

IMPACT OF COMPLIANCE TO FEDERAL REGULATIONS FOR PROVINCIALY INSPECTED ABATTOIRS ON AVAILABILITY OF ACCESSIBLE SLAUGHTER/PROCESSING FACILITIES FOR PRODUCERS AND THE FARM GATE MARKETING OF SHEEP IN ONTARIO

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Background:

Under Canada's Constitution Act, the Federal and Provincial Governments each have powers to make laws regarding food – including standards respecting food safety, food quality, and food trade. Both levels of Government make such laws to protect public health. The Federal government makes law regarding inter-provincial and international trade and quality standards, and the province makes law regarding local (intra-provincial) trade and quality standards. [<http://www.gov.on.ca/OMAFRA/english/infores/foodsafe/ofssprop.html>] The big difference between federal and provincial inspection is one of scale, not safety. The federally inspected plants are often much larger than provincially inspected ones. [http://www.omafra.gov.on.ca/english/food/inspection/meat/factandfig_insp.html] OMAFRA's meat inspection program's number one concern is food safety, with some of the toughest meat inspection legislation in Canada. Most meat consumed in Ontario comes from federally-inspected meat plants. Only 14% percent of all meat consumed in Ontario comes from provincially-inspected plants. Most provincial plants are small, operating part-time, approximately 11.5 hours of abattoir activity per week. As of July 2001, there were approximately 250 provincially licensed abattoirs in Ontario, 147 of which slaughtered sheep. This number is declining as operators choose to leave the business rather than keep up with the cost of new food safety standards. As of July 2002, there were 203 provincially inspected abattoirs, and now only 133 slaughter sheep (J. Chlebus, personal communication, OMAF, July 25, 2002). Occasionally abattoirs are forced to shut down until owners meet all regulations, which may force the business to close permanently [http://www.omafra.gov.on.ca/english/food/inspection/meat/factandfig_insp.htm].

Canada's meat inspection service (Federal Regulations) is shifting efforts from detection to prevention as it seeks to identify and eliminate potential threats to food safety and wholesomeness before they become problems. [http://www.cbef.com/Inspect_beef.htm]. New legislation (the Food Safety and Quality Act) being proposed by OMAFRA at the time of this writing, follows this new federal shift in food safety policy. This new Act would create a single, modern and comprehensive Act that covers food safety and quality rather than updating seven separate provincial statutes. If adopted, this legislation would ease the incorporation of national standards into provincial inspection policy, now being developed to provide equivalent or common requirements for food safety across Canada [<http://www.gov.on.ca/OMAFRA/english/infores/foodsafe/ofssprop.html>].

Objectives:

- u' **Hypothesis #1:** If new provincial inspection policy forces the closure of smaller abattoirs in rural areas, this will prevent most farm gate sale of lamb. This market will be mostly lost because farm gate

customers will not seek to replace their consumption from other sources. It is postulated that farm gate sales make up 25% of lamb sales in Ontario.

- u' **Objective #1:** To see how provincially inspected abattoirs will react to new provincial regulations. Will they close or make necessary changes?
- u' **Objective #2:** To see what producers would do with their farm gate markets if local abattoirs shut down.
- u' **Objective #3:** To see how the farm gate consumer will replace their consumption should 'direct from farm' sales become inconvenient.

Literature Review:

The majority of small abattoirs are involved in contract slaughter, in which the animal is killed and dressed at the slaughter plant. The owner of the animal does not consume the meat products, but rather merchandises the meat products to third parties (JRG Consulting Group, 1999). As has been previously mentioned, these smaller abattoirs tend to be the ones that are provincially inspected. If these abattoirs are unable to adapt to the proposed Food Safety and Quality Act and are forced to shut down, there will be a considerable loss of market for Ontario farm gate lamb. In a report prepared for the United States Department of Agriculture, Crutchfield, Buzby, Roberts, Ollinger and Lin (1997) state that the costs of implementing Hazard Analysis and Critical Control Points (HACCP) are proportionally larger for small processing plants than for larger plants. The same could probably be said concerning the new Food Safety and Quality Act proposed by OMAFRA. In research conducted by Unneverh and Jensen (1999), a similar conclusion is made. There is a greater burden placed on small plants when a new inspection program is mandated.

