
24	W. rye	Clover plow down	SW/Kamut	Fallow				
26	Clover/medic plow down	SW	Clover/medic plow down					
27	Grain	Green manure	Grain	Legume	Grain			
28	SW	Fallow	Barley	Fallow				
29	Fallow	Wheat	Alternative crop	Fallow				
30	Spring grain	Green manure	Fall grain	Broadleaf	Spring legume			
32	SW	Kamut	Durum	Green manure				
33	SW	Fallow or pea/clover plow down						
34	Alfalfa 10 years	Cereal crop						
35	Alfalfa 7 years	WW	WW					
36	Legume	Cereal grain	Fallow					
37	SW	Fallow	Durum	Fallow	WW	Fallow		
38	WW	Fallow	SW	Fallow	Kamut			
39	Hay	Wheat	Barley	Pea/lentil	Oats	Hay	Hay	Hay
40	Small grain	Fallow	Small grain	Legume plow down	Small grain	Hay for 5-8 years		

Table 4

Question #13: What factors influence your selection of crop rotations?

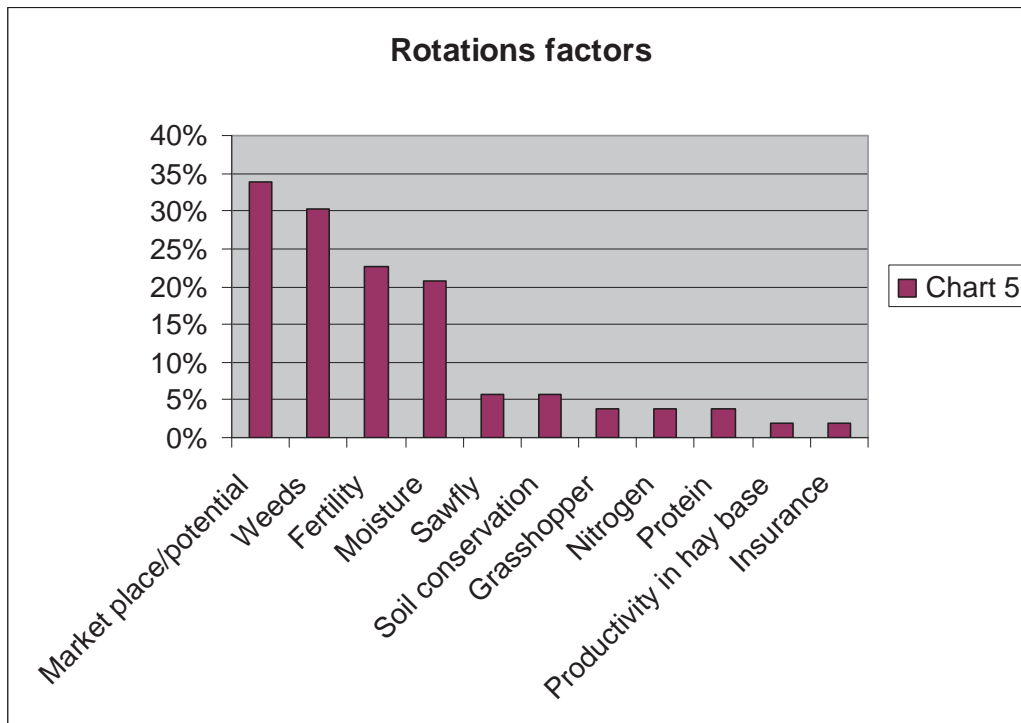


Chart 5 (53 answers)

Many organic grain producers listed several factors when answering this question. The market place is the main factor for what kind of crop a producer chooses to grow. Weeds are the second major factor in selection of crops, followed by fertility and moisture.

Chapter 3: Green Manure/Cover Crops in Your Organic Operation

Question #14: Have you grown a green manure crop as part of your rotation?

86% of the producers answered “Yes”

16% of the producers answered “No”

Question #15: Please list the crops grown as green manure?

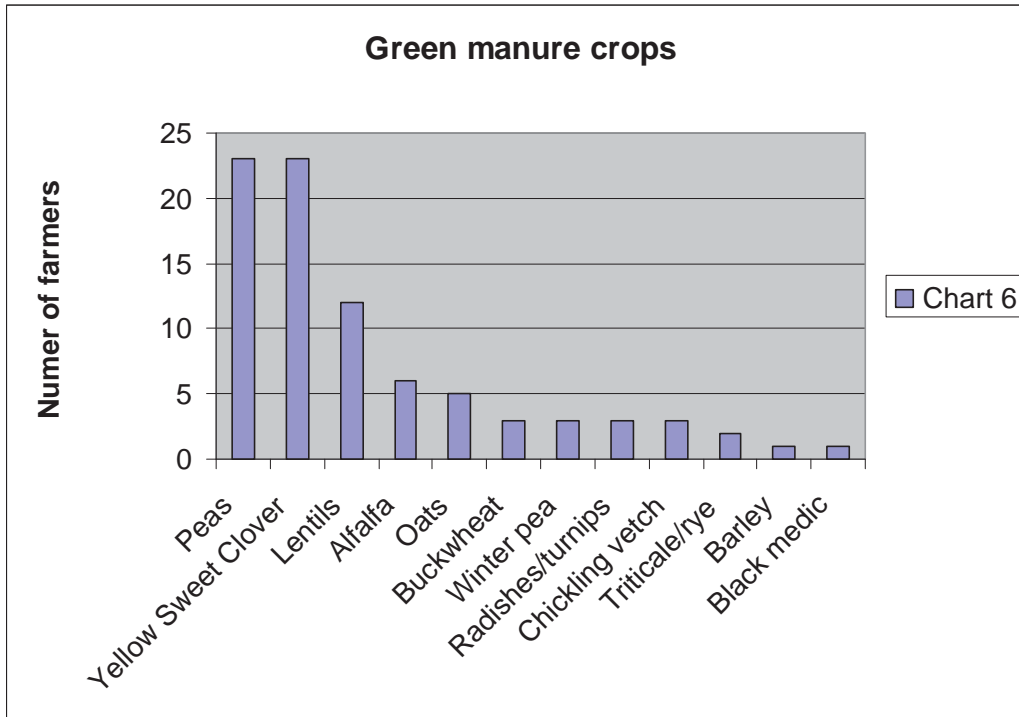


Chart 6 (85 answers)

Many organic grain producers listed several green manure crops in response to this question. Peas and yellow sweet clover are the two main green manure crops. Note the total number of producers that use either the peas or the yellow sweet clover is the same. Lentils are the third main green manure crop followed by a number of other crops.

Question #16: How much of your cropland is in green manure each year?

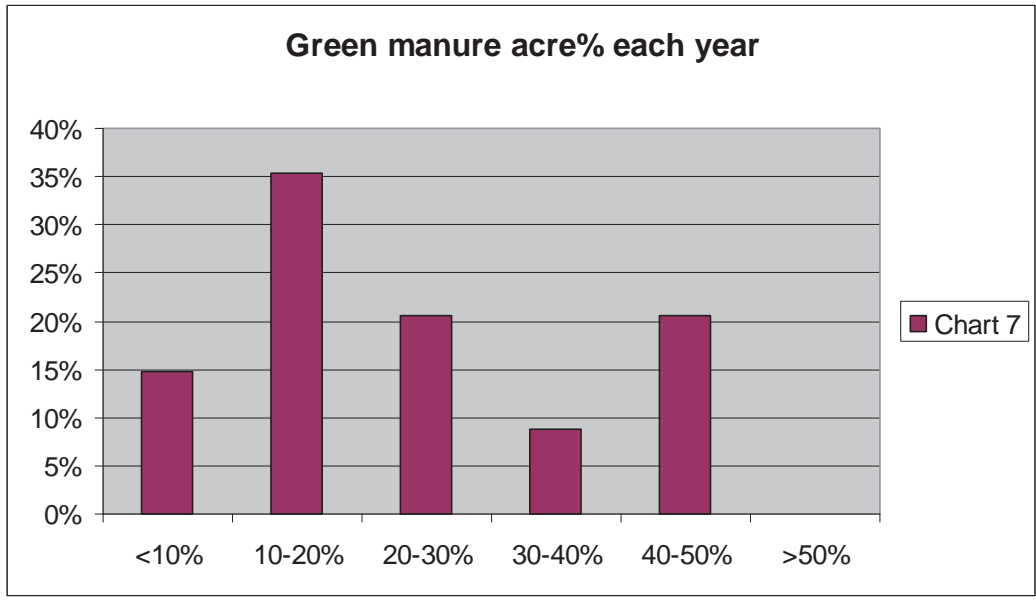


Chart 7 (33 answers)

The amount of green manure acre% varies a lot from producer to producer. The main group of producers is using 10-20% of the cropland for green manure each year. The other two main groups are using 20-30% and 40-50% of their cropland for green manure. The producers that use 40-50% of their cropland are both the producers with 100-500 acres as well as the producers that have over 5000 acres.

