2005 Livestock Farm Practices Survey
Pig Producers

DRAFT ONLY

CONFIDENTIAL when completed

Collected under the authority of the Statistics Act, Revised Statutes of Canada, 1985, Chapter S-19.

To correct or make changes to this label → See below

Ce questionnaire est disponible en français.

For interviewer use only

Fully completed	005	1	
Partial	005	4	
Refusal	005	2	
No contact	005	3	

Please indicate start time of interview:

[ ][ ] : [ ][ ]
1 2

In operation	004	00	
Change of operator	004	12	
Out of business	004	13	

TO THE RESPONDENT:

To improve overall air quality in Canada and worldwide, agriculture like other industries is asked to quantify emissions of ammonia into the atmosphere. The results of the survey will place Canada among other industrialized countries who have agreed to co-operate to improve air quality around the globe. Because pollutants travel long distances crossing many boundaries, international co-operation is essential for long-term air quality. The information obtained from the survey will guide researchers to improve efficiency of Nitrogen use on farms.

Your farm was selected at random for this survey from a list of pig producers. While participation in this survey is voluntary, your cooperation is important to ensure that the information collected in this survey is as accurate and as comprehensive as possible.

Statistics Canada is prohibited by law from publishing any statistics which would divulge information obtained from this survey that relates to any identifiable business, institution or individual without their knowledge and consent. The data reported on this questionnaire will be treated in confidence, used for statistical purposes and published in aggregate form only.

This questionnaire on commercial pig operations deals with feed protein, barn types, manure handling and spreading of manure. The person most knowledgeable about these items should complete the questionnaire.

Please refer to the 2005 calendar year when answering questions unless specified otherwise.

Change or correction to the address label (if required)

Are there any changes required to the address label?

[ ] 11
Corporation name

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Area code

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Operator name

[ ][ ][ ] - [ ][ ][ ][ ] 15
Telephone

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Contact name

[ ][ ][ ] - [ ][ ][ ][ ] 16
Telephone

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P.O. Box

[ ][ ][ ][ ][ ][ ][ ][ ] 18
Number and street name

[ ] 19

[ ][ ][ ] - [ ][ ][ ] 20
Postal code

[ ] 21
Post office (name of city, town or village where mail is received)

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Canada

For questions about pigs include the following:

- All pigs on your operation, regardless of ownership, including those that are custom fed or fed under contract for others.

For questions about pigs exclude the following:

- Do not report pigs which are owned by you but kept on a farm owned by someone else.

1. What type of commercial pig operations do you own or manage? Check all that apply.

   Farrowing ..... ❑1
   Grower (feeder) and finisher pigs ..... ❑2
   Finishing (finishers)..... ❑3
   Farrow to finish ..... ❑4
   Other commercial production, specify: _____ ❑5

Section 1 – Grower (feeder) and finisher pigs including weaners

2. In 2005, what was the average number of pigs *(weaners)* under 45 lb (less than 20 kg) on your farm operation at any one time?

   | | | | | | | Pigs1 *(less than 45 lb or 20 kg)*

3. In 2005, did you have grower and/or finisher pigs on your farm operation? Include any weaned pigs. *Exclude boars and breeding sows.*

   Yes .... ❑1 ➔ Please complete Section 1
   No .... ❑2 ➔ Go to Section 2 (page 8)

4. In 2005, what was the average number of grower and finisher pigs 45 lb and over (20 kg and over) on your farm operation at any one time?

   | | | | | | | Pigs1 *(45 lb or 20 kg and over)*

5. How many pigs weighing less than 220 lb (100 kg) did you ship for slaughter in 2005?

   | | | | | | | Pigs1 *(less than 220 lb or 100 kg)*

6. How many weighing between 220 and 260 lb (100 to 120 kg) did you ship for slaughter in 2005?

   | | | | | | | Pigs1 *(220 to 260 lb or 100 to 120 kg)*

7. How many weighing more than 260 lb (120 kg) did you ship for slaughter in 2005?

   | | | | | | | Pigs1 *(more than 260 lb or 120 kg)*

8. In 2005, did you sell pigs to another operation for finishing?

   Yes .... ❑1
   No ..... ❑2

9. How many separate building(s) did you use to house your pigs in 2005?

   | | | | Building(s)1

10. In 2005, what was the average temperature in the production part of your grower and finisher pig building? *(If more than one building, answer for the largest production building).*

About the same as outdoors ❑$_1$

Warmer than outdoors in summer **by**: ..... ☐☐ °C$_2$ **---Or---** ☐☐ °F$_3$

Cooler than outdoors in summer **by**: ... . ☐☐ °C$_4$ **---Or---** ☐☐ °F$_5$

Warmer than outdoors in winter **by**: .... ☐☐ °C$_6$ **---Or---** ☐☐ °F$_7$

11. What type of ventilation system did you have in your grower and finisher pig buildings?

Check all that apply.

