2011 Farm Environmental Management Survey
Crops Module

PRELIMINARY SECTION: CHARACTERISTICS OF THE OPERATION

The following questions deal with ALL LAND OPERATED

Include
- land rented from other operations
- crown or public land used for agricultural operations

Exclude
- land rented to other operation

1. In 2011, which types of crop did you have on your operation? (*Mark all that apply)* CT01	2. Which crop type contributed most to your gross farm receipts? CT02
1 O Annual field crops for grain, seed or feed or summerfallow	1 O (Got to question 3)
2 O Perennial crops for hay, silage or seed production	2 O (Go to question 10)
3 O Fruits or nuts	3 O (Go to question 17)
4 O Vegetables and potatoes	4 O (Go to question 3)
5 O Greenhouse, nursery or floriculture	5 O (Go to end)
6 O No crop, only livestock (Go to question 30)	

Definitions:

Annual field crops *include wheat, canola, corn, barley, oats, peas, soybeans, lentils, etc.*

Perennial forage crops *include alfalfa, grass, clover, etc.*

SECTION I: CROP AND NUTRIENT MANAGEMENT

Conventional *tillage is soil disturbance through tillage, planting and other field operations that together incorporate most of the previous crop residues into the soil (less than 30% of the previous crop's residues remain on the soil after planting). For fallow land, weed control is done by tillage only.*

Conservation tillage *is soil disturbance through tillage, planting and other field operations that together retain a considerable portion (30-60%) of the previous crop residues on the surface. For fallow land, weed control is done by tillage and herbicides.*

No till/zero till *means no tillage prior to planting. Seeding and fertilizer operations are done with implements that minimize soil disturbance. More than 60% of the previous crop's residues remain on the soil after planting. For fallow land, weed control is done by herbicides only (e.g. chem fallow)*

3. What were your five largest annual crops, by land area, harvested in 2011? (Include summer fallow.) AC01	4. What was the harvested area? AC03	5. What area was prepared using the following methods prior to planting? AC05	6. What crop was harvested on this land the previous year? (*If there was more than one crop, indicate the one that occupied the largest area.)* AC10
[1] Crop 1: _____	[1] _____ AC04 [1] O acres [2] O hectares [3] O arpents	[1] [1] O Conventional: AC07[1] _____ [2] O Conservation: AC08[1] _____ [3] O No-till (zero-till): AC09[1] _____ [4] O Other *(please specify)*_____: AC06[1] AC16[1] _____ [5] O Not applicable/no tillage required	[1] _____

3. What were your five largest annual crops, by land area, harvested in 2011? (Include summer fallow.) AC01	4. What was the harvested area? AC03	5. What area was prepared using the following methods prior to planting? AC05	6. What crop was harvested on this land the previous year? (*If there was more than one crop, indicate the one that occupied the largest area.)* AC10
[2] Crop 2: _____	[2] _____ AC04 [1] O acres [2] O hectares [3] O arpents	[2] [1] O Conventional: AC07[2] _____ [2] O Conservation: AC08[2] _____ [3] O No-till (zero-till): AC09[2] _____ [4] O Other *(please specify)*_____: AC06[2] AC16[2] _____ [5] O Not applicable/no tillage required	[2] _____

3. What were your five largest annual crops, by land area, harvested in 2011? (Include summer fallow.) AC01	4. What was the harvested area? AC03	5. What area was prepared using the following methods prior to planting? AC05	6. What crop was harvested on this land the previous year? (*If there was more than one crop, indicate the one that occupied the largest area.)* AC10
[3] Crop 3: _____	[3] _____ AC04 [1] O acres [2] O hectares [3] O arpents	[3] [1] O Conventional: AC07[3] _____ [2] O Conservation: AC08[3] _____ [3] O No-till (zero-till): AC09[3] _____ [4] O Other *(please specify)*_____: AC06[3] AC16[3] _____ [5] O Not applicable/no tillage required	[3] _____

3. What were your five largest annual crops, by land area, harvested in 2011? (Include summer fallow.) AC01	4. What was the harvested area? AC03	5. What area was prepared using the following methods prior to planting? AC05	6. What crop was harvested on this land the previous year? (*If there was more than one crop, indicate the one that occupied the largest area.)* AC10
[4] Crop 4: _____	[4] _____ AC04 [1] O acres [2] O hectares [3] O arpents	[4] [1] O Conventional: AC07[4] _____ [2] O Conservation: AC08[4] _____ [3] O No-till (zero-till): AC09[4] _____ [4] O Other *(please specify)*_____: AC06[4] AC16[4] _____ [5] O Not applicable/no tillage required	[4] _____

3. What were your five largest annual crops, by land area, harvested in 2011? (Include summer fallow.) AC01	4. What was the harvested area? AC03	5. What area was prepared using the following methods prior to planting? AC05	6. What crop was harvested on this land the previous year? (*If there was more than one crop, indicate the one that occupied the largest area.)* AC10
[5] Crop 5: _____	[5] _____ AC04 [1] O acres [2] O hectares [3] O arpents	[5] [1] O Conventional: AC07[5] _____ [2] O Conservation: AC08[5] _____ [3] O No-till (zero-till): AC09[5] _____ [4] O Other *(please specify)*_____: AC06[5] AC16[5] _____ [5] O Not applicable/no tillage required	[5] _____

AC14 7. If you answered conservation tillage for any of the crops in question 5, when did you first practice conservation tillage on your operation?