It is interesting to note that the level 30-40% is lower than the 40-50%.

Producers that are using <10% seems to correspond very well with the amount of producers that answered “No” to Question #14, “Have you grown a green manure crop as part of your rotation?”

Question #17: What are the greatest benefits of your green manure crops?

Green Manure Benefits	Great Benefit	Moderate Benefit	Limited Benefit	No Benefit	Number of farmers
Build soil fertility	25	5	1	1	32
Break weed, disease, insects pest cycles	20	7	4	1	32
Improve soil structure	17	10	2	2	31
Control weeds	16	9	4	3	32
Reduce soil erosion	9	9	9	3	30
Other	1	1	0	0	2

Table 5

Most farmers indicated that green manure has great benefit on building soil fertility and the ability to break weed, disease, and insect pest cycles. Most farmers also indicate that green manure crops have great to moderate benefit in improving soil structure and controlling weeds.

Regarding green manure crops' ability to reduce soil erosion, the answers show a spread from no benefit to great benefit. Looking closer at the data neither crop chosen, termination practice, soils, or location in Montana could explain the different answers in regards to manure crops' ability to reduce soil erosion

Question #18: What are your biggest challenges with your green manure production?

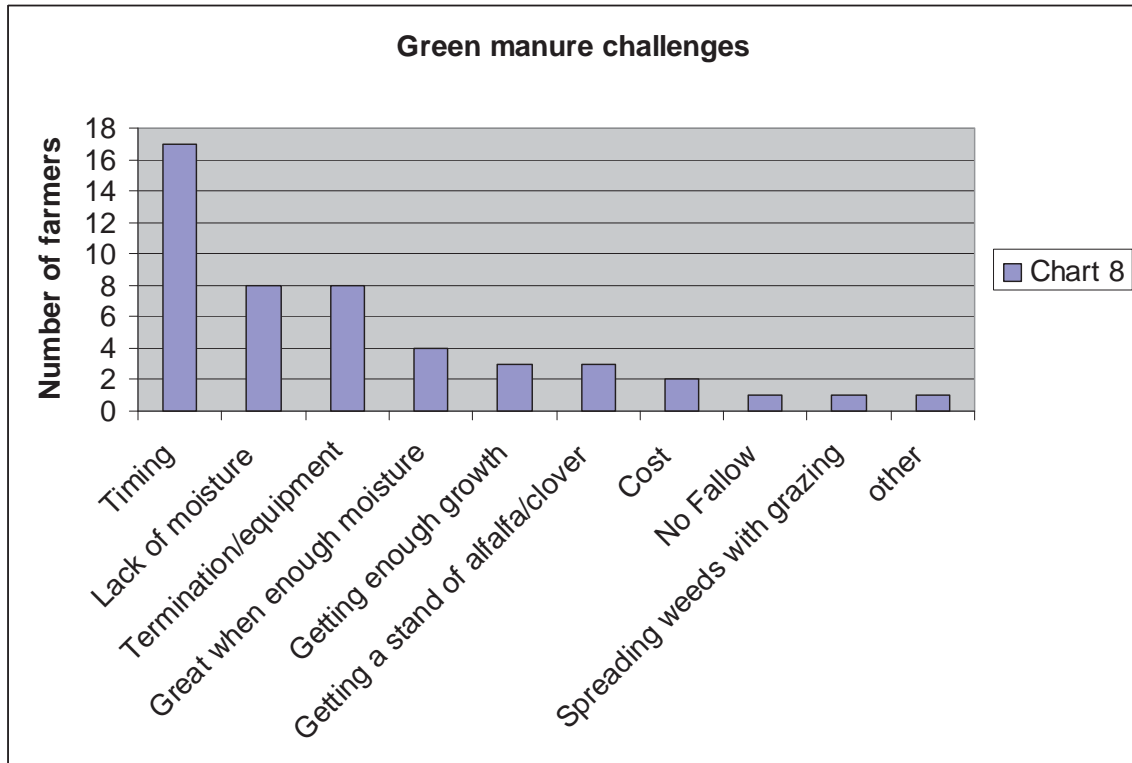


Chart 8 (48 answers)

The biggest challenge that most producers report having with green manures is timing; the window for terminating the crop at the right time creates problems because most farmers have to cover a lot of ground in a very short period of time.

Lack of moisture is a challenge that correlates with getting enough growth and getting a good stand of alfalfa/clover. Termination/equipment is one of the big challenges in green manure production; if you don't have the right equipment and it gets dry it becomes very difficult to terminate a green manure crop or if you have too much material to move through your equipment it creates problems.

A few farmers responded that the cost of green manure crops is a challenge. The cost of putting in a green manure in seed, fuel and machinery as well as not having a crop per year is significant. One producer answered that his cattle are spreading weeds when grazing his green manure and it is a big problem.

Question #19: Was terminating the green manure an issue, and how was it done?

Five farmers answered that terminating green manure is an issue (that correlates well with the “termination/equipment” answer in Question #18). Farmers also indicated that peas are easy to terminate and that alfalfa/clover takes more tillage to terminate.

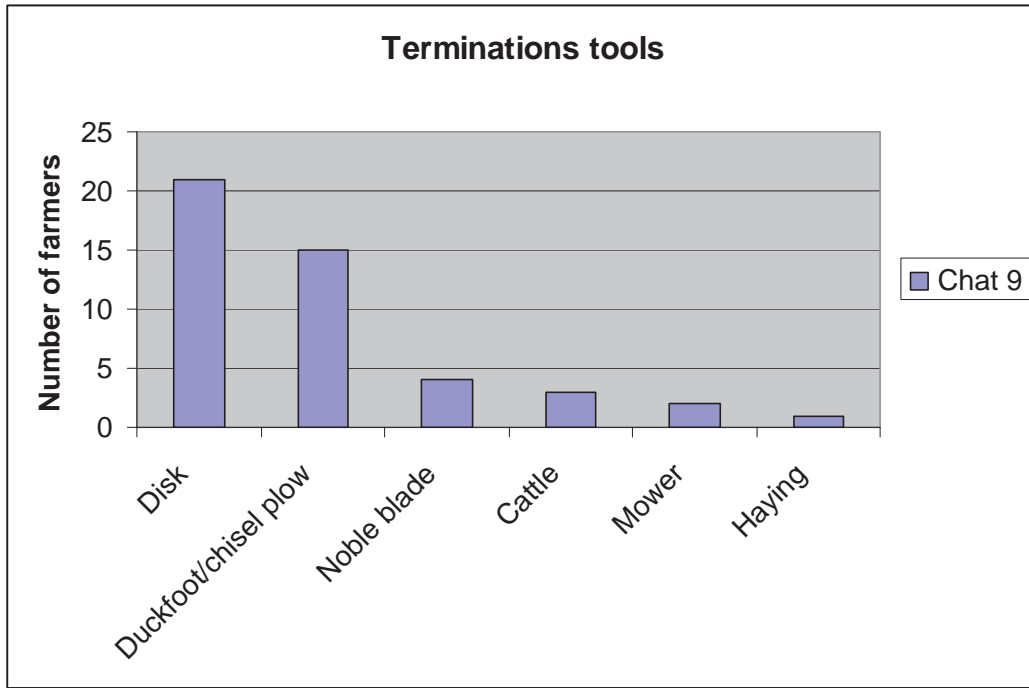


Chart 9 (46 answers)

The most common termination tool is a disk followed by a duckfoot/chisel plow. Some producers are using a Noble blade primarily in terminating peas. A few producers are using cattle as a tool to terminate a green manure crop.