Fans switched on automatically with computer . ... ❑$_1$

Fans switched on automatically with thermostat .... ❑$_2$

Fans switched on manually .... ❑$_3$

Passive ventilation (side curtains, free air or vent panels) .... ❑$_4$

Other, *specify:* _____ ❑$_5$

❑$_6$ Not applicable

12. Did you have 'pit fans', such as fans over a <u>sub-floor</u> or <u>separate manure pit</u>, placed to specifically draw air over the manure in the grower and finisher pig building(s)?

Yes.... .....❑$_1$

No ....❑$_2$

13. Did you have filters on your vents or vent fans to control dust or odour emissions in your pig buildings?

Yes.... .....❑$_1$

No ....❑$_2$

14. In 2005, what proportion of your grower and finisher pig feed came from commercial feed suppliers?

More than 75% ..... ❑$_1$ ➔ Answer question 15

25% to 75% ..... ❑$_2$ ➔ Answer question 15

Less than 25%..... ❑$_3$ ⬇ Go to question 16

None .... ❑$_4$ ⬇ Go to question 16

15. What commercial feed products did you obtain?

Check all that apply

Complete feed .... ❑$_1$

Protein supplements .... ❑$_2$

Amino acids .... ❑$_3$

Vitamin / mineral premixes .... ❑$_4$

*Other, specify:*_____ ❑$_5$

Don't know ❑$_6$

16. Does the percentage (%) of crude protein content of grower and finisher pig diet change for each stage of production?

Yes…❑$_1$➔ Answer questions 18 and 19

No ... ❑$_2$🡻 Go to question 17

18. In 2005, what was the percentage (%) of crude protein content of the feed used for your pigs during each stage of production?

% crude protein

First stage of production: .... ☐☐ $_1$

Second stage of production: .... ☐☐ $_2$

Third stage of production: .... ☐☐ $_3$

Fourth stage of production: .... ☐☐ $_4$

Fifth stage of production:..... .... ☐☐ $_5$

Other stage of production:..... .... ☐☐ $_6$

Specify: _____ ❑$_7$

Don't know ❑$_8$

17. What was the percentage (%) of crude protein content of the feed used for your pig diet?

☐☐ % of crude protein $_1$

Don't know ❑$_2$

🡻 Go to question 20

19. What weight were the pigs at the <u>start of each stage of production</u>?

	kg	***lb***
First stage of production:.....	☐☐☐ $_1$	☐☐☐ $_2$
Second stage of production:	☐☐☐ $_3$	☐☐☐ $_4$
Third stage of production:	☐☐☐ $_5$	☐☐☐ $_6$
Fourth stage of production:	☐☐☐ $_7$	☐☐☐ $_8$
Fifth stage of production:.....	☐☐☐ $_9$	☐☐☐ $_{10}$
Other stage of production:.....	☐☐☐ $_{11}$	☐☐☐ $_{12}$

Specify: _____ ❑$_{13}$

Don't know ❑$_{14}$

20. For your finishers (60 kg and over) in 2005, what was the feed conversion efficiency for the last completed cycle (the quantity of feed needed to produce 1 kg or 1 lb of live weight of pig)?

☐.☐☐

Feed conversion efficiency rate (lb or kg)$_1$

Or

Don't know ❑$_2$

21. In 2005, did you mix feed, other than minerals, for the pigs on your operation?

Yes ❑1 ➔ Answer questions 22 to 25

No ... ❑2 ➔ Go to question 26

22. What ingredients did you mix? *(Do not include commercial vitamin, mineral premixes or protein supplements).*

Check all that apply.

Corn .. .. ❑1

Cereals *(e.g. barley, wheat, rye)* .... ❑2

Soybean meal .... ❑3

Soybean grain .... ❑4

Canola meal .. .. ❑5

Other plant proteins *(e.g. peas)* .... ❑6

Animal proteins *(e.g. whey or skim milk powder)* .... ❑7

Other, *specify:* _____ ❑8

23. Which best describes how you formulated your pig diet?

Check all that apply

Based on farm experience and records .... ❑1

Following tag instructions .... ❑2

Following directions or advice from nutritionist or veterinarian. .. ❑3

Other, *specify:* _____ ❑4

Don't know ❑5

24. How often were these ingredients analysed for protein content?

Never .... ❑1

On occasion, but not in 2005 .. .. ❑2

One to four times in 2005 .... ❑3

Five or more times in 2005..... .... ❑4

25. If the finished feed was analysed in 2005, was the crude protein content:

Usually under your target protein content .... ❑1

Usually meeting your target protein content..... .... ❑2

Usually over your target protein content..... .... ❑3

26. Which best describes how your grower and finisher pigs are housed? If there is more than one building, answer for the largest.

Check all that apply.