[1] O Prior to 1990
[2] O Between 1990 and 1994
[3] O Between 1995 and 1999
[4] O Between 2000 and 2004
[5] O After 2004

AC15 8. If you answered no tillage/zero tillage for any of the crops in question 5, when did you first practice no tillage/zero tillage on your operation?

[1] O Prior to 1990
[2] O Between 1990 and 1994
[3] O Between 1995 and 1999
[4] O Between 2000 and 2004
[5] O After 2004

AC12 9. How were the crop residues for ^AC01 managed in 2011?

Were they… *(Mark all that apply)*

[1] O … chopped and spread?

[2] O … spread without being chopped?

[3] O … baled (straw)?

[4] O … burned?

[5] O … incorporated into the soil?

[6] O … collected (chaff portion)?

[7] O … grazed by livestock?

[8] O … left on the ground with no additional management?

[9] O other (specify):

_____ AC13

[10] O Not applicable/ no crop residues

If no perennial forage crops indicated in Q1, Go to question 17.

10. What were your three largest perennial crops, by land area, harvested in 2011? (*Treat a mix as a single crop.*)	11. What was the area?	12. How many cuts or harvest operations were made in 2011?
Perennial crop 1: _____ PC01[1]	_____ PC03[1] PC04[1] [1] O acres [2] O hectares [3] O arpents	_____ PC05[1]
Perennial crop 2: _____ PC01[2]	_____ PC03[2] PC04[2] [1] O acres [2] O hectares [3] O arpents	_____ PC05[2]

10. What were your three largest perennial crops, by land area, harvested in 2011? (*Treat a mix as a single crop*.)	11. What was the area?	12. How many cuts or harvest operations were made in 2011?
Perennial crop 3: _____ PC01[3]	_____ PC03[3] PC04[3] [1] O acres [2] O hectares [3] O arpents	PC05[3] _____

	13. Was it grown in rotation with annual crops on the same land?	14. How many years were annual crops grown in this rotation cycle?	15. Which annual crops were grown in this rotation cycle?	16. How many years was the perennial crop grown in this rotation cycle?
Perennial crop 1: PC01[1] _____	PC06[1] [1] O Yes [3] O No (*Go to Perennial crop 2*)	PC07[1] _____	PC07[1] _____	PC10[1] _____
Perennial crop 2: PC01[2] _____	PC06[2] [1] O Yes [3] O No (*Go to Perennial crop 3*)	PC07[2] _____	PC08[2] _____	PC10[2] _____
Perennial crop 3: PC01[3] _____	PC06[3] [1] O Yes [3] O No (*If fruit/nut crops indicated in Q1, Go to question 17, if not, go to question 19)*	PC07[3] _____	PC08[3] _____	PC10[3] _____

If no fruit/nut crops indicated in Q2, Go to question 19.

17. What were your three largest fruit or nut crops, by land area, harvested in 2011?	18. What was the area?
Fruit/nut crop 1: FC01[1] _____	FC03[1] _____ FC04[1] [1] O acres [2] O hectares [3] O arpents
Fruit/nut crop 2: FC01[2] _____	FC03[2] _____ FC04[2] [1] O acres [2] O hectares [3] O arpents
Fruit/nut crop 3: FC01[3] _____	FC03[3] _____ FC04[3] [1] O acres [2] O hectares [3] O arpents

Commercial fertilizer application

The following questions refer to your commercial fertilizer application practices.

FU01 19. Were any commercial fertilizers or micronutrients applied to your operation between harvest 2010 and summer 2011?

[1] O Yes
[3] O No (Go to question 30)

20. What methods were used to apply commercial fertilizer or micronutrients to the land where (crop1) was grown? *(Mark all that apply)*

Method used	Crop 1 FU02[1]	Crop 2 FU02[2]	Crop 3 FU02[3]
Fall subsurface application (e.g. banding or injection)	[1] O	[1] O	[1] O
Fall surface spread and worked into the soil	[2] O	[2] O	[2] O
Fall or winter surface spread and not worked into the soil	[3] O	[3] O	[3] O
Spring pre-seeding subsurface application (e.g. banding or injection)	[4] O	[4] O	[4] O
Spring pre-seeding surface spread and worked into the soil	[5] O	[5] O	[5] O
Spring pre-seeding surface spread and not worked into the soil	[6] O	[6] O	[6] O
Applied with seed	[7] O	[7] O	[7] O
Subsurface application during seeding in separate band away from seed (includes mid row banding and side banding)	[8] O	[8] O	[8] O
Post-seed or post-emergent application (includes side dress of row crops)	[9] O	[9] O	[9] O
Other	[10] O FU03[1] *(Please specify):* _____	[10] O FU03[2] *(Please specify):* _____	[10] O FU03[3] *(Please specify):* _____