A report prepared by the JRG Consulting Group (1999) for OMAFRA, brought up several issues of importance concerning provincially inspected abattoirs. It was noted that the inspection in provincially licensed meat plants has traditionally been concerned with the health of the animal, as opposed to the building, layout, building materials, or equipment. With the introduction of the Food Safety and Quality Act, emphasis will be placed on the latter variables. Although the study presents estimates for the cost of compliance to the current provincial standards, it emphasizes that once a plant achieves full compliance to these standards, there is little investment required to become fully compliant to the new National standards. It was found that many operators, particularly those that operate custom kill and contract slaughter facilities do not believe they can afford to pay for the costs of upgrading to achieve 100% compliance. Most operators believed that the costs of upgrading were much lower than estimates taken by the study's personnel. Whereas operators estimated the costs of upgrading to be anywhere from \$50,000 to \$750,000 (with an average of \$197,308), estimates provided by the consulting group ranged from \$210,000 to \$480,000. In addition, 18% of participating operators thought it would be likely that they would be slaughtering in 2002, while 29% were not sure.

In 1992 a new food inspection act titled the Fresh Meat (Hygiene and Inspection) Regulations 1992 was introduced to the European Community (EC). This Act provided a single standard of fresh meat production, much like OMAFRA's Food Safety and Quality Act. The Act presented central licensing, common structural requirements for all plants with significant abattoir activity, common hygienic requirements for all plants, and veterinary supervision of all plants. While some critics of the policy state that its introduction into the food industry has directly caused the closure of many abattoirs, Hewson (1994) believes otherwise. The article's author claims that the number of abattoirs had been steadily declining due to over-capacity in the industry. However, following the introduction of the new Act, 45 of 590 applicants for a new slaughterhouse license voluntarily ceased production.

With Ontario's large landmass, low population density poses a problem to sheep producers and customers. This fact will become more important if provincially inspected abattoirs choose to close their business in response to the new Act. Ontario's abattoirs are widely dispersed, particularly in the northern regions of the province. If one's local abattoir closes, the next closest abattoir may be two to three times

farther away. If this becomes the case, the number of sheep producers and customers willing to participate in the lamb farm gate market may decrease. During the 1990's, federal inspection of lambs became concentrated into six abattoirs in Ontario, and just 22 in all of Canada. If producers were forced to send their lamb to a federal plant (as opposed to a closer, provincially inspected abattoir), their travel distances would skyrocket due to the low number of federal plants (Stanford et al, 1999). The question is whether producers and customers would travel these distances to satisfy the demand for farm gate. In addition, the possibility of retrieving a specific lamb (meant for the farm gate) from a large federal abattoir is unlikely.

Another important influence on the future of farm gate lamb is the well-being of the animal itself. Generally, the trip to slaughter can range from a few hours to several days (Draper, 2001). As travel distance increases, so too does stress placed on the animal and potential for bruising and problems of lack of "bloom" (loss of finish or muscling in severe cases) (Stanford et al, 1999). This may result in a lower quality of meat, and a lower selling price. In addition, animals which are stressed before slaughter are likely to provide meat which will spoil more quickly (Thompson & Upson, 1996). If farm gate lamb are required to be shipped farther due to the closure of small abattoirs, meat quality may be diminished, resulting in a possible decrease in market value.

Comments on the Survey Method:

Surveys are often used in research design, particularly when manipulating variables is impossible. Spillman (1917) points out the usefulness of the survey method, stating that instead of manipulating variables and measuring the results (which would be impractical for this piece of research), surveys are used when the relevant information is already available. In addition, surveys are beneficial since they can give a variety of data at a nominal cost. Mark (1958) communicates the need for a survey to contain both quantitative and qualitative data. That is, other than purely mathematical reasoning, a survey should pose questions that are common to all areas of scientific study. In the survey used for this piece of research, care was taken to pose both quantitative and qualitative questions. The opinions of abattoir owners and sheep producers and customers may give a good indication as to the future of the lamb farm gate market.

While some people are quick to criticize the validity of a survey, it appears as though items which are personally relevant and of significant importance are generally reported with a great deal of accuracy (Spillman, 1917).

Significance:

New technologies, scientific advances, changing diets, new food hazards, and evolving trade requirements mean that there is a need for high standards of the food safety system. As these standards have been evolving, abattoir operators have had to choose whether to upgrade their facilities to meet the new standards or to leave the business. There is now a new proposed legislation that would upgrade provincial inspection regulations for meat processing and facilities to national standards. The effects of this on the sheep industry could be detrimental since much of the farm gate (freezer trade) market uses these provincially inspected abattoirs to service their clients. It is supposed that a significant amount of lamb is sold in this way. This lamb will have to find it's way to alternative markets, via stock yards more than likely. It is unreasonable to expect producers to send lambs to a federally inspected plant hundreds of miles away, retrieve it and sell it to the local butcher to satisfy farm gate markets. Producers will simply sell to the stock yards. The nature of farm gate customers is that they will likely not replace their lamb consumption from other sources, thus a loss for Ontario lamb. This could be as much as 25% of lamb sales in Ontario or \$4.1M annually to the Ontario industry.