On litter (straw, sawdust, etc.) .. .❑1

➔ Answer questions 27 to 29

Solid concrete floor ....❑2 🡻 Go to question 30
On partially slatted floor ..... .❑3 🡻 Go to question 30
On fully slatted floor ....❑4 🡻 Go to question 30

Other, specify:

_____❑5

🡻 Go to question 30

27. What type of litter did you use for your pigs?

Straw or other crop residue..... .... ❑1
Sawdust, wood chips or shavings .... ❑2
Paper crumb or other forest product..... ..... ❑3
Sand, gravel or other mineral product .. .. ❑4
Other, *specify:* _____❑5

28. How often did you add fresh bedding? Specify the usual number of days between one addition and the next.

☐☐☐ Days 1

29. Approximately how much bedding do you use per year for all your grower and finisher pigs?

☐☐☐☐☐☐ Cubic yards/metres1

----------Or----------

☐☐☐☐☐☐ Number of large bales2

----------Or----------

☐☐☐☐☐☐ Number of small bales3

----------Or----------

☐☐☐☐☐☐ Tonnes (metric)4

----------Or----------

☐☐☐☐☐☐ Tons (imperial)5

----------Or----------

☐☐☐☐☐☐ Other units6

Specify units:

_____❑7

Don't know ❑8

30. What is the main form of manure you collect from your pigs?

Slurry or liquid manure .... ❑1
Solid or semi-solid manure with little or no bedding .... ❑2
Solid manure with bedding .... ❑3
Other, *specify:* _____ ❑4

31. Do you use scrapers or slurry-based manure systems to clean barn slats or floors of your grower and finisher pig building? *If there is more than one, answer for the largest production building.*

Yes ..... ❑$_1$ ➔Answer questions 32 and 33

No..... ❑$_2$ ➔Go to question 34

32. How often did you <u>wash down or scrape</u> the slats or floors? Specify the most common number of days between one cleaning and the next.

☐☐☐ Days$_1$

33. How often did you <u>completely clean manure out</u> of the building, including pumping out sub-floor pits? *Specify the most common number of days between one cleaning and the next.*

☐☐☐ Days$_1$

34. In 2005, what was the percentage of all the manure removed from your grower and finisher pig building(s) in the following periods? *What percentage was removed in…?*

	%
April to May	☐☐☐ 1
June to August	☐☐☐ 2
September to November	☐☐☐ 3
December to March	☐☐☐ 4

Total must be 100%

Manure is removed at the end of each cycle ❑$_5$

Section 2 – Breeding Stock *(dry sows and nursing sows with litters)*

35. Do you have breeding stock *(dry and nursing sows, maiden gilts and boars)* on your farm operation?

Yes.... .....❑$_1$ ➔ Please complete Section 2

No ....❑$_2$ ➔ Go to Section 3 (page 13)

36. In 2005, what was the average number of each type of breeding stock present on your farm operation at any one time?

How many nursing sows?

☐☐☐☐☐☐ Nursing sows$_1$

How many dry sows?

☐☐☐☐☐☐ Dry sows$_2$

How many maiden gilts?

☐☐☐☐☐☐ Maiden gilts$_3$

How many boars?

☐☐☐☐☐☐ Boars$_4$

37. Do you house your <u>breeding stock</u> in the same buildings(s) as the grower and finisher pigs?

No ....❑$_2$

➔ Answer questions 38 to 42

Yes..... ....❑$_1$

🡻 Go to question 43

38. How many separate buildings do you use for your <u>breeding stock</u>?

☐☐☐ Buildings$_1$

39. In 2005, what was the average temperature in the <u>nursing sow</u> building? *If there is more than one, answer for your largest.*

About the same as outdoors ❑$_1$

Warmer than outdoors in summer by: ☐☐ °C$_2$ **-Or-** ☐☐ °F$_3$

Cooler than outdoors in summer by: ☐☐ °C$_4$ **-Or-** ☐☐ °F$_5$

Warmer than outdoors in winter by: ☐☐ °C$_6$ **-Or-** ☐☐ °F$_7$

40. What type of ventilation system do you have in the <u>nursing sow</u> building(s)?

Check all that apply.

Fans switched on automatically with computer .... ❑$_1$

Fans switched on automatically with thermostat .... ❑$_2$

Fans switched on manually . ... ❑$_3$

Passive ventilation (side curtains, free air or vent panels) ……..❑$_4$

Other, *specify:* _____❑$_5$

41. Do you have 'pit fans', such as fans over a <u>sub-floor</u> or <u>separate manure pit</u>, placed to specifically draw air over the manure in the <u>breeding stock</u> building(s)?

Yes ..……❑$_1$

No.... ……❑$_2$

42. Do you have filters on your vents or vent fans to control dust or odour emissions in your *(largest)* <u>breeding stock</u> building?