Question #20: Do you think green manure compromises soil moisture and nutrient availability?

Compromises soil moisture: YES = 28 answers
Compromises nutrient availability: NO = 18 answers

Most organic producers say that green manure compromises soil moisture and that green manure does not compromise nutrient availability but recycles nutrients instead. A lot of producers also say that timely termination is of importance to save moisture. Here are some experiences and comments from organic producer respondents:

- “Yes it takes soil moisture, nutrient no because you are putting them back”
- “Yes, green manure uses some moisture but the benefits outweigh this negative aspect”
- “In our dry land situation it can use up moisture but the benefits outweigh that”
- “In my area they use way too much moisture”
- “On a dryer year a big concern on moisture”
- “It certainly can if you let it go too long – again each year is different”
- “It certainly uses moisture and needs to be terminated timely”

- *“Yes, especially if not terminated early enough”*
- *“Clover definitely compromises soil moisture”*
- *“Definitely – uses all or most of the moisture and ties up nutrients for some time”*
- *“No, it adds to nutrient availability, little effect on moisture”*
- *“They can especially if termination is delayed after June 15th”*
- *“Nutrients are recycled.”*
- *“No, if terminated successfully in a timely manner”*

Question #21: Would you consider incorporating livestock to manage green manure/cover crops?

12 producers answered:..... Yes
 6 producers answered:..... No
 5 Producers answered:..... Maybe
 14 producers answered:..... Already

Six producers answered “No” to incorporating livestock to manage green manure/cover crops, while five producers answered maybe. Twelve producers would consider using livestock while 14 producers were already using livestock. Several producers pointed out that incorporating livestock to manage green manure/cover crops would include an investment in fences, water, livestock and infrastructure to handle livestock. The overall positive response suggests a strong interest incorporating livestock as a green manure management tool.

Chapter 4: Weeds in Your Organic Operation

Question #22: What crops are influenced the greatest by weeds?

Crops Influenced by Weeds	Major Influence	Moderate Influence	Minor Influence	No Influence	Number of farmers
Lentils	23	4	0	2	29
Flax	15	4	1	0	20
Peas	11	14	3	0	28
Spring wheat	5	20	9	1	35
Winter wheat	6	13	9	1	29
Hay	4	2	14	4	24
Barley	2	9	13	1	25
Seed	3	7	2	2	14
Other	3	2	3	0	8

Table 6

The crop that is influenced the greatest by weeds is lentils, followed by flax. Neither crop competes well against weeds. Producers also answered that peas are also majorly to moderately influenced by weeds. The cereal crops (spring/winter wheat, barley) are more moderately to less influenced by weeds. Producing hay is the crop that is least influenced by weeds.

Other crops that producers answered are majorly influenced by weeds are safflower and buckwheat whereas rye, oats, and chickling vetch have a less influenced by weeds.

Question #23: List up to 10 weed species on your farm and rank how hard they are to manage

The organic producers listed a total of 37 different plants defined as weeds, some perennial and some annual. Each weed is given a number from 1-4 in how easy/hard it is to manage. The higher the number the harder the weed is to manage. The total answers from organic producers give perennial weeds an average number of 3.13 and annual weeds an average number of 1.90. Perennial weeds are much harder to manage than annual weeds.

Perennial Weeds	Easy (1)	Difficult but manageable (2)	Hard (3)	Impossible (4)	Average score	Number of farmers
Canada thistle	1	7	20	6	2.91	34
Bindweed/morning glory	0	4	7	15	3.42	26
Leafy spurge	0	0	4	3	3.43	7
Whitetop	0	1	1	2	3.25	4
Knapweed	0	0	1	2	3.67	3
Hounds tongue	0	2	1	0	2.33	3
Dandelion	0	1	1	0	2.50	2
Quackgrass	0	0	2	0	3.00	2
Blue lettuce	0	0	2	0	3.00	2
Milkweed	0	0	1	0	3.00	1

Table 7

Table 7 indicates the perennial weeds listed and number of farmers that answered. Bindweed/morning glory and Canada thistle are two perennial weeds that most farmers have problems with. The bindweed/morning glory average score is 3.42 which makes them a lot harder to manage than Canada thistle that has an average score of 2.91.

There are a number of noxious weeds like leafy spurge, whitetop, knapweed, hounds tongue that some farmers have problems with. They all score very high, with knapweed at the highest average score at 3.67.

A few farmers have problems with dandelion, quackgrass, blue lettuce and milkweed, most of these weeds being hard to manage with a score around 3.

Annual Weeds	Difficulty Level				Average score	Number of farmers
	Easy (1)	Difficult but manageable (2)	Hard (3)	Impossible (4)		
Wild oats	2	7	13	0	2.50	22
Cheat grass	3	7	4	0	2.07	14
Kochia	8	5	1	0	1.50	14
Russian thistle	5	6	2	0	1.77	13
Wild mustard	1	5	5	0	2.36	11
Wild Buckwheat	1	5	2	0	2.13	8
Fan weed/pennycress	3	4	1	0	1.75	8
Tansy mustard	4	2	1	0	1.57	7
Lambs quarter	5	0	1	0	1.33	6
Pigweed	5	1	0	0	1.17	6
Wild sunflower	2	2	0	0	1.50	4
Pigeon grass	0	2	1	1	1.17	4
Sweet clover/alfalfa	2	1	0	0	1.33	3
Prickly lettuce	1	0	1	0	2.00	2
Cow cockle	1	1	0	0	1.50	2
Persian darnel	2	0	0	0	1.00	2
Bastard toadflax	0	0	1	0	3.00	1
Foxtail weed	0	0	1	0	3.00	1
Narrowleaf Hawksbeard	0	1	0	0	2.00	1
Rye	0	1	0	0	2.00	1
Goat grass	0	1	0	0	2.00	1
Waterhemp	0	1	0	0	2.00	1
Wild radish	1	0	0	0	1.00	1
Common mallow	1	0	0	0	1.00	1
Ragweed	1	0	0	0	1.00	1
Lambs ear	1	0	0	0	1.00	1
Purslane	1	0	0	0	1.00	1

Table 8

In Table 8, organic producers listed a total of 27 annual weeds with about 10 annual weeds that give the most problems. Of those weeds, the largest number of producers answer that wild oats is the main annual weed that gives the problems with a score of 2.50. Nearly 60% said it is

“hard” to manage wild oats. Of the grass weeds, cheat grass is the one that most producers have problems with and it has a score of 2.07.

Both kochia and Russian thistle are also weeds that give problems. Interestingly, they are both members of the Goosefoot Family with the number of farmers and their scores being very similar. The mustard family gives some organic producers problems: yellow mustard has a higher score than tansy mustard and more producers have problems with it.

Wild buckwheat and fan weed/pennycress are part of the top 10 annual weeds. Wild buckwheat has a score 2.13 and fan weed/pennycress a score of 1.75.

There are a number of weeds from lamb’s quarter and pigweed to lamb’s ear and purslane that a small number of producers have listed. Most of these weeds have a lower score and seem to be relatively easy to manage. There are a few weeds that give individual producers problems, like Foxtail weed and Bastard toadflax.

Question #24: Would you consider incorporating livestock to manage weeds?

- 11 producers answered:..... Yes
- 8 producers answered:..... No
- 7 Producers answered:..... Maybe
- 11 producers answered:..... Already
- 2 producers answered:..... Other

The answers are very similar to Question #21, *Would you consider incorporating livestock to manage green manure/cover crops?*

The producers that answered “*Other*” have used livestock in the past with great benefits but are currently not running livestock.