If no perennial forage crops indicated in Q1,Go to Question 23

	21. Thinking of all your commercial fertilizer or micronutrients spread on the land where your perennial crop was grown, what percent was applied… *Note: Percent should add up to 100*	22. How often was commercial fertilizer or micronutrients applied to the land?
Perennial Crop 1	right after harvest 2010? _____ FU04[1] during winter? _____ FU05[1] before crop growth began in 2011? _____ FU06[1] after crop growth began in 2011? _____ FU07[1]	FU08[1] [1] O more than twice a year [2] O twice a year [3] O once per year [4] O once every two years [5] O less than once every two years
Perennial Crop 2	right after harvest 2010? _____ FU04[2] during winter? _____ FU05[2] before crop growth began in 2011? _____ FU06[3] after crop growth began in 2011? _____ FU07[4]	FU08[2] [1] O more than twice a year [2] O twice a year [3] O once per year [4] O once every two years [5] O less than once every two years

Go to Question 26

23. What methods were used to apply commercial fertilizer or micronutrients to the land where your fruit/nut crops were grown? *(Mark all that apply)*

Method used	Fruit/nut Crop 1 FU09[1]	Fruit/nut Crop 2 FU09[2]
Surface spread and not worked into the soil	[1] O	[1] O
Surface spread and worked into soil	[2] O	[2] O
Side dress in row or beside row	[3] O	[3] O
Through drip irrigation nozzles	[4] O	[4] O
Through irrigation sprinklers	[5] O	[5] O
Other (specify): _____	[6] O *(Please specify):* _____ FU10[1]	[6] O *(Please specify):* _____ FU10[2]

	24. Thinking of all your commercial fertilizer or micronutrients spread on the land where your perennial crop was grown, what percent was applied… *Note: Percent should add up to 100*	25. How often was commercial fertilizer or micronutrients applied to the land?
Fruit/nut Crop 1	right after harvest 2010? _____ FU11[1] during winter? _____ FU12[1] before crop growth began in 2011? _____ FU13[1] after crop growth began in 2011? _____ FU14[1]	FU15[1] [1] O more than twice a year [2] O twice a year [3] O once per year [4] O once every two years [5] O less than once every two years
Fruit/nut Crop 2	right after harvest 2010? _____	FU15[2] [1] O more than twice a year

	FU11[2] during winter? FU12[2] _____ before crop growth began in 2011? FU13[2] _____ after crop growth began in 2011? FU14[2]	[2] O twice a year [3] O once per year [4] O once every two years [5] O less than once every two years

26. When deciding on the rate and amount of fertilizer to apply, what importance did the following factors have?

	High	Medium	Low	None
Soil testing or plant analysis: FU16[1]	[1] O	[2] O	[3] O	[4] O
Cost of fertilizer or crop prices: FU16[2]	[1] O	[2] O	[3] O	[4] O
Soil moisture, temperature or other growing conditions: FU16[3]	[1] O	[2] O	[3] O	[4] O
Nutrient requirement of crop grown or carryover nutrients from previous crop: FU16[4]	[1] O	[2] O	[3] O	[4] O
External information sources (e.g. crop advisor, fertilizer dealer, provincial recommendations, neighbours etc.): FU16[5]	[1] O	[2] O	[3] O	[4] O
Amount used in the past or based on experience: FU16[6]	[1] O	[2] O	[3] O	[4] O
Amount allowed by regulation: FU16[7]	[1] O	[2] O	[3] O	[4] O
Other (specify): _____ FU17 FU16[8]	[1] O	[2] O	[3] O	[4] O

FU18 27. Between harvest 2010 and summer 2011, did you apply both commercial fertilizer and manure to the same land?

[1] O Yes
[3] O No (Go to Question 29)

FU19 28. Was the amount of commercial fertilizer reduced to compensate for the nutrient content of the manure?

[1] O Yes
[3] O No

FU20 29. How often is soil tested for nutrient content for a typical field? (*If it varies for different fields, give the average*.)

[1] O Every year
[2] O Every 2-3 years
[3] O Every 4-5 years
[4] O Every 6 years or more
[5] O Do not test soil

Liquid or semi-solid manure

LM01 30. Between fall 2010 and summer 2011, which did you spread more of on your operation: solid manure or liquid or semi-solid manure (e.g. pumpable)?