Yes ..……❑$_1$

No.... ……❑$_2$

43. In 2005, what was the percentage (%) of crude protein content of the feed used for the <u>nursing sow</u> diet?

☐☐ % crude protein $_1$

Don't know ❑$_2$

44. In 2005, did you feed commercial protein supplement to your <u>nursing sows</u>?

Yes..... ..... ❑$_1$➔ Answer question 45

No .... ❑$_2$🡻 Go to question 46

45. What quantity of commercial protein supplement did you feed your <u>nursing sows</u> in a day?

☐☐ kg per day$_1$

----Or-----

☐☐ lb per day$_2$

Don't know ❑$_3$

46. Did you offer creep feed to nursing piglets?

Yes..... ..... ❑$_1$➔ Answer question 47

No .... ❑$_2$🡻 Go to question 48

47. What was the protein content of that creep feed?

☐☐ % of protein $_1$

Don't know ❑$_2$

48. In 2005, what was the percentage (%) of crude protein content of the feed used for the <u>dry sow</u> diet?

☐☐ % crude protein$_1$

Don't know ❑$_2$

49. In 2005, did you feed commercial protein supplement to your <u>dry sows</u>?

Yes..... ..... ❑$_1$➔ Answer question 50

No .... ❑$_2$🡻 Go to question 51

50. What quantity of commercial protein supplement did you feed your <u>dry sows</u> in a day?

☐☐ kg per day$_1$

----Or-----

☐☐ lb per day$_2$

51. What is the main form of manure you collected from your <u>nursing sows</u>?

Slurry or liquid manure .... ❑$_1$

Solid or semi-solid manure with little or no bedding .... ❑$_2$

Solid manure with a lot or some bedding .... ❑$_3$

Other, *specify:* _____ ❑$_4$

52. What type of manure system(s) did you use in your <u>nursing sow</u> buildings? *Is it …?*

Check all that apply.

Litter (straw, sawdust, shavings) ....❑$_1$

➔ Answer questions 53 to 55

Slats or other slurry-based system ....❑$_2$

🡻 Go to question 56

Automated removal farrowing crates..... .....❑$_3$

🡻 Go to question 56

Manual removal farrowing crates ....❑$_4$

(removed once at room turnover)

🡻 Go to question 56

Farrowing rooms "all in all out" . ...❑$_5$

🡻 Go to question 56

Other, *specify:* _____ ❑$_6$

🡻 Go to question 56

53. What type of litter did you use for your <u>nursing sows</u>?

Straw or other crop residue..... ..... ❑$_1$

Sawdust, wood chips or shavings ..... ❑$_2$

Paper crumb or other forest product..... ❑$_3$

Sand, gravel or other mineral product .. ❑$_4$

Other, *specify:* _____❑$_5$

54. How often did you add fresh bedding? Specify the usual number of days between one addition and the next.

☐☐☐ Days$_1$

55. Approximately how much bedding do you use per year for all your nursing sows?

☐☐☐☐☐☐ Cubic yards/metres$_1$

----------Or----------

☐☐☐☐☐☐ Number of large bales$_2$

----------Or----------

☐☐☐☐☐☐ Number of small bales$_3$

----------Or----------

☐☐☐☐☐☐ Tonnes (metric)$_4$

----------Or----------

☐☐☐☐☐☐ Tons (imperial)$_5$

----------Or----------

☐☐☐☐☐☐ Other units$_6$

Specify units:

_____ ❑$_7$

Don't know ❑$_8$

56. Do you use scrapers or slurry-based manure systems to clean the barn slats or floors in your nursing sow building? *If there is more than one building, answer for the largest.*

Yes ..... ❑$_1$ ➔ Answer questions 57 and 58

No. ..... ❑$_2$ ➔ Go to question 59

57. How often did you wash down or scrape the slats or floors? *Specify the most common number of days between one cleaning and the next.*

☐☐☐ Days$_1$

58. How often did you completely clean manure out of the building, including pumping out sub-floor pits? *Specify the most common number of days between one cleaning and the next.*

☐☐☐ Days$_1$

59. What is the main form of manure you collected from your dry sows?

Slurry or liquid manure ..... ❑$_1$

Solid or semi-solid manure with little or no bedding ..... ❑$_2$

Solid manure with a lot or some bedding ..... ❑$_3$

Other, *specify:* _____ ❑$_4$

60. What type of manure system(s) did you use in your dry sow building(s)? *Do you use …?*

Check all that apply.