Question #25: What weed research do you feel is most needed?

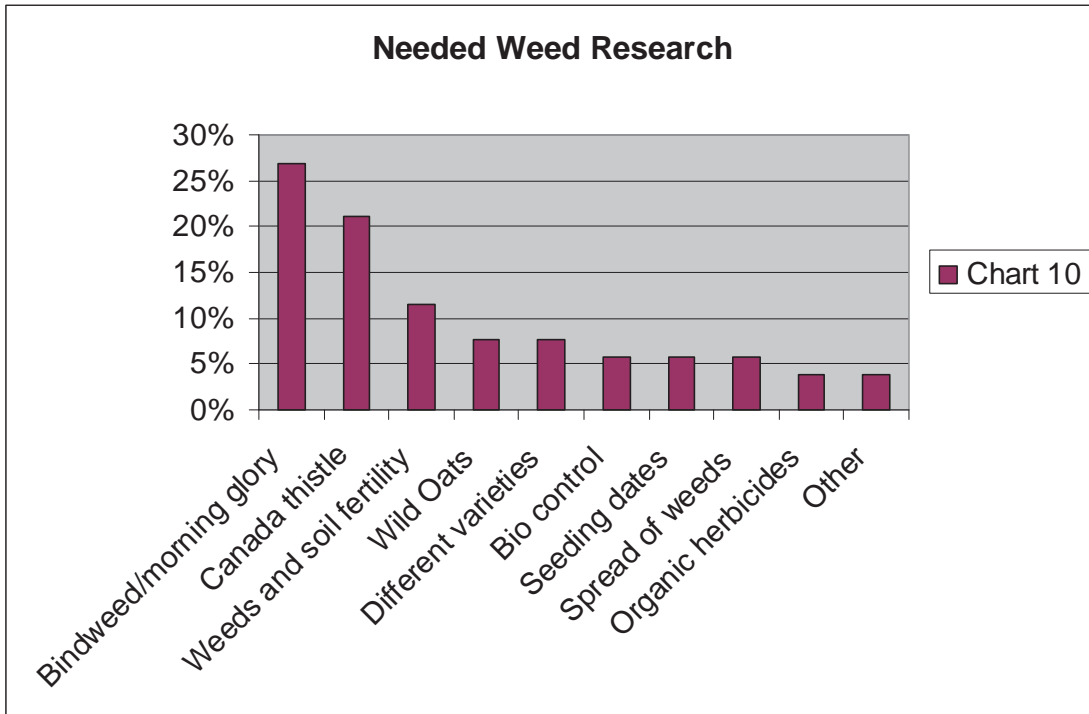


Chart 10 (52 answers)

The most needed weed research is on the perennial weeds with bindweed/morning glory showing 27% of all answers. The organic producers also answered that Canada thistle is very high on research needs with 21% of the answers. These answers correlate well with the answers in Question #23 (List up to 10 weed species on your farm and rank how hard they are to manage) that show that these perennial weeds are the hardest to manage.

An interesting category is weeds and soil fertility. 12% say that research in understanding how weeds and soil fertility connect is important. This answer correlates different answers like: *“How do weed species contribute to soil fertility?”*, *“Fertility interactions...what soil conditions for specific weed species,”* *“...if any weeds have/produce nitrogen qualities?”*, and *“...why they grow where they do and what their purpose is relating to the soil deficiencies?”*

Other research needs indicated is on wild oats, and how different varieties can help control weeds. Both received 8% of the answers. There is also a number of research ideas, like bio control of weeds, how different seeding dates can help control weeds, how to minimize the spread of weeds, and organic herbicide, that some organic producers are listing as important.

Chapter 5: Diseases in Your Organic Operation

Question #26: What crops are influenced the greatest by disease?

Disease	Major Influence	Moderate Influence	Minor Influence	No Influence	Number of farmers
Spring wheat	1	5	19	5	30
Winter wheat	1	6	12	5	24
Peas	1	7	13	3	24
Lentils	1	5	9	4	19
Flax	0	0	8	6	14
Hay	0	1	12	7	20
Barley	1	4	14	5	24
Seed	0	2	8	3	13
Other	0	0	1	0	1

Table 9

Table 9 shows that organic grain producers have very few issues with diseases. For most producers crops are diseases are only a minor influence or there is no influence by diseases.

Only a few producers listed moderate influence by diseases on the cereal grains and the legumes.

Question #27: List up to 5 diseases on your farm and how hard they are to manage

Diseases	Easy	Difficult but manageable	Hard	Impossible	Number of farmers
Rust	3	2	1	0	6
Root rot	0	2	2	0	4
Mosaic	3	0	0	0	3
Smut	2	0	1	0	3
Ergot	1	1	1	0	3
Tan spot	1	0	1	0	2
No mayor diseases	2	0	0	0	2
Barley stripe	1	0	0	0	1
Leaf spot	1	0	0	0	1
Disease on peas	1	0	0	0	1

Table 10

Very few organic producers answered this question, and several noted that they only had problems in wet years. Most diseases are related to cereal grains like rust, root rot, mosaic, smut, ergot, tan spot, barley stripe, and leaf spot. It is difficult to draw any conclusions with so few answers.

Question #28: What disease research do you feel is most needed?

Only eight organic producers answered this question and four of the producers answered that they had no suggestions. Better varieties, general research, rotation cycle timing, and wheat smut were all suggested by the other producers.

With so few organic producers answering this question, it can be concluded that there currently is no perceived need to do disease research within organic production systems in Montana.

Chapter 6: Pests in Your Organic Operation

Question #29: What crops are influenced the greatest by insects?

Pest	Major Influence	Moderate Influence	Minor Influence	No Influence	Number of farmers
Spring wheat	7	11	11	2	31
Winter wheat	6	4	11	3	24
Peas	1	5	13	5	24
Lentils	1	3	11	5	20
Flax	0	3	7	3	13
Hay	3	7	8	3	21
Barley	1	3	13	2	19
Seed	0	3	6	1	10
Other	1	1	0	1	3

Table 11

The organic producers only marked those crops that they grow, and Table 11 illustrates that. Spring wheat is the crop that has most answers and it shows some producers have major issues with pests, and most producers have a moderate to minor problem with pests. Winter wheat has a similar picture where some producers have major problems and most producers have a minor to moderate problem.

The only other crop where pests influence things are hay and, again, some have major problems while most have moderate to minor issues.

Concerning peas, lentils, flax and barley, most producers answered that pests are only a minor influence.

Question #30: List up to top 5 insects you see, and how hard they are to manage

Pest	Easy	Difficult but manageable	Hard	Impossible	Number of farmers
Grasshopper	4	6	10	5	25
Sawfly	3	4	8	2	17
Alfalfa weevil	2	3	3	3	11
Wheat aphids	2	1	1	0	4
Mites	0	0	1	1	2
Cut worm	0	0	1	1	2
Mosquitoes	0	0	0	1	1
Wire worm	0	0	0	1	1
Potato beetle	0	1	0	0	1
Sunflower beetle	0	1	0	0	1

Table 12

The insects that most producers have problems with are grasshoppers. Most producers answered that it is hard to manage them, while some say it is easy and some say it is impossible.

The same picture applies to sawfly and alfalfa weevil, where most producers say it is hard to manage, some say it is easy and some say it is impossible. It seems some have worked out how to deal with these insects, and maybe there is something that others can learn from these producers.

There are a number of other insects from wheat aphids to sunflower beetle, which very few organic producers listed as a problem. It seems that these insects are site-specific for individual producers, and the majority of organic producers do not have problems with these insects.

Question #31: What pest research do you feel is most needed?

Pest Research	Number of farmers
Sawfly	6
Alfalfa weevil	4
Grasshopper	4
Bio control	3
Flea Beetles	1

Table 13

Very few organic producers answered this question. The main research that producers feel is needed is on sawfly, alfalfa weevil, grasshopper, and bio control. These pests are also those that most producers listed in Table 12 as problematic.

Chapter 7: Soil Nutrition in Your Organic Operation

Question #32: Do you do soil fertility testing?