[1] O Solid manure *(Go to Q44)*
[2] O Liquid or semi-solid manure
[3] O Spread the same amount of both solid and liquid or semi-solid manure
[4] O Did not spread manure *(Go to Q57)*

31. In 2011, what were your two largest crops, by area, grown on land that had liquid or semi-solid manure spread on it?

LM02[1] Crop 1: _____ Other (please specify): _____ LM03[1]

LM02[2] Crop 2: _____ Other (please specify): _____ LM03[2]

LM04[1] 32. What was the area of ^**Crop 1** that liquid or semi-solid manure was applied to?

_____ [1] O acres [2] O hectares [3] O arpents LM05[1]

LM06[1] 33. Which of the following methods were used to apply liquid or semi-solid manure to the land where ^**Crop 1** was grown in 2011? *(Mark all that apply)*

[1] O Direct injection into the soil *(Go to Q35)*
[2] O Low boom applicator, below crop canopy (e.g. sleighfoot or sidedress) *(Go to Q35)*
[3] O Spread and not worked into the soil *(Go to Q35)*
[4] O Spread and worked into the soil

LM07[1] 34. In general, was the liquid or semi-solid manure worked into the soil…

[1] O on the same day as it was spread?
[2] O 1-2 days after it was spread?
[3] O 3-5 days after it was spread?
[4] O more than 5 days after it was spread?

35. Thinking of all your liquid or semi-solid manure spread on the land where ^**Crop 1** was grown, what percent of that manure was applied …

LM08[1]… right after harvest 2010? _____
LM09[1]… during winter? _____
LM10[1]… before crop growth began in 2011? _____
LM11[1]… after crop growth began in 2011? _____
(Percent values for this question should add up to 100)

LM12[1] 36. In general, how often is liquid or semi-solid manure applied to the land where ^**Crop 1** was grown?

[1] O More than twice a year
[2] O Twice a year
[3] O Once per year
[4] O Once every two years
[5] O Less than once every two years

LM04[2] 37. What was the area of ^**Crop2** that liquid or semi-solid manure was applied to?

_____ [1] O acres [2] O hectares [3] O arpents LM05[2]

LM06[2] 38. Which of the following methods were used to apply liquid or semi-solid manure to the land where ^**Crop 2** was grown in 2011? *(Mark all that apply)*

[1] O Direct injection into the soil *(Go to Q40)*
[2] O Low boom applicator, below crop canopy (e.g. sleighfoot or sidedress) *(Go to Q40)*
[3] O Spread and not worked into the soil *(Go to Q40)*
[4] O Spread and worked into the soil

LM07[2] 39. In general, was the liquid or semi-solid manure worked into the soil…

[1] O on the same day as it was spread?
[2] O 1-2 days after it was spread?
[3] O 3-5 days after it was spread?
[4] O more than 5 days after it was spread?

40. Thinking of all your liquid or semi-solid manure spread on the land where ^**Crop 2** was grown, what percent of that manure was applied …

LM08[2]… right after harvest 2010? _____

LM09[2]… during winter? _____

LM10[2]… before crop growth began in 2011? _____

LM11[2]… after crop growth began in 2011? _____

(Percent values for this question should add up to 100)

LM12[2] 41. In general, how often is liquid or semi-solid manure applied to the land where ^**Crop 2** was grown?

[1] O More than twice a year
[2] O Twice a year
[3] O Once per year
[4] O Once every two years
[5] O Less than once every two years

LM13 42. In 2011, was the liquid or semi-solid manure tested for its nutrient content before being applied to the land?

[1] O Yes
[3] O No

43. What importance did the following factors have when deciding on the rate and amount of liquid or semi-solid manure to apply?

	High	Medium	Low	None
Soil testing or plant analysis: LM14[1]	[1] O	[2] O	[3] O	[4] O
Cost of fertilizer or amount of fertilizer applied: LM14[2]	[1] O	[2] O	[3] O	[4] O
Cost of transporting manure or distance from manure storage: LM14[3]	[1] O	[2] O	[3] O	[4] O
Amount of land available to receive manure: LM14[4]	[1] O	[2] O	[3] O	[4] O
Soil moisture, temperature or other growing conditions: LM14[5]	[1] O	[2] O	[3] O	[4] O
Nutrient content of manure: LM14[6]	[1] O	[2] O	[3] O	[4] O
Nutrient requirement of crop grown or carryover nutrients from last crop: LM14[7]	[1] O	[2] O	[3] O	[4] O

	High	Medium	Low	None
External sources of information (Crop advisor, fertilizer dealer, provincial recommendations, neighbours etc.) LM14[8]	[1] O	[2] O	[3] O	[4] O
The quantity of fertilizer used in the past, or based on experience: LM14[9]	[1] O	[2] O	[3] O	[4] O
Other factor *(Please specify):* _____ LM15	[1] O	[2] O	[3] O	[4] O

Solid Manure

44. In 2011, what were your two largest crops, by area, grown on land that had solid manure spread on it?
[NOTE: we are interested in manure spread between harvest 2010 and summer 2011]

SM01[1] Crop 1: _____ Other (please specify): _____ SM02[1]

SM01[2] Crop 2: _____ Other (please specify): _____ SM02[2]

SM03[1] 45. What was the area of ^**Crop 1** that solid manure was applied to?