Litter (straw, sawdust, shavings) ....❑$_1$

➔ Answer questions 61 to 63

Slats or other slurry-based system ....❑$_2$

🡻 Go to question 64

Solid floor ....❑$_3$

🡻 Go to question 64

Pens “all in all out” ....❑$_4$
(removed once at pen turnover)

🡻 Go to question 64

Other, *specify:* _____ ❑$_5$

🡻 Go to question 64

61. What type of litter did you use for your dry sows?

Straw or other crop residue..... ..... ❑$_1$
Sawdust, wood chips or shavings ..... ❑$_2$
Paper crumb or other forest product..... ❑$_3$
Sand, gravel or other mineral product .. ❑$_4$

Other, *specify:* _____❑$_5$

62. How often did you add fresh bedding? *Specify the usual number of days between one addition and the next.*

☐☐☐ Days $_1$

63. Approximately how much bedding do you use per year for all your dry sows?

☐☐☐☐☐☐ Cubic yards/metres$_1$

----------Or----------

☐☐☐☐☐☐ Number of large bales$_2$

----------Or----------

☐☐☐☐☐☐ Number of small bales$_3$

----------Or----------

☐☐☐☐☐☐ Tonnes (metric)$_4$

----------Or----------

☐☐☐☐☐☐ Tons (imperial)$_5$

----------Or----------

☐☐☐☐☐☐ Other units$_6$

Specify units:

_____❑$_7$

Don’t know ❑$_8$

64. Did you use scrapers or slurry-based manure systems to clean barn slats or floors of your dry sow building(s)?

Yes .... ❑$_1$ Answer questions 65 and 66

No..... ..... ❑$_2$ ➧Go to question 67

65. How often did you wash down or scrape the slats or floors? *Specify the most common number of days between one cleaning and the next.*

☐☐☐ Days$_1$

66. How often did you completely clean manure out of the building, including pumping out sub-floor pits? *Specify the most common number of days between one cleaning and the next.*

☐☐☐ Days$_1$

67. In 2005, what was the percentage of all the manure removed from your dry and nursing sow building(s) during the following periods? *What percentage was removed in…?* **%**

April to May .... ☐☐☐$_1$

June to August..... .... ☐☐☐$_2$

September to November .... ☐☐☐$_3$

December to March .... ☐☐☐$_4$

Total must be 100%

----------Or----------

Manure is removed after each cycle ❑$_5$

Section 3 – Solid manure handling and storage

Please refer to a normal year

68. Do you store solid manure from your pig operation?

Yes.... .....❑$_1$ ➧ Please complete Section 3

No ....❑$_2$ ➔ Go to Section 4 (page 14)

69. How long do you usually store solid manure collected over **winter**? *(December to March)*

Is it stored …?

Less than 1 month .... ❑$_1$

From 1 to less than 6 months .. .. ❑$_2$

From 6 to less than 12 months .... ❑$_3$

12 months or longer.... .... ❑$_4$

Not stored over winter. .... ❑$_5$

70. How long do you usually store solid manure collected from **spring to fall**? *(April to November)*

Is it stored …?

Less than 1 month .... ❑$_1$

From 1 to less than 6 months .. .. ❑$_2$

From 6 to less than 12 months .... ❑$_3$

12 months or longer.... .... ❑$_4$

Not stored over spring to fall.... .... ❑$_5$

71. How do you usually store solid manure? *Is it …?*

Uncovered outdoor piles or bunkers..... .... ❑1

Piles or bunkers covered with tarp or straw..... .... ❑2

Piles or bunkers under a roof .. .. ❑3

Other storage, specify: _____ ❑4

72. Do you put any additives into the **solid manure**, to modify odour, pH or nutrient retention? Exclude litter. Yes ..... ❑1➔ Answer question 73 No ..... ❑2🡻 Go to question 74	73. What types of additives do you use? *Specify below:* _____ 1 _____ 2

74. How do you manage solid manure while it is in storage? *Is it …?*

Not moved or disturbed .... ❑1

Moved or disturbed once or twice
(e.g. to consolidate a pile or make room for more manure from the barn) .... ❑2

Routinely and thoroughly mixed or turned *(e.g. to accelerate composting)* .... ❑3

75. What is the percentage of solid manure handled through each method you use?

What percentage is …? **%**

Spread on land *(by you or someone else)*..... .... ☐☐☐1

Composted *(then spread on land)* .... ☐☐☐2

Removed by contractor *(don't know how it is used)* .... ☐☐☐3

Other .... ☐☐☐4

Specify: _____ ❑5

Total must be 100%

Section 4 – Land spreading of solid manure

Please refer to a normal year

76. Is solid manure from your pig operation spread on land *(spread on any land by the operator or by someone else)*?

Yes.... .....❑1 🡻 Please complete Section 4

No ....❑2 ➔ Go to Section 5 (page 17)

77. When the manure is tilled into the soil, what amount would you estimate is still exposed to the air …?

Less than 25% (such as with moldboard plow). .... ❑1

25% to 50% (such as with disc or chisel plow).. .... ❑2

More than 50% (such as with harrow).. .... ❑3

78. Of the total amount of <u>solid manure</u> from your pig operation applied on land, what percentage is applied on: …?

	%	
Tilled crop land (*most crop residue tilled into soil*)	☐☐☐ 1	➔ Answer questions 79 and 80
Reduced till crop land *(most crop residue retained on surface)*	☐☐☐ 2	➔ Answer question 81
Land covered with perennial or forage crops	☐☐☐ 3	➔ Answer question 81
Other	☐☐☐ 4	➔ Go to question 82
Specify: _____	❑ 5	

Total must be 100%

If solid manure is applied on tilled crop land answer questions 79 and 80. Else go to question 81.