39 organic producers answered the question.

Yes: 67% (26 producers)

No: 33% (13 producers)

The following two questions (#33, #34) are answered only by the producers that answered **yes** to question 32.

Question #33: How frequent do you do soil testing?

Soil testing	Every year	Every 2 years	3-4 years	4-5 years	> 5 years
Number of farmers (26)	3	5	9	3	6
Percent	12%	19%	35%	12%	23%

Table 14

Question #34: At what density do you do soil testing?

Field density	Every field	Most fields	Few fields	Other
Number of farmers (26)	6	9	10	1
Percent	23%	35%	38%	4%

Table 15

The answers in questions #32, #33, and #34 give a good overview on how organic producers relate to soil testing, frequency and density of soil testing.

33% of the producers do not take any soil tests. 67% of the producers take soil tests on some kind of regular basis, where fewer do it every year, most every 3-4 years and some >5 years. Some farmers take a soil test on every field, others on most fields and most producers take a soil test on a few fields. The producer answered "Other" takes a soil test on every 80 acres. It seems like every producer has his own way of soil testing his fields, with some doing it very frequently on every field and some doing it many years apart on few fields.

Question #35: Do you believe you have nutrient deficiencies in your soil?

Nutrient Deficiencies	Yes	No	Don't Know
Number of farmers (39)	31	6	2
Percent	79%	15%	5%

Table 16

A large majority of organic producers believe that they have nutrient deficiencies in their soils. There are six producers that don't believe they have deficiencies in their soils. Those two producers that answered "Don't know" do not take soils test.

Question #36: If you know, list the top 5 nutrient deficiencies affecting your organic crops

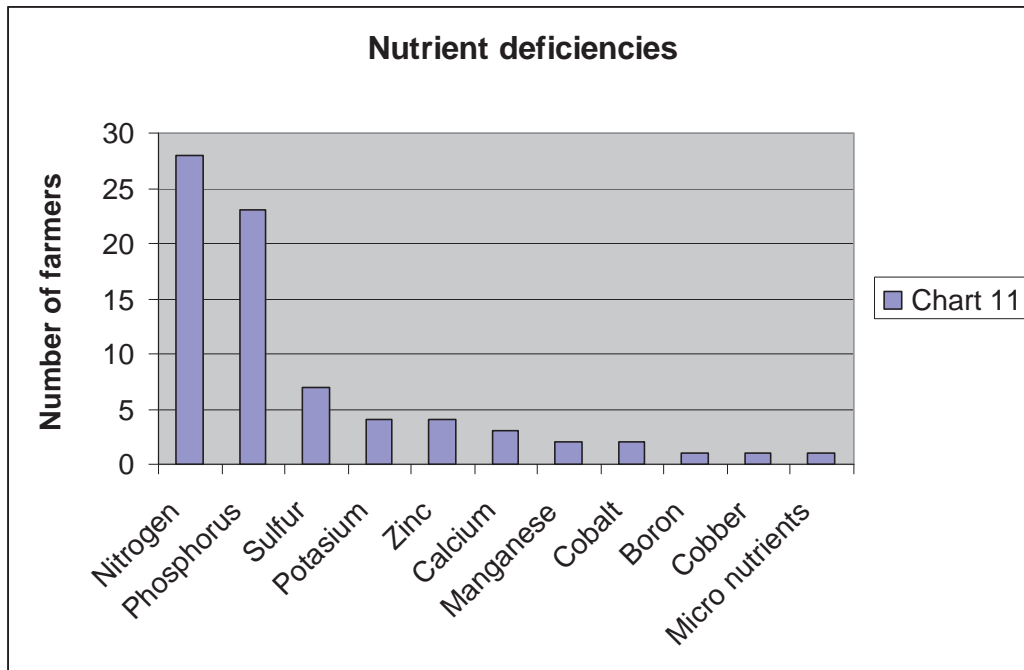


Chart 11 (76 answers)

Most organic producers only listed two nutrient deficiencies as answers: nitrogen and phosphorus. Very few producers listed a number of other elements and trace minerals as nutrient deficiencies.

Question #37: How do you address the deficiencies in your soils?

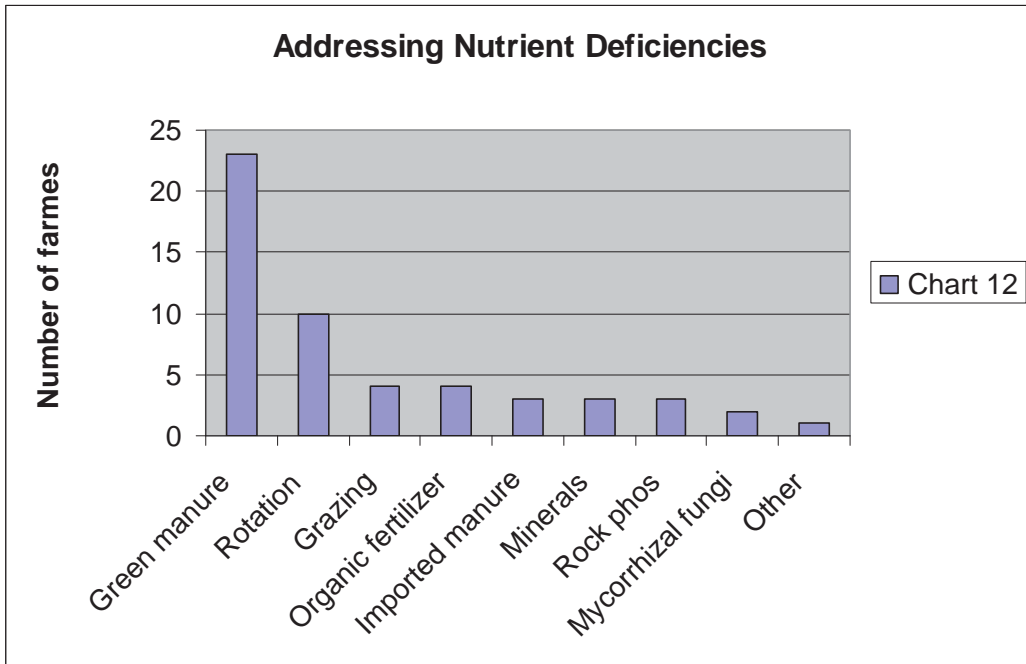


Chart 12 (53 answers)

Most organic producers address nutrient deficiencies through the use of green manure crops. Some are also using rotations of different crops to address deficiencies. Very few are using livestock through grazing. Fewer producers are using imported things like organic fertilizer, manure, minerals, rock phosphate, and mycorrhizal fungi.

Question #38: What factors determine whether you add organic fertilizers or not?

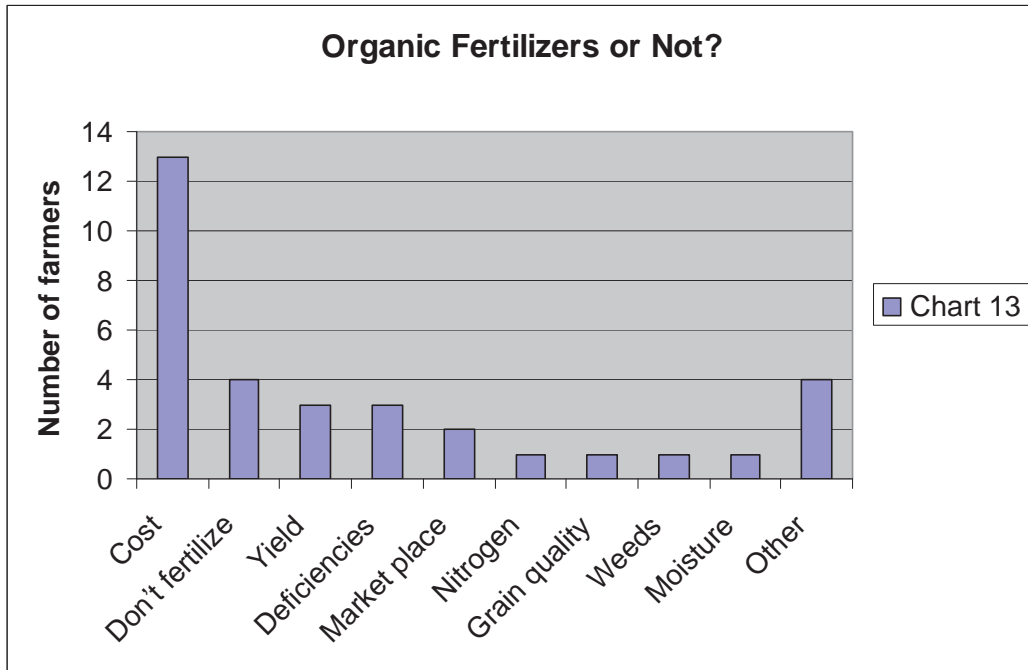


Chart 13 (33 answers)

A closer look at the data shows that 15 organic producers did not answer this question, and the data shows that nearly all these producers are those that do not take soil tests (see Question #32).