_____ [1] O acres [2] O hectares [3] O arpents SM04[1]

SM05[1] 46. Which of the following methods were used to apply solid manure to the land where ^**Crop 1** was grown in 2011? *(Mark all that apply)*
[1] O Spread and not worked into the soil *(Go to Q48)*
[2] O Spread and worked into the soil

SM06[1] 47. In general, was the solid manure worked into the soil…
[1] O less than 2 hours after application?
[2] O more than 2 hours after application on the same day as it was spread?
[3] O 1-2 days after it was spread?
[4] O 3-5 days after it was spread?

[5] O more than 5 days after it was spread?

48. Thinking of all your solid manure spread on the land where ^**Crop 1** was grown, what percent of that manure was applied …
SM07[1]… right after harvest 2010? _____
SM08[1]… during winter? _____
SM09[1]… before crop growth began in 2011? _____
SM10[1]… after crop growth began in 2011? _____
(Note: percent values for this question should add up to 100)

SM11[1] 49. How often is solid manure applied to the land where ^**Crop 1** is grown?
[1] O More than twice a year
[2] O Twice a year
[3] O Once per year
[4] O Once every two years
[5] O Less than once every two years

SM03[2] 50. What was the area of ^**Crop 2** that solid manure was applied to?

_____ [1] O acres [2] O hectares [3] O arpents SM04[2]

SM05[2] 51. Which of the following methods were used to apply solid manure to the land where ^**Crop 2** was grown in 2011? *(Mark all that apply)*
[1] O Spread and not worked into the soil *(Go to Q53)*
[2] O Spread and worked into the soil

SM06[2] 52. In general, was the solid manure worked into the soil…
[1] O less than 2 hours after application?
[2] O more than 2 hours after application on the same day as it was spread?
[3] O 1-2 days after it was spread?
[4] O 3-5 days after it was spread?
[5] O more than 5 days after it was spread?

53. Thinking of all your solid manure spread on the land where ^**Crop 2** was grown, what percent of that manure was applied …
SM07[2]… right after harvest 2010? _____

SM08[2]… during winter? _____
SM09[2]… before crop growth began in 2011? _____
SM10[2]… after crop growth began in 2011? _____
(Note: percent values for this question should add up to 100)

SM11[2] 54. How often is solid manure applied to the land where ^**Crop 2** is grown?
[1] O More than twice a year
[2] O Twice a year
[3] O Once per year
[4] O Once every two years
[5] O Less than once every two years

SM12 55. In 2011, was the solid manure tested for its nutrient content before being applied to the land?
[1] O Yes
[3] O No

56. What importance did the following factors have when deciding on the rate and amount of solid manure to apply?

		High	**Medium**	**Low**	None
Soil testing or plant analysis:	SM13[1]	[1] O	[2] O	[3] O	[4] O
Cost of fertilizer or amount of fertilizer applied:	SM13[2]	[1] O	[2] O	[3] O	[4] O
Cost of transporting manure or distance from manure storage:	SM13[3]	[1] O	[2] O	[3] O	[4] O
Amount of land available to receive manure:	SM13[4]	[1] O	[2] O	[3] O	[4] O
Soil moisture, temperature or other growing conditions:	SM13[5]	[1] O	[2] O	[3] O	[4] O
Nutrient content of manure:	SM13[6]	[1] O	[2] O	[3] O	[4] O
Nutrient requirement of crop grown or carryover nutrients from last crop:	SM13[7]	[1] O	[2] O	[3] O	[4] O
External sources of information (Crop advisor, fertilizer dealer, provincial recommendations, neighbours etc.)	SM13[8]	[1] O	[2] O	[3] O	[4] O

	High	Medium	Low	None
The quantity of fertilizer used in the past, or based on experience: SM13[9]	[1] O	[2] O	[3] O	[4] O
Other factor *(Please specify):* _____ SM14	[1] O	[2] O	[3] O	[4] O

Section 2: Pesticide application practices

The following questions refer to your pesticide application practices.

57. In 2011, were any herbicides applied to your operation?
    [1] O Yes
    [3] O No *(Go to question 59)*

58. What crops did you apply herbicides to during the 2011 growing season?

PU02[1] Crop 1: _____
Number of applications: _____ PU04[1]

PU02[2] Crop 2: _____
Number of applications: _____ PU04[2]

PU02[3] Crop 3: _____
Number of applications: _____ PU04[3]

59. In 2011, were any insecticides applied to your operation?
    [1] O Yes
    [3] O No *(Go to question 61)*

60. What crops did you apply insecticides to during the 2011 growing season?

PU06[1] Crop 1: _____
Number of applications: _____ PU08[1]

PU06[2] Crop 2: _____
Number of applications: _____ PU08[2]

PU06[3] Crop 3: _____ PU08[3]
Number of applications: _____

61. In 2011, were any fungicides applied to your operation?
[1] O Yes
[3] O No *(Go to question 63)*

62. What crops did you apply fungicides to during the 2011 growing season?

PU10[1] Crop 1: _____ PU12[1]
Number of applications: _____

PU10[2] Crop 2: _____ PU12[2]
Number of applications: _____

PU10[3] Crop 3: _____ PU12[3]
Number of applications: _____

63. Now, thinking about all of your pesticide use, what importance did the following factors have in deciding if and when to apply herbicides, insecticides or fungicides?
If you do not use pesticides, go to Q67.