Methodology:

One objective of the project is to understand how the provincially inspected abattoir owner will respond to the changes being made in the inspection legislation. To do this, provincially inspected abattoirs were surveyed with respect to several factors, including the estimated costs of upgrading, and whether they are likely to make these upgrades.

A second objective of the study is to determine the effect of abattoir availability on the Ontario sheep producer. Abattoir owners distributed a survey to sheep producers whenever they brought in a ewe or lamb for the farm gate trade. The effect on the sheep producer of the potential closing of their local abattoir was measured.

Finally, abattoir owners distributed surveys to farm gate customers to determine how they would react if their local abattoir were to close. In particular, customers were asked if and how they would replace their farm gate consumption, in the case that they would be unable to purchase lamb from their usual supplier.

Results/Discussion:

Survey of Abattoir Operators

Refer to Appendix I for a complete summary of the results.

Initially it was thought that there were 147 provincially inspected abattoirs in Ontario that slaughter and process lamb. More current information (August 2002) sent by The Ontario Ministry of Agriculture and Food provided a list of 123 provincially inspected abattoirs that slaughter and process lamb. 98 abattoirs on this list were contacted. 82 abattoirs confirmed that they slaughter and process lamb, and 64 of these also indicated that they are involved in the farm gate market. Surveys were mailed out to 24 abattoirs, and 18 were returned. Later, phone interviews were conducted to speak with abattoir owners in order to complete data collection. Eight of the abattoirs that slaughtered and processed lamb for the farm gate chose not to participate in the study. The following results are based on the responses of 56 participants.

Sixteen of the respondents indicate various areas in which they need to upgrade their facilities (smokehouse, refrigeration, new surface areas, improved loading area, disposal, etc.), while three state that there will only be extra paperwork to complete. Nine other abattoir operators simply state that their plant will continue to upgrade to comply with National Regulations. Eleven operators state that they will not need to upgrade, and twelve other abattoir owners are unsure about which areas of their plant will need to be upgraded. Finally, four owners indicate that their plant may have to be rebuilt entirely. The average cost of the upgrades, according to abattoir operators, is estimated at approximately \$112,941 with the values ranging from \$0 up to \$1,500,000. The results suggest that abattoir owners are likely to upgrade their plants and continue to kill lamb ($p < 0.00001$). However, the literature suggests that the majority of abattoir operators greatly underestimate how much it will cost to upgrade their facilities. Recall that in a study of Ontario's provincially inspected abattoirs, the average upgrade costs for small meat plants was at least \$210,000. The estimates given by most of the participants in the current piece of research fall significantly below this estimate. If this is the case, then perhaps more abattoirs will close due to unexpected upgrade costs.

Abattoir owners were given the opportunity to voice their concerns in the "Comments" section of the survey. One respondent indicated concern about the availability of inspectors as a result of the new regulations, while other abattoir operators thought the government needs to play a new role in the industry. Some thought the government needs to 'lay off' and worry about other issues (such as illegal slaughter), while other individuals suggest that government grants would help in upgrading. However, a small minority of the respondents indicated that they were happy with the regulations, and they are much needed if the problem of on-farm slaughter is to be solved.

Survey of Sheep Producers

Refer to Appendix II for a complete summary of the results.

Eleven sheep producers responded to the survey, the majority of whom lived in Southern Ontario (55%). These producers reported a total of 1193 lambs produced (109 per producer) and 708 ewes bred (64 per producer).

The average sheep producer must travel approximately 46 km (one way) to get to their local abattoir, and the next closest abattoir that will kill and process sheep is about 73 km away. There is a significant increase in the distance that producers will need to travel if their current abattoir were to close ($p < 0.05$). While seven respondents (of a total of ten) indicated that they would travel the extra distance to satisfy

their farm gate trade, this was not a large enough majority to be significant. It appears as though half of the producers expect that their customers would not be willing to pay any extra for processing, while the other half believe their customers will pay varying amounts between \$10 and \$30.

The comments made by sheep producers cover an entire spectrum of issues. All participants seemed very concerned about the future of this market. While one individual stated that their customers would be willing to pay extra for processing, two others indicated that their customers are not concerned with the increasing travel expenses of the producer, and feel the price of farm gate lamb is high enough already. In addition, for one sheep producer in Northern Ontario, the lack of abattoirs within a 150km radius makes stockyards seem more appealing despite the fact that farm gate sales are far more lucrative.