With that in mind the graph “*Don’t fertilize*” will probably be the biggest answer, and shows a lot of organic producers don’t fertilize.

Cost is a major factor that determined if a producer uses organic fertilizers.

Yields and deficiencies are factors some producers use as whether to add organic fertilizers or not. There are a number of other factors like market place, nitrogen, grain quality, weeds, and moisture that some producers use to determine whether to add organic fertilizers or not.

Question #39: What soil fertility research do you feel is most needed?

Soil fertility research suggestions	Number of farmers
Green manure	4
Plants relation to soil fertility	4
Phosphorus availability	4
Organic fertilizer	4
Micronutrients	4
Crop rotations	3
Livestock manure	1
Rotation for nutrients management	1
Other	1

Table 17 (26 answers)

There is no clear answer to this question. However, based on this comment from one respondent, there may still be value drawn out that will make sense: *“Would it be possible to gain a deeper understanding of plants (weeds and different crop plants) in relation to soil fertility -- both phosphorus availability and micronutrients through the use of green manure/cover crops and crop rotations.”*

Chapter 8: Marketing Issues in Your Organic Operation

Question #40: What crops face the biggest challenge to market?

In Question 40 we asked respondents to give each crop a number from 1-4 in how easy/hard it is to market. The lower the number the easier the crop is to market.

Marketing Organic Crops	Easy (1)	Difficult but manageable (2)	Hard (3)	Impossible (4)	Average score	Number of farmers
Spring wheat	26	4	3	0	1.30	33
Winter wheat	15	8	2	0	1.48	25
Peas	15	5	1	1	1.45	22
Lentils	12	5	3	1	1.67	21
Flax	8	7	1	0	1.56	16
Hay	6	9	6	0	2.00	21
Barley	11	11	3	0	1.68	25
Seed	0	6	4	1	2.55	11
Other	4	4	2	0	1.73	10

Table 18

Looking at the average score for the different crops in regards to markets, it is very clear that all organic crops score relatively low and are relatively easy to market. The easiest crop to market is spring wheat at a score at 1.3. Crops like peas, winter wheat, flax, lentils, and barley have a little higher score than spring wheat but are still relatively “easy” to “difficult but manageable” to market. It is worth pointing out that there are several organic processors in Montana that serve the organic producers well.

Organic hay has a score of 2 and is somehow “difficult but manageable” to market. This is probably because there are only so many organic livestock producers in Montana, and most of these produce their own hay, in some years they are in need of extra hay and in other years not. There is a market for top quality organic dairy hay in other states. The main problem is that it has to be shipped as large square bales, and most producers have the round balers.

Seed has a score of 2.55 and is “hard” to “difficult but manageable” to market. One of the reasons that seed has this higher score is probably that The National Organic Program regulations regarding the use of organic/non organic seed give the producer some leeway in using non organic seed. It is also worth pointing out that there is very little certified seed grown by organic grain producers in the state.

Ten organic producers listed nine different crops under Other (millet, heirloom grains, rye, oats, safflower, sunflower, buckwheat, durum and Kamut) with an average score of 1.73. It is difficult to draw any conclusive market information from these nine different crops since so few producers have listed them.

Question #41: What market strategy has worked the best for your operation?

In Question 41 we asked respondents to give each market strategy a number from 1-4 in how very successful/not successful the organic producer is in using it. The lower the number the more successful the producer is in using that strategy.

Market Strategy	Very Successful (1)	Moderate Success (2)	Limited Success (3)	Not Successful (4)	Average score	Number of farmers
Direct to Food Processor	22	7	1	1	1.39	31
Direct to Consumer	1	5	8	6	2.95	20
Direct to Feed Operations	9	6	7	2	2.08	24
Broker/Resellers	12	11	4	2	1.86	29

Table 19

Most organic producers (31) market their crops directly to a food processor with an average score of 1.39 which makes it a relatively “*very successful*” market strategy. Most organic producers also market to broker/resellers with a score of 1.86 and making it a “*moderate success*” to “*very successful*” market strategy.

A number of producers also market directly to feed operations. The score is 2.08 (“*moderate success*”) spread between producers ranging from “*very successful*” for some producers to “*limited success*” for other producers. It is very clear that there are some producers that have very good connections to feed operations and other producers do not have those connections.

Marketing crops directly to consumers is the strategy with the highest score at 2.95 and producers have “*limited success*” in doing that. Note that only 20 producers answered this question and probably because they do not have any experience in marketing directly to consumers.

Question #42: Do you feel there are accessible markets for all your organic production?

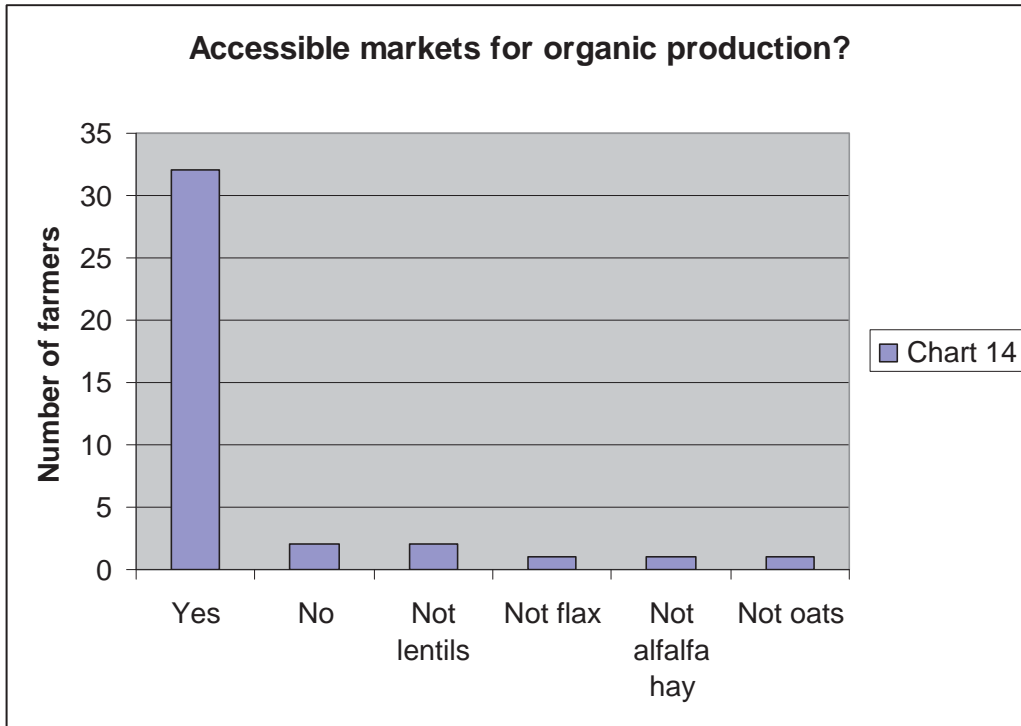


Chart 14 (39 answers)

A high majority of the organic producers answered “Yes,” that there are accessible markets.