	High	Medium	Low	None
Personal experience, historical patterns or regular schedule: PU13[1]	[1] O	[2] O	[3] O	[4] O
Crop condition or growth stage: PU13[2]	[1] O	[2] O	[3] O	[4] O
Weather conditions: PU13[3]	[1] O	[2] O	[3] O	[4] O
Economic factors such as input costs or crop prices: PU13[4]	[1] O	[2] O	[3] O	[4] O
Detection of pests, field scouting or regional pest data: PU13[5]	[1] O	[2] O	[3] O	[4] O
Advice from other farm operators: PU13[6]	[1] O	[2] O	[3] O	[4] O
Advice from specialists (e.g. pesticide sales representative, agronomist, crop consultant): PU13[7]	[1] O	[2] O	[3] O	[4] O
General recommendations provided through publications: PU13[8]	[1] O	[2] O	[3] O	[4] O
Other factor *(Please specify):* _____ PU14 PU13[9]	[1] O	[2] O	[3] O	[4] O

PU15 64. In 2011, did a formally certified or licensed person apply or supervise the application of herbicides, insecticides or fungicides on your operation?

[1] O Yes, all applications
[2] O Yes, some applications
[3] O No

PU16 65. In 2011, at which of the following times was the sprayer, used to apply herbicides, insecticides or fungicides, calibrated? *(Mark all that apply)*

[1] O At the beginning of the crop season, before the first application
[2] O Before every use
[3] O When it broke down or major components were replaced
[4] O Between applications of different types of pesticides
[5] O Did not calibrate
[6] O Not applicable, sprayer not used on your operation
[7] O Not applicable, spraying done by custom
[8] O Other *(specify)*:_____PU17

PU18 66. In 2011, were any of the following methods used to control herbicide, insecticide or fungicide spray drift on your operation? *(Mark all that apply)*

[1] O Apply only when winds are below recommended thresholds for application rate/wind speed
[2] O Use low drift or low pressure nozzles
[3] O Use shrouded booms or low boom applicators
[4] O Add anti-drift agents or chemical to the herbicides, insecticides or fungicides
[5] O Leave untreated buffer zones
[6] O Other *(specify)*:_____PU19
[7] O None of the above

PU20 67. In 2011, were any of the following methods used specifically to control weeds, insects or diseases? *(Mark all that apply)*

[1] O Plant crop varieties that are resistant to specific pesticides
[2] O Rotate crops to disrupt pest cycles
[3] O Eliminate, remove or incorporate diseased plants, pruning residues or cull piles
[4] O Use fall planted species (e.g. winter wheat, fall rye)

[5] O Use tillage implements
[6] O Mowing
[7] O Use hand weeding/hoeing
[8] O Use covers/mulches
[9] O Introduce natural enemies/biological control agents
[10] O Use lure or trap crops
[11] O Other *(specify)*:_____PU21
[12] O None

Section 3: Land and water management practices

The following questions refer to land and water management practices on your operation.

68. In 2011, were any of the following practices used on your operation?

LU01 • Cover or companion crops
[1] O Yes
[3] O No

LU02 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU03

LU04 • Winter cover or green manure
[1] O Yes
[3] O No

LU05 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU06

LU07 • Terracing, contour or across the slope cropping
[1] O Yes
[3] O No

LU08 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU09

LU10 • Permanent perennial forages on erodible land
[1] O Yes
[3] O No

LU11 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU12

LU13

- Adding straw to improve soil condition (e.g., mulching)

[1] O Yes
[3] O No

LU14 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU15

LU16
- Placing eroded soil back on hilltops

[1] O Yes
[3] O No

LU17 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU18

LU19
- Controlled or slow release nitrogen fertilizer products (e.g. urease inhibitors, ESN technology)

[1] O Yes
[3] O No

LU20 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU21

LU22
- Field shelterbelts/windbreaks

[1] O Yes
[3] O No

LU23 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU24

LU25
- Surface or sub-surface drainage of land

[1] O Yes
[3] O No

LU26 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU27

LU28
- Restore or plug previously drained wetlands to natural condition

[1] O Yes
[3] O No

LU29 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU30

LU31
- Other (please specify): _____ LU32

[1] O Yes

[3] O No

LU33 Over what area? _____ [1] O acres [2] O hectares [3] O arpents LU34

LU35 69. In 2011, was GPS equipment or products used on your operation?
[1] O Yes
[3] O No

LU36 70. Was the GPS equipment used… *(Mark all that apply)*
[1] O As a tracking or guidance system on tractor to eliminate overlaps and misses in field operations (e.g. seeding, fertilizing, spraying and harvesting)?
[2] O To generate yield maps from a combine yield monitor?
[3] O To target or vary fertilizer or manure application rates across a field?
[4] O To target or vary pesticide application rates across a field?
[5] O To design improved drainage of land?
[6] O Other (please specify): _____ LU37
[7] O None of the above

The following questions are about land use changes.