Survey of Lamb Customers

Refer to Appendix III for a complete summary of the results.

A total of ten lamb customers sent back the survey; five from Eastern Ontario, four from Southern Ontario, and the remaining participant from Central Ontario. The average lamb customer consumes approximately three lambs per year direct from a farm producer. While the average ewe customer consumes one ewe direct from a farm producer per year, this was based on the information from only one participant, who consumed 10 ewes per year. In addition, the information indicating how much lamb was bought from a butcher or retail store was inconclusive, since only three people were involved in this market.

According to our results, it appears that slightly more than half of lamb customers would replace their farm gate consumption from butchers or grocery stores if they could not purchase lamb directly from their usual farm supplier.

Approximately 30% of customers picked up their lamb at the abattoir themselves. From the responses of four customers, the average distance between the individual's house and the abattoir is approximately 18 km. From the data, it appears that about two thirds of lamb customers will travel further to satisfy their farm gate trade if their usual abattoir closed. However, they would only travel further if the distance was less than 30 km.

Conclusions:

A survey of Ontario abattoirs, sheep producers and freezer trade customers was performed in an attempt to assess the effects of the new Food Safety Act proposed by the provincial governments. The abattoir survey was successful at gaining enough feedback to capture the intent of those smaller abattoirs who cater to sheep producers who choose to cultivate direct to consumer sales. It is clear, that these business people are very concerned about the costs associated with new regulations, even though they seem to have seriously under-estimated the total cost of necessary upgrades.

The producer survey showed that producers would have to travel about 60% further on average if their current abattoir closed down. Most producers would be willing to travel the extra distance, however consumers would not likely pay extra to mitigate this extra cost.

Although not conclusive, the consumer survey showed most consumers have their lamb delivered to them by the producer. Distance traveled was not a major issue to them. About half would replace lamb consumption from local butchers and supermarkets if availability of farm supply was lost.

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Appendix I: Abattoir Survey Summary

1. Do you kill lambs for the farm gate trade?

YES	NO	TOTAL
64	18	82

Do you process lambs for the farm gate trade?

YES	NO	TOTAL
64	18	82

*** From this point forward, the answers of those who are not involved in the farm gate (freezer trade) of lamb were omitted from analysis. Eight of the abattoirs that slaughtered and processed lamb for the farm gate chose not to participate in the study. Therefore, the following results are based on the responses of 56 participants.

2. Estimate the approximate number of kills for the farm gate trade during 2000 (or the most recent 12 month period).

Abattoirs	Lambs	Ewes	1000	0
	600	20	3000	50
	20	0	50	2
	45	0	4	0
	5	0	520	104
	100	0	2	0
	312	0	10	0
	200	15	300	50
	4	0	150	3
	10	0	50	3
	120	3	10	0
	1040	2	6	2
	10	0	100	10
	35	0	40	3
	572	0	168	0
	30	0	50	5
	200	10	12	0
	500	0	25	6
	6	0	328	9
	30	0	45	0
	300	3	20	5
	312	3	12	1
	50	3	10	0
	35	3	40	5
	100	3	50	0
	300	15		
	30	0		
	45	2		
Total			11013	340
Average			212	7

3. What do you expect will need upgrading in your plant to meet the proposed National Regulations that will be a result of the new Food Safety Act?

- Surface areas, we currently have painted surface areas.
- It's a provincial plant. We are a double A plant and are very proud of it. We may need a cooler in the inedible room. We'll make all the changes necessary to stay in business.
- Refrigerate offal room, loading area, CAS program?
- No expected upgrades because it is a fairly new plant.
- Don't really know, every time new regulations come out we make changes to accommodate them.
- Nothing, we are completely up to standard.
- Always upgrading because it is an older plant.