79. Of the total *(solid)* manure applied on tilled soil, what percentage is usually applied in each month?

What percentage is applied in …?

	%
January	☐☐☐ 1
February.....	☐☐☐ 2
March	☐☐☐ 3
April.....	☐☐☐ 4
May	☐☐☐ 5
June	☐☐☐ 6
July.....	☐☐☐ 7
August.	☐☐☐ 8
September	☐☐☐ 9
October	☐☐☐ 10
November	☐☐☐ 11
December	☐☐☐ 12

Total must be 100%

All year round at regular intervals ❑ 13

80. For each period, how many days after spreading is the land usually first tilled?

If different for different fields, give the most common. (Incorporated same day = 0 days).

	Days
January	☐☐☐ 1
February.....	☐☐☐ 2
March	☐☐☐ 3
April.....	☐☐☐ 4
May	☐☐☐ 5
June	☐☐☐ 6
July.....	☐☐☐ 7
August.	☐☐☐ 8
September	☐☐☐ 9
October	☐☐☐ 10
November	☐☐☐ 11
December	☐☐☐ 12

Not applicable *(manure is not incorporated into soil)* ❑ 13

If solid manure is applied on <u>reduced till</u>, <u>perennial or forage crop land</u> answer question 81.

Else go to question 82.

81. Of the total *(solid)* manure applied on <u>reduced till crop land</u>, <u>perennial or forage crop land</u>, what percentage is applied in each month?

	%
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

Total must be 100%

All year round at regular intervals ❑$_{13}$

82. <u>In the past 3 years</u>, has a chemical analysis of the <u>solid manure</u> been done for levels of Nitrogen, Phosphorus, Potassium, micronutrient or moisture content?

Yes ❑$_1$ ➔ Answer question 83

No ❑$_2$ ➔ Go to question 84

83. What were the lab results? ***(Specify units of measure** and **range** e.g., 45 to 53 kg Nitrogen per tonne or 0.45 to 0.53% nitrate Nitrogen).*

Enter range in first eight boxes and enter the decimal point if needed. Enter unit of measure in last box to right e.g.)

0	.	4	5	to	0	.	5	3	3

1 = Kilograms (kg) per (metric) tonne of manure
2 = Pounds (lb) per (imperial) ton of manure
3 = Percentage

Lab results (numbers) of chemical analysis:

Moisture content	to		*Unit of measure*
1		2	3
Dry matter content			
4	to	5	6
Total Nitrogen (N)			
7	to	8	9
Ammonium (NH_4)			
10	to	11	12
Phosphorus (P)			
13	to	14	15

84. Do you usually spread *(solid)* manure at a particular time of day? Yes..... ....❑$_1$ ➔ Answer question 85 No, it is spread whenever possible…❑$_2$ 🡻Go to question 86	85. Is it usually spread between: …? 10 a.m. and 6 p.m. .....❑$_1$ 6 p.m. and 10 a.m. .....❑$_2$

86. Do you land spread manure when the wind speed is …?

Calm, say below 5 km/hour *(a flag might hang or ripple gently at this wind speed)* .... ……❑$_1$

Brisk or strong, say about 5 to 9 km/hour *(a flag would fly straight out at this wind speed)* ……..…… ❑$_2$

Any speed, the job gets done whenever it is possible .... ……❑$_3$

Section 5 - Handling and storage of <u>liquid</u> manure

Please refer to a normal year

87. Do you store <u>liquid manure</u> *(slurry)* from your pig operation?

Yes.... .....❑$_1$ 🡻 Please complete Section 5

No ....❑$_2$ ➔ Go to Section 6 (page 19)

88. How long do you usually store <u>liquid manure</u> collected over **winter**? *(December to March)*

Is it stored …?

Less than 1 month ....❑$_1$

From 1 to less than 6 months .. ..❑$_2$

From 6 to less than 12 months ....❑$_3$

12 months or longer.... ....❑$_4$

Not stored over winter. ....❑$_5$

89. How long do you usually store <u>liquid manure</u> collected from **spring to fall**? *(April to November)*
Is it stored …?

