

PRINCE EDWARD ISLAND
CATTLE PRODUCERS



Prince Edward Island Cost of Production Report
2011 Calendar Year

Prince Edward Island Cattle Producers

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Executive Summary

The Prince Edward Island Cattle Producers initiated a Cost of Production (COP) Study for the cow / calf, backgrounding and feedlot sectors of their industry. The study focused on the 2011 calendar year and Dynamic Outcomes Consulting (DOC) was contracted to complete the study.

Data was collected through one on one interviews at the farm. All data was collected on a confidential basis. The PEI Cattle Producers confirmed producers' interest in participating and then DOC arranged the interviews. Data was collected based on an interview guide and compiled in a database for each sector. A list of assumptions and definitions of cost criteria are included in the report. Feed was valued at an estimated farm gate market price and applied consistently.

Fifty-one producers participated in the study and forty-eight of these were included in the sample averages. Three farms were omitted because of extreme variances.

Costs varied dramatically between producers. There was a general trend towards lower costs on larger operations but this was not a determining factor. There were two distinct groups of producers – those who worked full time at their beef operations and those who worked part time.

The value of the data is only as good as its accuracy and in some cases, such as weights of cattle at the beginning and end of year, estimates were the only figures available. The quality of records also varied considerably between producers.

The average cost of maintaining a cow for a one year period was \$867.74 and ranged from \$292 to \$1775 per year.

The average cost of producing 100 pounds of gain (live weight basis) in backgrounding operations was \$138.91 and ranged from \$96.72 to \$374.98.

The average cost of producing 100 pounds of gain in feedlot operations was \$128.61 and ranged from \$73.99 to \$199.53.

Feed was by far the largest cost component for all sectors. When interpreting the results, the reader must remember that feed was priced at farm gate market value. If a producer produced their own feed at less than this price their out of pocket cost for production of beef is also lower. It should also be noted that unpaid producer labour was not included in the COP.

The wide range of variability in the cost of feed and the strong expertise available to the industry in the area of feed and feed conversion provides an excellent opportunity to change practices and improve results in this area.

While weaknesses in the data were observed and commented on, the authors are confident that much of the variability observed in the data reflects variability in the PEI Cattle Industry. With the exception of the backgrounding sector, the sample size was sufficient for the industry size.

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Introduction:

The PEI Cattle Producers (PEICP) initiated a Cost of Production Project (COP) based on the priority set for “understanding and benchmarking cost structures” established in the regional Memramcook II Plan. Current and accurate cost-of-production information is of strategic importance to the industry. Understanding the cost components of total costs is also crucially important. Total cost as well as individual cost components can be compared locally to establish benchmarks and compared with other production areas to assess competitiveness; as well as identify strengths and weaknesses. Industry organizations need this information to provide appropriate leadership for their members. The PEI Cattle Producers defined the scope of the project to include each of the three sectors in its industry: cow/calf, back grounding, and feedlots. Costs are to be based on the 2011 calendar year. Data was provided by producers on a confidential one-on-one basis. A summary report for each sector was completed at the end of the project. Dynamic Outcomes Consulting was contracted to execute the project.

Methodology:

The COP project was a very interesting and challenging project to complete. It could not have been successfully completed without the support and assistance of the PEI Cattle Producers organization and the individual participating producers. The time and energy donated by participants was especially appreciated. Data was gathered by personal on-farm interviews with producers, accumulated into a data base, and reported. Individual participants will receive their personal report as well as the report on their sector costs. These reports will be sent by Dynamic Outcomes since their personal information is confidential.

Creation of interview forms for each of the sectors was an early activity. Meetings were held with the Directors of the PEI Cattle Producers to review the methodologies proposed by Dynamic Outcomes in determining costs. These will be explained below; however, understanding was needed that costing is an art more than a science, and that there is more than one way of determining costs.

A data base was developed by Dynamic Outcomes to accumulate data for each of the sectors. The data base is to allow for costing determinations to be made for relevant cost centers as well as for the total.