- Disposal of heads, right now we have a local farmer bury them in a hole.
- No intentions of upgrading, unless government grants are available.
- Inedible byproducts.
- Renovate and update facilities.
- None.
- None
- Who knows
- What upgrading or requirements is not known yet today as my yearly audit has not yet been completed. I don't anticipate to quit killing because of changes, as some costs will have to be paid by the customer.
- I have no idea what National regulations are. Why would it be any different than for pork and beef? We are having enough of a problem keeping up with upgrade for OMAFRA now for pork and beef.
- Quite a bit of renovations. Particularly in the smokehouse.
- None
- Always upgrading
- Have been upgrading for the past 5 years. Not interested in federal regulations.
- No physical upgrades, but lots more paperwork to do.
- No upgrades immediately, although the bar is being raised each year. Wooden door frames need to be replaced, as well as old wooden holding pens for animals, and new light fixtures, etc.
- None
- Upgrading all the time. Quality control, pest control, climate control, sanitation. We are upgrading every week in every area.
- Will probably have to do some upgrades, not sure exactly which areas.
- Will probably have upgrades. Cutting room. Depends on how close the government makes us comply to federal standards.
- We could upgrade the whole plant for them if we wanted to! There is always something that needs to be upgraded.
- I hope there will be no upgrades. We have a 25 year old building. If the government were to offer us a grant, there would be many areas we could upgrade.
- Yes, there are expected upgrades. They are mostly little things, such as painting walls or adjusting sterilization temperatures. There will be more paperwork.
- Not sure if there are upgrades specifically for lamb, there will be if it is the same as the compliance expected for beef. If this is the case, we will have to basically tear down and rebuild.
- None.
- Yes, we will rebuild the whole plant.
- Not sure.
- We are 'for' the new regulations, and we are in the process of building a new plant.
- Yes. Exposed wood and cleaning.
- Probably. If the government wants this done, they have to pay for it and do some of the paperwork. We have a 25 year old plant, it is in pretty good shape but could be rebuilt.
- We will upgrade if we have to, the government is calling the shots. We have to comply or else close. We are unsure what the regulations are, they are not written in stone. Smokehouses, cooler for waste.
- Not much.
- We will have to comply. Smokehouse.
- Yes, a little. The killing area.
- They can throw the regulations out the window. Our plant is up to par.
- No. We could put in new plastic walls, but we cannot afford them. We have recently put in new walls in our cooler room.
- We are upgrading all the time. We have just replaced the compressor.
- Unsure.
- No, we are up to par. We have a AA rating, there is nothing here to upgrade.
- I don't care what the regulations are. If the government doesn't leave us alone, there won't be anymore abattoirs in Ontario. You never get a bad piece of meat from a small plant, only from the big plants. Every year there is something to upgrade, there is no end to it. I put out a new smokehouse, and then they told me to put a new roof on it. So I put a new roof on it, and they tell me I need to do something else to it.
- No. We upgraded everything 7 or 8 years ago.

- Yes. Documentation.
- None, except for extra documentation.
- Unsure. Need more info.
- Yes. For the past 5 years we have been upgrading, it is ongoing. We need up upgrade the back kill floors and we need to build a separate retail area.
- We'll never be finished (upgrading). They change their minds every day.
- We have been upgrading all along to accommodate the annual audit. Yes we will have to upgrade.
- We will have to upgrade or close.
- We have to wait and see for the audit. We don't know yet.
- We certainly will, the whole plant will have to be upgraded. We will need stainless steel hooks, stainless steel everything!
- I think so, but I am not 100% sure yet. I only know a little bit about the regulations.

4. What is your estimated costs of these upgrades?

Cost	
	10000
	0
	300000
	0
	50000
	100000
	20000
	7500
	0
	250000
	0
	0
	35000
	100000
	45000
	0
	3000
	150000
	2000
	0
	25000
	0
	100000
	100000
	0
	5000
	0
	100000
	50000
	0
	27500
	0
	60000
	50000
Total	3840000
Average	112941

6. Will you upgrade and continue to kill lamb?

YES	NO
44	7

Are abattoir owners more likely to upgrade their facilities?

H0: p(Yes)=p(No)

**Unable to perform this statistical test (Chi-Square Goodness of Fit) in Quattro Pro.

Chi²_{critical}=3.84 (Since d.f.=k-1=1; α=0.05). If Chi²_{obtained} > 3.84, reject H0.

Expected Frequency(Yes) = Expected Frequency(No) = 6n = (0.50)(51) = 25.5

$$\begin{aligned}\text{Chi}^2_{\text{obtained}} &= \sum \frac{(O-E)^2}{E} \\ &= \frac{(44-25.5)^2}{25.5} + \frac{(7-25.5)^2}{25.5} \\ &= 26.8\end{aligned}$$

Where k is the number of categories (“Yes” and “No”); 6 is the hypothesized probability that a particular observation will fall into that category; n is the number of observations; O is the observed number of observations in a particular category; E is the expected number of observations in a particular category.

Therefore, reject H0 and conclude that abattoir owners are likely to upgrade their facilities in order to comply with the National Regulations.