Less than 1 month ....❑$_1$

From 1 to less than 6 months .. ..❑$_2$

From 6 to less than 12 months ....❑$_3$

12 months or longer.... ....❑$_4$

Not stored over spring to fall.... ....❑$_5$

90. Do you separate solids from liquid manure *(slurry)*? Yes..... .....❑$_1$ ➔Go to question 91 No ....❑$_2$ 🡻 Go to question 92 Not applicable ❑$_3$ 🡻 Go to question 92	91. What do you use to separate solids from liquid manure? Liquid drawn off top of tank ....❑$_1$ Settling ponds or weeping walls..... .....❑$_2$ Screens ....❑$_3$ Presses (belt, screw or other) ....❑$_4$ *Other, specify:* _____❑$_5$

92. Which of the following describes the main *(or largest)* liquid manure storage space you used? *Is it a …?*

Tank above ground ..... ❑1
Lined or cement pit ..... ❑2
Lagoon or dugout in ground ..... ❑3
Other storage, *specify:* _____ ❑4

93. Is your main *(or largest)* liquid manure storage space …?

Open, so rain might get in ..... ❑1
Covered with a roof ..... ❑2

94. On your main *(or largest)* liquid manure storage, is there …?

A floating crust formed by the manure.. ..... ❑1
A floating cover such as a floating lid or tarp ..... ❑2
A floating cover such as straw ..... ❑3
No floating cover or crust..... ❑4

95. How do you usually manage liquid manure while it is in storage? *Is it …?*

Not aerated or agitated until just before taken out ..... ❑1
Aerated or agitated up to three times per month..... ❑2
Aerated or agitated four times or more per month ..... ❑3

96. What becomes of liquid manure on your operation? *Is it …?*
Check all that apply.

Spread on land *(by you or someone else)* ..... ❑1
Composted *(then spread on land)* ..... ❑2
Removed by contractor *(don't know how it is used)* ..... ❑3
Other, *specify:* _____ ❑4

97. What percentage of liquid manure *(from your pig operation)* is handled through each method you use?
What percentage is …?

	%
Spread on land *(by you or someone else)*.....	☐☐☐1
Removed by contractor (*don't know how it is used)*.....	☐☐☐2
Other	☐☐☐3
Specify: _____	❑4

Total must be 100%

98. Do you put any additives into the liquid manure, to modify odour, pH or nutrient retention? Exclude litter.	99. What types of additives do you use?
Yes ..... ❑1➔ Answer question 99 No ..... ❑2🡻 Go to question 100	_____ 1 _____ 2

100. What are the dimensions of the surface area of your main *(or largest)* liquid manure storage space …?
(*If oval give length and width. If round give Diameter in Box 5 or 6)*.

☐☐☐☐☐ feet$_1$ by ☐☐☐☐☐ feet$_2$

----------Or----------

☐☐☐☐☐ metres$_3$ by ☐☐☐☐☐ metres$_4$

----------Or----------

(Box 5) ☐☐☐☐☐ Diameter in feet$_5$

(Box 6) ☐☐☐☐☐ Diameter in metres$_6$

101. What is the depth (*pit capacity*) of your main *(or largest)* liquid manure storage?

☐☐☐☐☐ feet$_1$ **----Or----------** ☐☐☐☐☐ metres$_2$

Section 6 – Land spreading of liquid manure *(slurry)*

Please refer to a normal year

102. Is liquid manure *(slurry)* from your pig operation usually spread on land *(spread on any land by the operator or by someone else)*?

Yes.... .....❑$_1$ ➔ Please complete Section 6

No ....❑$_2$ ➔ Go to Section 7 (page 22)

103. Of the total amount of liquid manure from your pig operation applied on land, what percentage is spread on …?

	%	
Tilled crop land (*most crop residue tilled into soil*)..	☐☐☐$_1$	➔ Answer questions 104 and 105
Reduced till crop land . ... *(most crop residue retained on surface)*	☐☐☐$_2$	➔ Answer question 106
Land covered with perennial or forage crops	☐☐☐$_3$	➔ Answer question 106
Other	☐☐☐$_4$	➔ Go to question 107

Specify: _____ ❑$_5$

If applied on tilled land answer questions 104 and 105. Else go to question 106*

104. Of the total *(liquid)* manure applied on tilled soil, what percentage is usually applied in each month?

What percentage is applied in …?

	%
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

Total must be 100%

All year round at regular intervals ❑13

105. For each period, how many days after spreading is the land usually first tilled? **If different for different fields, give the most common** (Less than 2 hours = 0 days. From 2 to 24 hours = 0.5 days).

	Days
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

Not applicable *(manure is not incorporated into soil)* ❑13

If applied on reduced till or perennial crop land, answer question 106. Else go to question 107*

106. Of the total *(liquid)* manure applied on reduced till or perennial crop land, what percentage is applied in each month:

	%
January	1
February	2
March	3
April	4
May	5
June	6
July	7
August	8
September	9
October	10
November	11
December	12

Total must be 100%

All year round at regular intervals ❑13

107. Do you usually land spread *(liquid)* manure at a particular time of day?	108. Is it usually spread between: …?
Yes..... ..... … ....❑1 ➔ Answer question 108 No, manure is spread whenever possible ....❑2 ➔ Go to question 109	10 a.m. and 6 p.m. .....❑1 6 p.m. and 10 a.m. .....❑2