LU38 71. In 2011, what was the total woodland area on your operation?

_____ [1] O acres [2] O hectares [3] O arpents LU39

Woodlands *include woodlots, tree windbreaks, shelterbelts, bush, forest, shrubs, tree bluffs.*

LU40 72. Since 2006, how much of your land area was changed FROM woodland TO pasture or cultivated cropland?

_____ [1] O acres [2] O hectares [3] O arpents LU41

LU42 73. Since 2006, how much of your land area was changed FROM pasture or cultivated cropland TO woodland?

_____ [1] O acres [2] O hectares [3] O arpents LU43

LU44 74. In 2011, how much of your land area was changed FROM cultivated cropland TO pasture?

_____ [1] O acres [2] O hectares [3] O arpents LU45

LU46 75. In 2011, how much of your land area was changed FROM pasture TO cultivated cropland?

_____ [1] O acres [2] O hectares [3] O arpents LU47

Wetlands and water management

Seasonal wetlands

LU49 76. Were there any seasonal wetlands on your cropland in 2011?
[1] O Yes
[3] O No *(Go to Q80)*

Seasonal wetlands *normally have water present until mid-summer or early fall and, in most years it is too wet to plant a crop in these areas. Examples include ponds, sloughs, potholes, marshes and treed wet swamps. Don't consider permanent wetlands.*

LU50 77. Did you maintain a riparian buffer around or beside the seasonal wetlands?
[1] O Yes, all
[2] O Yes, some
[3] O No *(Go to Q80)*

A ***riparian buffer*** *is permanent planted or natural vegetation adjacent to a seasonal or permanent wetland or waterway, extending upslope from the normal shoreline.*

LU51 78. What type of vegetation was your riparian buffer composed of? *(Mark all that apply)*
[1] O Trees
[2] O Shrubs
[3] O Grasses
[4] O Legumes
[5] O Other (please specify): _____ LU52

LU53 79. Was the riparian buffer harvested or left idle?
[1] O Harvested, all
[2] O Harvested, some
[3] O Left idle

Permanent wetlands

LU54 80. Were there any permanent wetlands on your cropland in 2011?
[1] O Yes
[3] O No *(Go to Q84)*

Permanent wetlands *are similar to seasonal wetlands, except they are usually flooded year-round, except for during periods of extreme drought. They also include lakes, reservoirs and dugouts.*

LU55 81. Did you maintain a riparian buffer around or beside the permanent wetlands?
[1] O Yes, all
[2] O Yes, some
[3] O No *(Go to Q84)*

LU56 82. What type of vegetation was your riparian buffer composed of? *(Mark all that apply)*
[1] O Trees
[2] O Shrubs
[3] O Grasses
[4] O Legumes
[5] O Other (please specify): _____ LU57

LU58 83. Was the riparian buffer harvested or left idle?
[1] O Harvested, all
[2] O Harvested, some
[3] O Left idle

Waterways

LU59 84. Were there any waterways on your cropland in 2011?
[1] O Yes

[3] O No *(Go to Q88)*

Waterways *are channels that contain flowing water year round or for at least part of the year, usually in spring. Examples include drainage ditches, draws or coulees, grassed waterways, streams, creeks and rivers.*

LU60 85. Did you maintain a riparian buffer around or beside the waterways?
[1] O Yes, all
[2] O Yes, some
[3] O No *(Go to Q88)*

LU61 86. What type of vegetation was your riparian buffer composed of? *(Mark all that apply)*
[1] O Trees
[2] O Shrubs
[3] O Grasses
[4] O Legumes
[5] O Other (please specify): _____ LU62

LU63 87. Was the riparian buffer harvested or left idle?
[1] O Harvested, all
[2] O Harvested, some
[3] O Left idle

Domestic water

LU64 88. In 2011, were there any wells on your operation that are no longer used?
[1] O Yes
[3] O No *(Go to Q90)*

LU65 89. Have these wells been decommissioned?
[1] O All decommissioned
[2] O Some decommissioned
[3] O None

Energy

LU66 90. Do you use or generate any of the following alternative or renewable energy sources on your operation? *(Mark all that apply)*
[1] O Solar
[2] O Wind

[3] O Biogas or methane
[4] O Biomass (e.g. wood, crop residue, other organic based fuels)
[5] O Hydro electricity generated on your operation
[6] O Other (please specify): _____ LU67
[7] O None

Section 4: Wildlife Damage

The following questions refer to wildlife damage on your operation.