Only two producers answered “No,” and a few other producers have problems with some special crops like lentils, flax, hay, and oats.

It is very clear that the producers are saying that organic markets are there.

Here are a few comments from producers:

- “Yes, if you have a quality product”
- “A person has to work at it at times but there is a market out there”
- “Yes, but more Montana markets are needed, especially for alternative crops”
- “Yes, but not sure if I grew something else that markets would be there”
- “Yes, I haven’t had trouble marketing”
- “No, I adjust my crop rotation based in what I can sell”

Question #43: What marketing research do you feel is most needed?

Marketing Research	Number of farmers
One site to meet with buyers	3
Direct marketing	2
Specialty crops	2
Transportation	1
Forward contracts	1
Protein vs. baking quality	1
Local grain processing for local market	1
Educate the consumer	1
De-hulling improvement	1

Table 20 (13 answers)

There are nine different answers by 13 different organic producers. With these many different answers by so few organic producers answering this question, it can be concluded that there currently is no need to do marketing research in regards to organic grain. This corresponds well with the information from other questions in this chapter saying that there are accessible markets and it is relatively easy to market the crops.

Chapter 9: Summary

Question #44: Have you taken acres out of organic production, and if so, why?

28 producers answered “No”
10 producers answered “Yes”

A number of producers have taken acres out of organic production. The main reasons given are weeds such as bindweed, Canada thistle, whitetop, leafy spurge, and weeds in general. One producer has also taken acres out of organic production and put the acres into CRP.

One producer answered, *“Yes, - ease work load, - tired of weeds; in a dry year organic does better than conventional, in wet year it is reversed”*

Another producer answered, *“Sure, weeds that organics doesn’t often control (white top, leafy spurge, field bindweed). I have considered conventional farming on all my land because of bindweed”*

Question #45: What are your experiences or thoughts on organic no-till?

Organic No-till	Number of farmers
No	28
Tried but no success	2
No-till peas for green manure	2
Timeliness and proper machinery	1

Table 21 (33 answers)

Most organic producers answered “No” that they did not have any experiences with organic no-till. Two organic producers have tried it but with no success. There are two other producers that have tried no-till peas for green manure. One did it with winter peas into stubble in the fall, saying that it usually works fairly well, and the other producer mentioned that they should have pre-worked part of the acres because of a lot of weed competition.

Question #46: What specific research would have the most impact on your organic production system?

	Specific Research	Number of farmers	
Weeds	Perennial weed control	10	33%
	Bindweed/morning glory	4	
	Canadian thistle	3	
	Yellow mustard	1	
	Wild Oats	1	
Rotation/green manure	Crop rotations	7	24%
	Green manure/Cover crops	6	
	Inter cropping	1	
Crops	Crops with weed competitiveness	7	21%
	Original wheat genetics	4	
	Drought resistant	1	
Fertility	How plants relate to soil fertility	9	19%
	Phosphorus availability	2	
Other		2	3%

Table 22 (58 answers)

There are four main areas where organic producers say that research would have the most impact on their systems. These main areas of research importance correspond well with answers that producers have given in other chapters. The first main area of importance is weeds; perennial weed control, bindweed/morning glory, Canada thistle, yellow mustard, and wild oats have 33% of the total answers. As Chapter 4 showed perennial weed control, especially on bindweed/morning glory and also Canada thistle are the top two problem weeds for most organic producers, and where research on controlling these would have the most impact on producers’ organic systems.

The other main area of importance of research relates to crop rotations, cover crops, and intercropping with 24% of the answers. This corresponds well with the answers in Chapter 3 and Chapter 7.

The third area of importance where research would have the most impact relates to crops with weed competitiveness, original wheat genetics, and drought resistance. This area all relates to the crops we grow and harvest, and how research could help find or develop better crops/varieties/genetics that would impact organic systems in a positive way.

The fertility issue got 19% of the answers and has potential impacts on both weed research and rotation/green manure research. A plant called a weed relates to soil fertility and so do plants that we use for cover crops/green manure/intercropping and rotations crops. So the specific research into how “*How plants relate to soil fertility and phosphorus availability*” somehow have to be combined with the research into the first two main areas.

Question #47: Have you noticed any links between crops, nutrients, insects, or weeds, which you would like to see more research on?

2 producers answered “No”
 4 producers answered “Yes”

Very few organic producers answered yes or no to this question and it is difficult to draw any conclusive information from this. However, there were several different suggestions and comments to this question that organic producers have observed and that are of interest and relate to the research suggestion in Question #46.

- *“We have reduced grasshopper damage in new alfalfa stand by seeding proso millet.”*
- *“Weeds go through cycles in the fields – what that about?”*
- *“More data on what green manures actually do for the soil”*
- *“I have noticed dead Canada thistle in a patch, and occasionally a few isolated dead plants. What kills them, and how could that be spread?”*
- *“Yes; I have noticed that I don’t have too many weed problems if my soil is balanced and full of nutrition.”*
- *“The soils that I am farming have a lot of deficiencies and I have a lot of bindweed...what is the connection?”*
- *“Winter rye followed by lush stand of yellow sweet clover helps with field bindweed. The longer you wait for termination, the better the effect. Let the clover grow to 5’-6’ high.”*

Question #48: What educational efforts/topics do you deem most important/beneficial in advancing your organic farm production?

Educational effort/topics	Number of farmers
Rotation	7
Weeds	4
Seed genetics	4
Getting current research information	4
Soil nutrition	3
Marketing	3
Encourage young generation of farmers	2
Other	2

Table 23 (29 answers)

Most organic producers would like to get more information on rotation issues, weeds, and seed genetics. Some of the producers would like to have a way to get current and new research information that relates to their farming practices in an easy and timely way.

Some producers would also like to be educated more on soil nutrition as well as on-marketing options of crops. There are also a few producers that think ahead and would like educational efforts in the direction of how to encourage young generations of farmers into organic agriculture.

Appendix

OAEC

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The Organic Advisory and Education Council is a 501(c)(3) non profit organization, which encourages sustainable and responsible organic agricultural practices, through investments in research and education.

OAEC – Grain Producer Research Survey

The Organic Advisory and Education Council is surveying Montana producers to determine the greatest challenges in organic production systems. Please make your voice heard by participating in this data collection, and helping us steer future research where it is needed. If you would like to keep your answers completely confidential, please indicate so below, and your survey results will be handled separately from this cover page, as OAEC respects your willingness to participate in this survey, and your privacy, by keeping information anonymous. Alternatively, OAEC will be a link for researchers, seeking direct farmer research projects and consultations. If you are willing to openly share your answers with the research community, please indicate so below. We also ask that you answer all the questions you can, to the best of your ability, as missing information will dilute our findings. Thank you for your support.

First name: _____

Last name: _____

Farm name: _____

Address: _____

Phone: _____

Email: _____

Date: _____

1. How would you like your name handled with your survey answers? (Circle One)
 1. Open to the Research Community
 2. Strictly Confidential
2. May OAEC contact you for support of future research programs? (Circle One)
 1. Yes I am interested to learn more about future research programs
 2. No I do not want to be contacted about future research programs
3. May OAEC send you news updates via email? (Circle One)
 1. Yes I am interested to hear updates via email
 2. No I do not want to be contacted via email
4. Would you be interested in participating in organic research on your farm? (Circle One)
 1. Yes I would consider participating in a research program on my farm
 2. No I do not have interest in participating in any research programs
5. Please explain any "on farm" research you are currently conducting on your own:

INSTRUCTIONS: MULTIPLE CHOICE QUESTIONS PLEASE ANSWER BY CIRCLING WHICH ONE BEST APPLIES. SOME QUESTION MIGHT ASK YOU TO RANK THE DEGREE OF DIFFICULTY. FOR ESSAY TYPE QUESTIONS, OR IF YOU WOULD LIKE TO ELABORATE ON ANY QUESTION, PLEASE PROVIDE AS MUCH INFORMATION AS YOU DESIRE. THANK YOU.