The initial contact with producers was made by the PEICP staff and we thank them for their efforts. The list of participants was forwarded to Dynamic Outcomes who contacted producers for appointment arrangements. Interviews typically took from 2 to 3 hours and were completed at the producers' home, for the most part. The participants were all volunteers and we thank each of them for their participation and for their hospitality.

The information provided was for the 2011 calendar year, more than a year ago, and as such some participants had estimates only of certain cost items. The main sources of data were from tax statements, Agri-stability forms and other farm records such as sales receipts. There was some variance in the level of detail available from participants. In most cases the beef production enterprise was one of several farm enterprises. Costs that were shared between enterprises required an estimate of the percentage of the cost that applied to the beef enterprise. Also the size of operations varied from quite small, less than 20 head, to operations of hundreds of head. It was clear from the labour requirements that labour is much more efficient on larger farms. Also, a number of operators work either full time or part time off the farm.

When considering any cost of production study it is necessary to understand the methodology used to determine costs. Each study has its own methodology which has a direct affect on the calculation and determination of costs.

The following is a list of items explaining the methodology:

1) Depreciation is calculated over the useful life of the asset on a straight line basis. If a tractor had a purchase price of \$80,000, an expected useful life of twenty years and a residual value of \$16,000; then the annual depreciation would be \$3,200 ($80,000 - 16,000 = 64,000 / 20 = 3,200$). If the tractor was used 60% of its time for the cattle enterprise, then the depreciation cost to the cattle enterprise would be \$1,920 ($\$3,200 \times 60\% = 1,920$).

2) Farm expenses that cross over more than one farm enterprise, such as fuel expense, are divided by percentage of use appropriate to the cattle enterprise.

3) Feed costs are valued at the farm gate market value of the feed used. If barley is worth \$215 per tonne at the farm gate but is fed to cattle, then the cost of barley feed is \$215 per tonne. Where an exact market value was not known, a best estimate was used. Costs used for the key feedstuffs used in 2011 are as follows:

Table 1. Farm gate market values of various types of feed.

Type of Feed	Farm Gate Price Range - 2011
4X5 Baled Hay	\$18 per bale
Barley	\$215 / tonne
Mixed grain	\$200 / tonne
Oats	\$190 / tonne
High Moisture Corn	\$200 / tonne
4X5 Haylage/Silage Bale	\$25 per bale
Corn silage	\$35 per tonne
Grass silage	\$35 per tonne
Soybeans	\$400 / tonne

4) Since home grown feeds are valued at market value, then the costs of producing these feeds are not part of the production of beef costs. This avoids double counting of those costs. This means that if a 4 x 5 round bale of hay silage has a market value of \$25.00, then depreciation (and other costs) of hay silage equipment is not included as a costing item for beef production. It has already been included in the market value of hay silage fed to the cattle.

5) For cow calf operations, replacements costs and breeding costs were not included in this study. These costs varied considerably and also reflected intent of both increasing and decreasing herd size. It was not reasonable to charge producers who happened to purchase a bull in 2011 versus 2012 the full cost of that bull. Information on breeding purchases from other years was not readily available. This study focused on annual expenses, and this cost reflected more of a balance sheet or asset issue. The cost of the bull or semen also reflected the quality sought by the producer at a price range that reflected that quality – which is not the focus on this study.

6) Labour is frequently not paid directly to farm owners. We have arbitrarily valued this unpaid labour at \$15 per hour. The producers have estimated the hours per week needed to care for their cattle and we have multiplied the hours by \$15 per hour. This was a personal opinion by the producer and varied a great deal between operations. Although this cost was gathered and reported it was not included in the calculation of the total cost of production.

7) Insurance costs are included for property, livestock and equipment. Life, and personal insurance is not included.

8) Interest costs are included but not principal payments. Only interest costs directly attributable to beef production were included.

9) Opportunity cost is an estimate of the value of producers monies invested in the cattle operation. The producer's investment in cattle is multiplied by 4% to estimate this cost.

