Rural Perceptions on Livestock and the Environment

(An Appraisal of Hog Production in Manitoba: Results From a Baseline Survey of Hog Facility Operators and Rural Households)

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Main Objectives

Objective 1

Characterize hog operations in the province

Objective 2

Document the causes and nuisances due to the proximity of hog operations to residential dwellings

Objective 3

Provide the province public decision makers with tools that may help them design better hog farming policies

Method and Data

Two questionnaires:

- A hog-operations characterization questionnaire by DGH Engineering Ltd of Manitoba;
- A population questionnaire by Professor Réjean Landry, Chair of the KUUC, Laval University;

Both were administered by phone in June, 2000 by DGH Engineering Ltd;

Data

- A total of 50 hog facility operators took part in the operation characterization survey;
- 282 rural households took part in the population survey;
- Surveyed hog operators and rural households are from 30 rural communities of the province.

Main findings

Characteristics of hog farm operations

On the average, a hog operation:

- is 2317 animals large;
- is 15 years old;
- is a corporation;
- is located 1.65 mile away from the nearest neighbor's residence;
- has a 388 acres manure spreading field;
- has trees around both the barn and the manure storage;
- uses a gravity drain system to collect manure;
- handles manure in a liquid/slurry form;
- injects all its manure;

Extent of odour nuisances

- Nearly a quarter of the surveyed households made changes to their outdoor activities because of the presence of a hog operation in their neighborhood: 20 times more than for pollen and 11 times more than for dust;
- 68% of the respondents live within two miles of a hog operation;
- About 71% live within two miles of a spreading field;
- 95% of those living within two miles of a hog operation suffer odour problems;
- 97% of those residing within two miles of a spreading field suffer odour problems;
- 75% of the respondents experience odour problems in summer;
- 44% experience odour problems in late afternoon;

Odour Exposure Index (OEI)

A) Definition:

Measure the extent to which any given household is exposed to odour due to the proximity of hog farm operation

B) Construction of The Odour Exposure Index (OEI)

Question	If The Answer is	Then The Score is
During the last 12 months, did your family has had to change his outdoor family activities ?	Hog operations in your neighborhood	1
2. What types of annoyances has led you to change your outdoor family activities?	Odour problems	1
3. Approximately, how many hog operations are located in the vicinity (<2 miles) of your house?	At least one	1
Do you think this (these) operation (s) could be a major cause of odour in your neighborhood?	YES	1
Approximately, how close is your residence to the nearest hog operation facility?	Less than 2 miles	1
Approximately, how close is your residence to the nearest spreading field of hog manure?	Less than 2 miles	1
During the last 12 months did you personally or any neighbors complain about odours ?	YES	1
Has the owner (s) of these hog facilities taken steps to reduce or control odour	NO	1
Have the municipal or provincial authorities taken steps to reduce or control odour?	NO	1
TOTAL		9

OEI and odour nuisances: other findings

- The level of odour nuisances suffered is independent of the farm operation size;
- Newer hog operations seem to cause less odour problems than older ones;
- The presence of trees around the barn and the manure storage can help reduce or control odour nuisances;
- Plywood offers a better protection against odour nuisances than other materials on the barn interior walls;
- Solid floors do not provide more protection against odour nuisances than do slatted floors;
- Solid cement offers less protection against odour nuisances than the other penning materials;
- Underslat scraper is as effective against odour as the gravity drain manure collection system;
- The level of odour nuisances felt by households is independent of the capacity of the outdoor storage;

- The level of exposure to odour nuisances is independent of the capacity of the indoor gutter capacity;
- "Two-cell" manure storage provides more protection against odour annoyances than does the "one-cell" storage;
- Additives whether used in the feed to reduce solids or to reduce odour offer the same protection to hog farmers' neighbors against odour nuisances;
- The season when most of the manure is spread, i.e. Fall, is different from when the highest odour intensity is experienced by both hog farm operators and rural households, i.e. Summer;
- Farmers who inject their manure are no more effective in controlling odour nuisances than those who broadcast theirs;
- It is difficult for the interviewees to know to which farm operation their odour problems are related;
- The closer a residence to a hog farm operation, the greater the odour problems it experiences;
- Occupation has no effect on the number of complaints;
- The number of complaints by any household is independent of the number of hog operations next to its residence;

Concluding remarks

Summary

- Hog Production in the province is intensive: over 2300 animals on average per farm;
- Odour is a source of inconveniences for hog farm operators' neighbors;
- Residents very close to hog operations (less than two miles) suffer odour problems the most;
- Manure is mostly handled in a liquid/slurry form and is mostly injected;
- Perceptions seem to be a factor in hog farm operators' neighbors attitudes toward odour; in fact:
    - *They are unable to know explicitly which farm operations they are victims of;*
    - *They are likely to complain independently of their occupation and the number of hog operations next to their residence;*

Data quality

- ✓ The operation characterization sample size, i.e. 50 respondents, was too small;
- ✓ Thus, some interesting issues could not be investigated: e.g., the relationship between
    - ✓ The ventilation system and odour nuisances
    - ✓ The effectiveness of manure broadcasting vs dribble bar use to control odour.

Future plan

- ✓ Survey a larger number of Hog farmers
    - to investigate some of the issues left out due to data limitation;
    - to further support the results of the present report