WD01 91. In 2011, were any of your crops damaged by wildlife?
[1] O Yes
[3] O No (Go to Q93)

92.

What were your three most damaged crops, by area?	WD02[1]	WD02[2]	WD02[3]
What percentage of your crop was damaged by wildlife?	WD04[1] [1] O 0-5% [2] O 6-10% [3] O 11-30% [4] O 31% or more	WD04[2] [1] O 0-5% [2] O 6-10% [3] O 11-30% [4] O 31% or more	WD04[3] [1] O 0-5% [2] O 6-10% [3] O 11-30% [4] O 31% or more

WD05 93. Since 2006, were any of the following practices used to reduce the impact of wildlife damage to your crops? *(Mark all that apply)*
[01] O Fencing to protect crops
[02] O Scaring devices or repellent systems
[03] O Shooting or trapping by yourself or others
[04] O Planting lure crops
[05] O Planting less palatable crops
[06] O Border cropping
[07] O Netting
[08] O Other (please specify): _____ WD06
[09] O None

Section 5: Waste management and hazardous materials

The following questions refer to waste management and hazardous materials on your operation.

WM01 94. In 2011, did you store commercial fertilizers on your operation?
[1] O Yes
[3] O No *(Go to Q96)*

WM02 95. Did the commercial fertilizer storage site have a containment system to handle spills?
[1] O Yes
[3] O No

WM03 96. In 2011, did you store pesticides (herbicides, insecticides or fungicides) on your operation?
[1] O Yes
[3] O No *(Go to Q98)*

WM04 97. Did the pesticide storage site have a containment system to handle spills?
[1] O Yes
[3] O No

WM05 98. In 2011, did you store fuel (diesel or gasoline) on your operation?
[1] O Yes
[3] O No *(Go to Q100)*

WM06 99. Did the fuel storage site have a containment system to handle spills?
[1] O Yes
[3] O No

WM07 100. In 2011, did you store other petroleum products (oil, grease or waste oil) on your operation?
[1] O Yes
[3] O No *(Go to Q102)*

WM08 101. Did the storage site have a containment system to handle petroleum product spills?
[1] O Yes
[3] O No

WM09 102. In 2011, how was wastewater managed on your operation? *(Mark all that apply)*

01 O Discharged to a constructed retention or holding pond
02 O Discharged to a septic or sewer system
03 O Discharged into a vegetative filter strip or constructed wetland
04 O Applied to agricultural land by gravity release, pumping, spreading, or irrigation system
05 O Included in the liquid manure system
06 O Collected in holding or storage tank
07 O Other (please specify): _____ WM10
08 O Not actively managed. Wastewater removed through natural drainage.
09 O Not applicable/ no wastewater.

Wastewater *includes water from cleaning sprayers and other farm equipment, water from washing farm produce, milkhouse, pens or facilities, silage leakage or runoff from livestock pens, etc.*

Section 6: Environmental Farm Plan

EP01 103. Does your farm have a formal, written environmental farm plan?

1 O Yes, plan is developed
2 O Yes, plan is in development and being reviewed
3 O No *(Go to end)*

*An **Environmental Farm Plan** is a formal, written overall assessment of environmental issues or concerns related to your operation and can include individual and/or group planning processes.*

EP02 104. When was this Environmental Farm Plan developed or last updated?

1 O Less than 1 year ago
2 O 1-3 years ago
3 O 4-5 years ago
4 O More than 5 years ago

EP03 105. To what extent were the Beneficial Management Practices identified in the action plan of your Environmental Farm Plan implemented on your operation?

1 O Practices fully implemented *(Go to Q107)*
2 O Practices partially implemented
3 O Practices not implemented

Beneficial Management Practices *are practices that improve environmental benefit or reduce environmental risk on farms. These practices may be eligible for funding under environment programs.*

EP04 106. What is the main reason that you have not implemented the Beneficial Management Practices in your action plan? (Mark only one)

[1] O Economic pressures
[2] O Lack of time
[3] O Lack of information
[4] O Don't accept recommendations
[5] O Other (please specify): _____ EP05

EP06 107. Did you receive any technical assistance from any of the following groups to help implement the Beneficial Management Practices identified in the action plan? *(Mark all that apply)*

[01] O Government agency
[02] O Industry (input supplier, processors, etc.)
[03] O Environmental non-governmental organization (conservation authority, watershed coordinator, etc.)
[04] O Producer association
[05] O College/university
[06] O Environmental Farm Plan advisor
[07] O Other (please specify): _____ EP07
[08] O No assistance

EP08 108. Did you receive any financial assistance to offset costs for implementation of the Beneficial Management Practices identified in your action plan?

[1] O Yes
[3] O No

Comments:

THANK YOU FOR YOUR PARTICIPATION