10) Pasture is a challenge to value. Rent value was used if appropriate, also pasture costs and community pasture costs were considered when appropriate.

11) Cattle weights at the start of the year and end of year were estimated by the producer. This was a best estimate since cattle are not weighed at the start and end of the year.

Completed interview guides were accumulated and entered into the database. Confidentiality codes were assigned to each producer interview guide to allow traceability while maintaining confidentiality. Dynamic Outcomes audited the electronic data to check for accuracy and for anomalies. In the case of the cow / calf sample, there was one producer not included in the average of the total sample because his situation was quite different from the rest of the sample population.

The key parameters for measuring costs for cow / calf producers were dollars to maintain a cow for one year. This is based on the assumption that a calf should be produced annually. For feedlot and backgrounding operations, the key measure was the cost to produce 100 pounds of live weight.

In all cases, averages were weighted averages, in other words, averaged against the total number of animals sampled and not an average of the number of farms represented in the sample.

Cost of Production Data:

Costs varied substantially from producer to producer. The sample of producers had many more cow/calf operators and feedlots than backgrounding operations. The larger the sample, the less effect any one operator has on the average for the group. With this in mind it is likely that the average costs for backgrounders is less accurate than for the other two sectors.

For all three sectors, the cost of production accounts for all operating and fixed costs. It should be noted that unpaid labour is not included in the total costs. For the entire sample, the amount of debt against capital costs was not significant, and in many cases producers had no long-term debt. The estimate of owner's equity

would help adjust for this and provide a clearer picture of the producer's assets or investment in their operation.

Cow / Calf Data

A total of twenty-eight cow-calf COPs were completed and twenty seven are reported on. One was excluded because of extraordinary variances. The cow calf sample is the largest of the three sectors and represents a wide range of size of operation. This should provide good representation of the cow calf sector.

Most cow calf producers raised their calves to a weight of 600 – 700 pounds, although the overall weight range was greater (450 – 1050 lbs). There was a range of calving rates (# of calves / # of cows) from 82% to 112% (twins). Table 2 shows the cost of production by cost category expressed as the cost of maintaining a cow for a one year period.

This provides an opportunity for one calving cycle. Management (feeding, breeds, herd health, timing of calving etc.), among other variables would contribute to the success rate of individual operations. As well, management, choice of genetics and choice of markets would all contribute to the profitability of the operation. These elements are beyond the scope of this study.

The average cost of maintaining a cow for one year was \$868. This represented a sample of considerable variance, ranging from \$292 to \$1774 per cow per year. Feed was by far the largest cost category contributing to this total average cost for the sample herds. While the average cost of feed (at farm gate market value) to maintain a cow for one year was \$313 (36% of costs) the range for this variable was very high, (\$110 - \$726 per year). It is the author's opinion that this ranged from focusing on dry hay and pasture for feed to overfeeding. It is not known how much the range in feeding regimes contributed to the calf size or quality.

Table 2. Cost of Production for the Cow-Calf Sector on a cost per cow per year basis.