Comments:

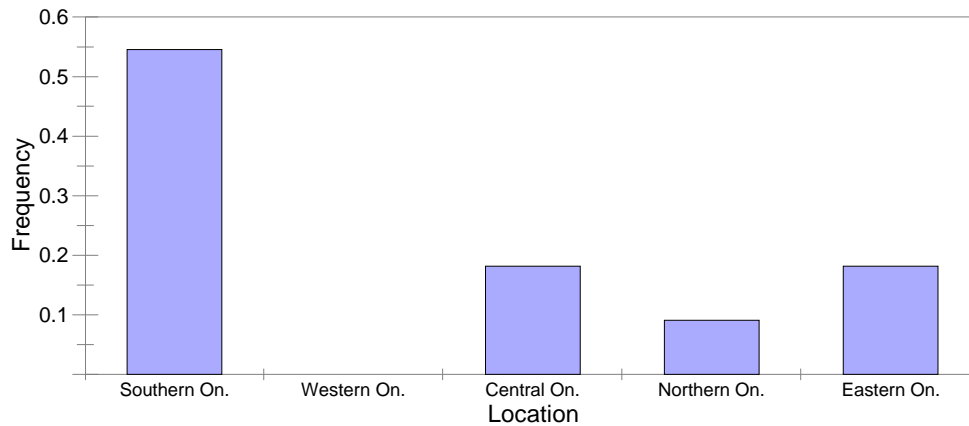
- Does this mean “Provincial Inspectors” won’t be qualified to do inspection? Who will come out to do inspection if we have only 1 lamb to do on a regular beef kill day?
- We are closing the kill floor in order to expand the processing end of the company.
- Depending on how much it will cost, right now the way the economy is where will this money come from, hides are down, lamb hides go to dump. Us small guys are not millionaires we struggle to keep up with all this goat bullshit. They better worry about the farm kills before us.
- Government grants to upgrade just to keep up with the changing regulations would help.
- Get the government to lay off. The plants who don’t kill should be equally regulated. Same regulations should apply to processing plants as to those that do both killing and processing.
- Slowly getting out of the farm gate industry, but still doing it as of right now.
- Impossible to estimate costs of upgrading since it is ongoing.
- Who does the bulk of the lamb kill for the farm gate in Ontario?
- Government should impose same regulations on entire country so that Ontario’s abattoirs can continue to be competitive. Government should also worry about illegal slaughter on farms, in illegal abattoirs, etc.
- We may have to stop farm gate slaughter if continuing this business interferes with our other slaughter business.
- We don’t like killing/processing lamb too much. The new regulations are too tight, soon it will end up like it was 50 years ago: only on farm slaughter, no abattoirs to do custom work.
- Re: upgrading and continuing to kill lamb for the farm gate. It depends on the costs of the upgrades, and how extensive the rules are. The changes in the inspection rules will force people into closing. We run a family business, and I have been working there for 10-15 years. Soon these family abattoirs will become an endangered species, and part of the province’s heritage will be extinct. Home kill will carry on since it is uninspected.
- It is hard to say if we will upgrade and continue to kill lamb. If one area of the business becomes too expensive due to regulations, another area (such as lamb) might have to suffer. If the government wants to give me a big bag of money, that would help!
- Although we may not stop slaughtering lamb for the farm gate because of the upgrades in particular, we may have to stop because it is a very small part of our business.

- There is always something to upgrade. I am not sure whether these new regulations are only for job creation. We are on a very thin line, for the size of our operations, it is not worth it to upgrade. Auditors often recommend certain upgrades, and we comply, but they never come back to check our upgrades.
- If upgrades are too expensive, we would have to stop slaughtering lamb for the farm gate because we do so little of it.
- Get the new regulations up and going! We can't sell interprovincial yet, but we are anxious to start (as are our customers).
- The new regulations are so tough. The money has to come from somewhere.
- This is sad for abattoirs. It is unfair because abattoirs have to charge more than free standing butcher shops, but for the same service.
- We are considering dropping red meat altogether. There is too much red tape even though inspection has not improved that much (we have been waiting for the inspector to arrive for 7 hours, and we have not been able to start slaughter yet!)
- We are unsure what is in the National Meat Code, no one really knows. Will have to upgrade and continue to kill lamb to stay in the business.
- We have cut back on lots of business. If the government wants to collect more money, take it from the producers, not the abattoirs.
- The new regulations are quite strict, but we have to go along with the regulations. It takes more time to do the slaughter since we spend more time in inspection - cleaning, etc.
- We suspect we would have to upgrade, since we are the only abattoir in the area who slaughters and processes lamb for the farm gate.
- We think the regulations are a pretty good idea, since there were some dirty plants. There is the odd rule that doesn't make sense, but all in all the regulations are good. I've had enough of all this, The bookwork is too time consuming.
- The government should look after the farm slaughter first.
- Paperwork is the biggest problem, it's a waste of my time.
- There is a lot of overkill, especially with the documentation, it takes a lot of time. The government is only worried about liability, they don't want what happened to Walkerton to happen again. Because large plants are so big, inspectors don't have enough time to inspect everything, and their meat is filthy because of it.
- The regulations are redundant.
- We will only upgrade if we can afford it.
- The regulations are gonna put a hurt to us. The money spent is not going to be worthwhile, but you have to keep plugging away to remain employed.
- The regulations can be very painful.
- Everybody has a different set of rules, it depends on the inspectors that day. One week, one inspector comes in and asks you to change 50 things, and the next week a new inspector wants you to change another 50 things.
- Inspectors don't know their job, they rely on the operators to do their jobs. I would upgrade if there was a grant available.
- As farming community disappears, so do my customers. They are the ones who support my type of business.
- They want everything today. This is financially impossible, and we are trying to do everything as quickly as possible, but we don't want to spend too much all at once.