109. What best describes the consistency of the liquid manure on your operation?

Runny like water ....❑1

Pea soup..... ....❑2

Toothpaste..... ....❑3

110. What method do you usually use to spread liquid manure? *Give the approximate percentage of total liquid manure spread by each method.*

What percentage is …? **%**

Broadcast over soil surface, over stubble or residue .... ☐☐☐1

Narrow bands on soil surface such as with drop hoses or a sleighfoot .... ☐☐☐2

Shallow injected, where some of the manure remains on the soil surface .... ☐☐☐3

Deep injected, where little of the manure remains on the soil surface .... ☐☐☐4

Irrigated (e.g. with a pivot gun) .... ☐☐☐5

Other .... ☐☐☐6

Specify: _____ ❑7

Total must be 100%

111. Does the method you use to spread liquid manure change from season to season?	112. Do you usually …?
Yes ..... ……❑1 ➔ Answer question 112 No, same method used all year ❑2 ➔ Go to question 113	Inject in spring or fall, broadcast in summer .....❑1 Other, *specify:*_____❑2

113. Do you usually land spread *(liquid)* manure when wind speed is …?

Calm, say below 5 km/hour *(a flag might hang or ripple gently at this wind speed)* .... ……..❑1

Brisk or strong, say about 5 to 9 km/hour *(a flag would fly straight out at this wind speed)* ….. …..……❑2

Any speed, the job gets done whenever it is possible .... ……..❑3

114. In the past 3 years, has a chemical analysis of the liquid manure been done for levels of Nitrogen, Phosphorus, Potassium, micronutrient or moisture content?

Yes..... .....❑$_1$ ➔Answer question 115

No ....❑$_2$ ➔ Go to question 116

115. What were the lab results? ***(Specify units of measure** and **range** e.g., 45 to 53 kg Nitrogen per tonne or 0.45 to 0.53% nitrate Nitrogen).*

Unit of measure codes:

1 = Kilograms (kg) per (metric) tonne of manure
2 = Pounds (lb) per (imperial) ton of manure
3 = Percentage

Enter range in first eight boxes and enter the decimal point if needed. Enter unit of measure in last box to right e.g.:

0	·	4	5	to	0	·	5	3		3

Lab results (numbers) of chemical analysis:

Moisture content *Unit of measure*

				to						
1					*2*				*3*	

Dry matter content

				to						
4					*5*				*6*	

Total Nitrogen (N)

				to						
7					*8*				*9*	

Ammonium (NH_4)

				to						
10					*11*				*12*	

Phosphorus (P)

				to						
13					*14*				*15*	

Section 7 - Odour management and nutrient conservation

116. At what stage of your pig operation's cycle, if any, is the odour of manure stronger than it is **usually**?

Check all that apply.

Is it more often stronger during …?

Barn cleaning..... .... ❑$_1$

Land spreading..... .... ❑$_2$

Agitation of manure . ... ❑$_3$

Mixing or composting .... ❑$_4$

Other, specify: _____ ❑$_5$

No differences throughout the year ❑$_6$

If no differences in odour throughout the year, go to question 119.

117. How many times per year is the odour of manure from your *(pig)* operation stronger than it is usually?

Time(s)$_1$

118. Usually, how many days per year does this stronger odour of manure last?

Day(s)$_1$

119. What is the vegetation within 300 metres *(1000 feet)* to the **north and west** of your barns?
Check all that apply.

Nothing tall, there are no trees or tall shrubs (nothing taller than corn, for example) ..... ❑1

Shelterbelt with leafed trees that shed leaves in fall ... . ❑2

Shelterbelt with evergreen trees .... ❑3

Woodlot or forest .... ❑4

120. What is the vegetation within 300 metres *(1000 feet)* to the **south and east** of your barns?
Check all that apply.

Nothing tall, there are no trees or tall shrubs (nothing taller than corn, for example) ..... ❑1

Shelterbelt with leafed trees that shed leaves in fall ... . ❑2

Shelterbelt with evergreen trees .... ❑3

Woodlot or forest .... ❑4

Agreement to share data

Thank you for taking the time to participate in our survey. In order to avoid duplication, Statistics Canada has entered into a data sharing agreement under Section 12 of the Statistics Act with Agriculture and Agri-Food Canada to share responses from this survey. The Department will not be given your name, address or other identifiers and is required to keep the information confidential and use it only for statistical and research purposes.

121. Do you agree to share this information with Agriculture and Agri-Food Canada?

Yes..... ..... ❑1

No .... ❑2

122. Would you like to receive a summary report of the survey results?

Yes.... .....❑1 🡻 Answer question 123

No ....❑2 🡻 Go to section 8

123. What is your e-mail address? Your address will not be shared with any government department.

Enter "MAIL" if the respondent prefers to receive the report by mail.

Please indicate end time of interview:

		:		
		:		

1 2

Section 8 - Operator or interviewer comments

❑$_1$ Check if comments are written

Thank you for your cooperation.