General

1. What county or counties do you primarily operate in? (Please Explain)

2. How long have you been growing organic crops? (Circle One)
 1. Now in Transition
 2. 1-3 years
 3. 4-6 years
 4. 7-10 years
 5. 11-20 years
 6. >20 years
3. Is your farm all organic or mixed organic and non-organic? (Circle One)
 1. All organic
 2. Mixed
4. How large is your organic production area? (Circle One)
 1. 1-50 ac
 2. 50-100 ac
 3. 100-500 ac
 4. 500-1000 ac
 5. 2000-5000 ac
 6. >5000 ac
5. How much average annual rainfall does your area receive? (Circle One)
 1. 8-10 inch
 2. 10-12 inch
 3. 12-14 inch
 4. 14-16 inch
 5. >16 inch
6. What is the primary make up of your soil structure? (Please Explain)

7. What tillage practices are most effective in managing soil conservation? (Please Explain)

8. What is the most challenging agronomic issue for your organic operation? (Please Explain)

Crops and crop rotations in your organic operation:

9. Which crops have you had success producing? (Rank: 1 = Very Successful, 2 = Moderate Success, 3 = Unsuccessful, 4 = None or Limited Experience Growing, N/A = Not Applicable)
1. Spring wheat
 2. Winter wheat
 3. Peas
 4. Lentils
 5. Flax
 6. Hay
 7. Barley
 8. Seed
 9. Other (Please Explain):
10. What factors influences your yields the most? (Rank: 1 = Major Influence, 2 = Moderate Influence, 3 = Minor Influence, 4 = No Influence, N/A = Not Applicable)
1. Weeds
 2. Diseases
 3. Soil Fertility/nutrient deficiencies
 4. Pests
 5. Varieties of seed
 6. Rainfall
 7. Other (Please Explain):
11. What factors influences your grain quality the most ? (Rank: 1 = Major Influence, 2 = Moderate Influence, 3 = Minor Influence, 4 = No Influence, N/A = Not Applicable)
1. Grade Quality
 2. Test Weight
 3. Other Grading Factors
 4. Gluten/Milling Strength
 5. Color
 6. Gluten Free
 7. Protein Content
 8. Fiber Content
 9. Oil Content
 10. Other (Please Explain):
12. Describe what grain, seeds, legumes, forages, or green manures, and their sequence, that makes up your rotation? (Please Explain)
13. What factors influence your selection of crop rotations? (Please Explain)

Green Manure/Cover Crops in your organic operation:

(Note: Some call it green manures, some call it cover crops, here we will use the term green manure)

14. Have you grown a green manure crop as part of your rotation? (Circle One)
 1. Yes
 2. No
15. Please list the crops grown as green manure?

16. How much of your cropland is in green manure each year? (Circle One)
 1. <10%
 2. 10-20%
 3. 20-30%
 4. 30-40%
 5. 40-50%
 6. >50%
17. What are greatest benefits of your green manure crops? (Rank: 1 = Great Benefit 2 = Moderate Benefit, 3 = Limited Benefit, 4 = No Benefit, N/A = Not Applicable)
 1. Build soil fertility
 2. Improve soil structure
 3. Control weeds
 4. Break weed, disease, or insect pest cycles
 5. Reduce soil erosion
 6. Other (describe):

18. What are your biggest challenges with your green manure production? (Please Explain)

19. Was terminating the green manure an issue, and how was it done? (Please Explain)

20. Do you think green manure compromises soil moisture and nutrient availability? (Please Explain)

21. Would you consider incorporating livestock to manage green manure/cover crops? (Circle One)
 1. Yes
 2. No
 3. Maybe
 4. Already use livestock for this purpose
 5. Other (Please Explain):

Weeds in your organic operation:

22. What crops are influenced the greatest by weeds? (Rank: 1 = Major Influence, 2 = Moderate Influence, 3 = Minor Influence, 4 = No Influence, N/A = Not Applicable)

1. Spring wheat
2. Winter wheat
3. Peas
4. Lentils
5. Flax
6. Hay
7. Barley
8. Seed
9. Other (Please Explain):

23. List up to 10 weed species on your farm and rank how hard they are to manage: (1=Easy, 2=Difficult but Manageable, 3=Hard, 4=Impossible)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

24. Would you consider incorporating livestock to manage weeds?

1. Yes
2. No
3. Maybe
4. Already use livestock for this purpose
5. Other (Please Explain):

25. What weed research do you feel is most needed? (Please Explain)

Diseases in your organic operation:

26. What crops are influenced the greatest by disease? (Rank: 1 = Major Influence, 2 = Moderate Influence, 3 = Minor Influence, 4 = No Influence, N/A = Not Applicable)
1. Spring wheat
 2. Winter wheat
 3. Peas
 4. Lentils
 5. Flax
 6. Hay
 7. Barley
 8. Seed
 9. Other (Please Explain):
27. List up to 5 diseases on your farm and how hard they are to manage: (1=Easy, 2=Difficult but Manageable, 3=Hard, 4=Impossible)
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
28. What diseases research do you feel is most needed? (Please Explain)

Pests in your organic operation:

29. What crops are influenced the greatest by insects? (Rank: 1 = Major Influence, 2 = Moderate Influence, 3 = Minor Influence, 4 = No Influence, N/A = Not Applicable)
1. Spring wheat
 2. Winter wheat
 3. Peas
 4. Lentils
 5. Flax
 6. Hay
 7. Barley
 8. Seed
 9. Other (Please Explain):
30. List up to top 5 insects you see, and how hard they are to manage: (1=Easy, 2=Difficult but Manageable, 3=Hard, 4=Impossible)
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
31. What pests research do you feel is most needed?

Soil Nutrition in your organic operation:

32. Do you do soil fertility testing? (Circle One. If no skip to #35)
1. Yes
 2. No
33. How frequent do you do soil testing? (Circle One)
1. Every year:
 2. Every 2 years:
 3. 3-4 years:
 4. 4-5 years:
 5. > 5 years:
34. At what density do you do soil testing? (Circle One)
1. Every Field
 2. Most Fields
 3. Few Fields
 4. Other (Please Explain):
35. Do you believe you have nutrient deficiencies in your soil? (Circle One)
1. Yes
 2. No
 3. Don't Know
36. If you know, list the top 5 nutrient deficiencies affecting your organic crops:
- 1.
 - 2.
 - 3.
 - 4.
 - 5.
37. How do you address the deficiencies in your soils? (Please Explain)
38. What factors determined whether you add organic fertilizers or not? (Please Explain)
39. What soil fertility research do you feel is most needed? (Please Explain)

Marketing issues in your organic operation:

40. What crops face the biggest challenge to market? (Rank: 1=Easy, 2=Difficult but Manageable, 3=Hard, 4=Impossible, N/A = Not Applicable)
1. Spring wheat
 2. Winter wheat
 3. Peas
 4. Lentils
 5. Flax
 6. Hay
 7. Barley
 8. Seed
 9. Other (Please Explain):

41. What market strategy has worked the best for your operation? (Rank: 1 = Very Successful, 2 = Moderate Success, 3 = Limited Success, 4 = Not Successful, N/A = Not Applicable)
1. Direct to Food Processors
 2. Direct to Consumers
 3. Direct to Feed Operations
 4. Broker/Resellers
42. Do you feel there are accessible markets for all your organic production? (Please Explain)
43. What marketing research do you feel is most needed? (Please Explain)

Summary

44. Have you taken acres out of organic production, and if so, why? (Please Explain)
45. What are your experiences or thoughts on organic no-till? (Please Explain)
46. What specific research would have the most impact on your organic production system? (Be as specific as possible. For example, "Determine what crops are competitive with weed x" or "Determine what cropping system will replenish x nutrient in my soil")
47. Have you noticed any links between crops, nutrients, insects, or weeds, which you would like to see more research on? (Please explain)
48. What educational efforts/topics do you deem most important/beneficial in advancing your organic farm production?

Thank you for completing this survey, and for your continued support of the OAEC! Please provide any feedback you may have, about this survey, it's format, or content, on the back of this page.



Organic Advisory and Education Council
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