Sheep Producer Survey Summary

1. Location

Location	Producers	Percent
Southern On.	6	55%
Western On.	0	0%
Central On.	2	18%
Northern On.	1	9%
Eastern On.	2	18%
Total	11.00	1.00



2. Please estimate the number of (inspected) farm gate (freezer) trade sales per year.

	Number of Lambs Sold	Value	Number of Ewes Sold	Value
	35	175	2	60
	75	225	5	200
	20	180	0	N/A
	25	190	0	N/A
	10	120	0	N/A
	70	120	0	N/A
	3	200	0	N/A
	30	187.5	0	N/A
	7	150	0	N/A
	35	140	2	100
	10	N/A	5	N/A
Total	320	1687	14	360
Average	29	169	1	120

3. Please estimate the number of lambs normally produced and ewes normally bred per year (your most recent year).

	Lambs produced	Ewes bred
	78	45
	35	12
	70	40
	15	12
	150	90
	3	0
	400	180
	310	200
	4	32
	108	85
	20	12
Total	1193	708
Average	108	64

4. Please estimate the number of kilometers you travel one way to get to your local abattoir.

	Distance
	10
	15
	20
	230
	28
	24
	60
	15
	35
	35
	30
Total	502
Average	46

5. How far is the next closest abattoir that will kill and process sheep?

	Distance
	8
	30
	25
	300
	24
	80
	35
	100
	30
	100
Total	732
Average	73

Testing hypothesis about two different means: Is there a significant increase in the distance producers need to travel?

H0: There is no significant difference between the means of X1 and X2.

	X1	X2	D	D2
	10	8	-2	4
	15	30	15	225
	20	25	5	25
	230	300	70	4900
	24	24	0	0
	60	80	20	400
	15	35	20	400
	35	100	65	4225
	30	30	0	0
	35	100	65	4225
Avg	47.4	73.2		
Sum			258	14404
T-test	0.010688			

Since p is less than 0.05, reject the null hypothesis that there is no difference between the two means. That is, by rejecting the null hypothesis, we conclude that there is a significant difference between the two means, and thus a significant increase in the distance that producers will need to travel.

6. Would you travel to the abattoir noted in # 5, to satisfy your farm gate trade if your usual abattoir were to close?

Yes	No	Total
7	3	10

Is there a significant difference between the number of people that would and that would not travel to the next abattoir?

H0: There is no significant difference between the number of people that would and that would not travel to the next abattoir.

H0: pNO = pYES

$\chi^2_{critical} = 3.84$ (Since d.f. = k-1 = 1; $\alpha = 0.05$). If $\chi^2_{obtained} \sim 3.84$, reject H0.

Expected Frequency(Yes) = Expected Frequency(No) = $6n = (0.50)(10) = 5.0$

$$\chi^2_{obtained} = \frac{(O-E)^2}{E}$$

$$= \frac{(7-5)^2}{5} + \frac{(3-5)^2}{5}$$

$$= 1.6$$

Therefore, we cannot conclude that there is a significant difference between the number of people that would and would not travel to the next closest abattoir. That is, there is no trend for sheep producers to travel (or not travel) to the next closest abattoir (if their local abattoir were to close)

**Where k represents the number of categories ("Yes" and "No"); 6 represents the hypothesized probability that a particular observation will fall into that category; O is the observed number of observations in a particular category; E is the expected number of observations in a particular category.

7. How much would your customers pay extra for processing?

None	10	20	30
5	2	2	1

H0: pNone = p10 = p20 = p30

Chi²_{critical}=7.82 (Since d.f.=k-1=4-1=3; α=0.05). If Chi²_{obtained} is > 7.82, reject H0.

Expected Frequency (None) = Expected Frequency (10) = Expected Frequency (20) = Expected Frequency (30) = 6n = 0.25(10) = 2.5

Chi²_{obtained} = $\sum \frac{(O-E)^2}{E}$

$$= \frac{(5-2.5)^2}{2.5} + \frac{(2-2.5)^2}{2.5} + \frac{(2-2.5)^2}{2.5} + \frac{(1-2.5)^2}{2.5}$$

$$= 3.6$$

Therefore, we cannot conclude that there is a significant difference between the amount of money that sheep customers are willing to pay extra for processing.

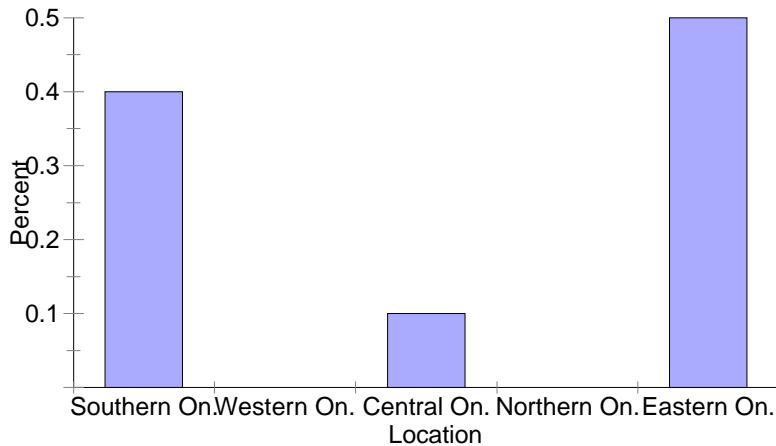
Comments:

- I think the biggest obstacle to an abattoir that will process lambs is the latest regulations on disposal of offal, etc. I had to change abattoirs this year because I could not handle the waste from each lamb slaughter. My original abattoir wanted me to return in the afternoon with buckets to take away the waste.
- We are certified organic and our customers are willing to pay more to know where their lamb was raised.
- Would have no choice but to use who is available or would get out of sheep business. Customers feel price is high enough already.
- Question 2- have given # for "farm gate freezer" lambs only. Farm gate "new crop" lambs would be in addition 25 lambs.
- We need abattoirs within 150km radius - suggested locations- Sudbury, Manitoulin Island, Thessalon. Farm gate sale are far more lucrative than sales to stockyard if abattoirs are located within a reasonable distance.
- #5 and 6 - Depends on where the abattoir is that will remain open, and their ability to accommodate my orders. My customers don't care about my travel expenses, they want the lowest price as it is.
- Not many abattoirs will process lamb and if they do, they do not necessarily know how to handle it. I am very concerned about reduction in local abattoirs.
- We'll have to cross the bridge when we come to it. What we get for lambs doesn't appear to have any bearing on the purpose of your survey. Are you really expecting to have an impact on who closes, or whether this trade continues?

Appendix III Lamb Customer Survey

1. Location

Location	Southern On.	Western On.	Central On.	Northern On.	Eastern On.	Total
Customers	4	0	1	0	5	10



2. How much lamb do you normally consume, direct from a farm producer per year?

	Lamb	Ewe
	6	0
	1	0
	2	0
	1	0
	1	0
	15	0
	1	0
	1	0
	0	10
	2	0
Total	30	10
Average	3	1

3. How much lamb do you also purchase from butchers in a normal year? _____ pounds
 How much lamb do you also purchase from retail stores in a normal year? _____ pounds

	Butcher	Retail store
	0	0
	0	0
	0	0
	0	17
	0	0
	200	20
	0	0
	0	0
	0	0
	0	0
Total	200	37
Average	20	4

4. Would you replace your farm gate consumption from butchers or grocery stores if you could not purchase lamb directly from your farm supplier?

YES	NO
6	4

5. Do you normally pick up your lamb at the abattoir yourself?

YES	NO
3	7

6. How far is the abattoir from your house, one way? _____ km

Distance	
20	
24	
7	
20	
Average	18

7. Would you travel further to another abattoir, to satisfy your farm gate trade if your usual abattoir closed?

	Less than 30	30-80	80-120	More than 120
Yes	4	0	0	0
No	2			

8. How much more would you pay for processing?

None	10	20	30
3	2	0	0

Comments:

- I will not stop farm gate consumption as long as the quality remains at the present high standards.
- Do not know how to answer this - have never been to an abattoir - only had lamb from friends/acquaintances already cut and wrapped - no idea of processing fees.
- I usually buy at the farmers market, but my sister and her husband are currently raising sheep so I bought one to try!

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