Average Cost Category (\$ of annual cost maintenance per Cow)	Weighted Average	Percent of Average Total Costs	Minimum	Maximum
Feed	\$312.79	36.0	\$110.08	\$725.75
Pasture	\$73.70	8.5	\$0.00	\$124.44
Straw and bedding	\$55.16	6.4	\$0.00	\$187.50
Total feed, pasture and bedding	\$441.65	50.9	\$203.83	\$877.92
Veterinary Medicine and Supplies	\$23.45	2.7	\$4.36	\$130.13
Breeding Stock Purchases	\$21.81	2.5	\$0.00	\$186.29
Fuel (diesel, gas and oil)	\$46.38	5.3	\$4.24	\$121.13
Paid Labour Costs	\$1.05	0.1	\$0.00	\$31.13
Unpaid Labour Costs	\$283.79	32.7	\$43.55	\$975.00
Total Paid labour	\$1.05	0.1	\$0.00	\$31.13
Machinery and Building Repairs	\$58.46	6.7	\$17.56	\$362.50
Custom and Contract Work	\$3.60	0.4	\$0.00	\$32.50
Insurance	\$18.02	2.1	\$0.00	\$130.43
Utilities	\$18.82	2.2	\$0.00	\$86.96
Heifer development costs	\$0.73	0.1	\$0.00	\$28.64
Community pasture fee	\$0.00	0.0	\$0.00	\$0.00
Marketing and trucking costs	\$6.11	0.7	\$0.00	\$127.25
Heifer replacement (kept, not purchased)	\$0.00	0.0	\$0.00	\$0.00
Accounting & legal fees	\$8.44	1.0	\$0.00	\$65.22
Membership fees	\$3.16	0.4	\$0.00	\$45.59
Property taxes	\$15.15	1.7	\$0.00	\$63.04
Shop supplies	\$7.08	0.8	\$0.00	\$35.71
Office expenses	\$4.02	0.5	\$0.00	\$38.26
Registration and licenses	\$1.73	0.2	\$0.00	\$15.09
Lease/rent	\$7.38	0.9	\$0.00	\$71.37
Interest on operating loans	\$20.30	2.3	\$0.00	\$75.76
Bank charges	\$0.62	0.1	\$0.00	\$4.35
Farm safety audit	\$0.00	0.0	\$0.00	\$0.00
Other costs	\$2.01	0.2	\$0.00	\$32.36
Total other operating costs	\$70.53	8.1	\$5.43	\$226.30
Total operating costs	\$703.79	81.1	\$258.49	\$1,528.12
Depreciation costs	\$59.08	6.8	\$0.00	\$180.13
Interest on capital costs	\$2.30	0.3	\$0.00	\$57.58
Land costs	\$1.05	0.1	\$0.00	\$37.50
Owner equity opportunity cost	\$101.52	11.7	\$0.00	\$342.86
Fixed Costs	\$163.96	18.9	\$24.78	\$484.14
Total Costs (operating +fixed)	\$867.74	100.0	\$292.22	\$1,774.35
Average Farm Size (Cow Herd Size #)	42	Note: Unpaid labour is not in the total		
Total Number of Cows	1142			
Sample Size (No. of Farms Interviewed)	27			

Other significant cost variables for maintaining a cow for one year focused on fixed costs – in particular owner's equity.

There was a wide range of breeds represented in the sample. While there were a few purebred herds sampled, the majority were commercial mixed breed. There were a wide range of breeds of bulls used, with Charlais, Black Angus and Simmental dominating. There were also other breeds used such as Hereford and Limousin.

A small sized operation (Number of Cows) is more likely to be a high cost operation, however, size is not a determinate in this. While many of the smaller farms were higher than the average cost, some had a below average cost to maintain a cow for one year.

The six highest cost and five lowest cost operations were separated from the sample to determine if any trends and differences were evident. The high cost producers tended to be smaller producers with herd size (avg. 24) ranging from 16 to 46. There were other similar sized herds in the main sample that were not high cost herds.

None of the larger herds were high cost herds. The average herd size was larger for low cost operations (50), and all had costs per cow of less than \$800 per year. The average cost of maintaining a cow for a year with the high cost producers was approximately \$1460. This difference in the cost base is very dramatic. When the cost categories were compared for the high cost versus low cost herds, all categories were higher for the high cost herds. While feed was the largest difference, it was also the largest percentage of overall costs.

The cost of feed (47% higher) in the high cost group was a strong contributing factor to the higher costs compared to the total sample. Most of the operating cost categories were higher in the high cost herds than in the overall sample, accumulating to 51% higher operating costs (\$348 per cow) than the overall sample. The only operating cost category that was lower was operating loan interest. Fixed costs were also significantly higher than the total sample (140%) or \$83 per cow. The only trend observed here is that costs are higher with smaller herds. The single highest cost was feed, and given that market prices were used, it would appear that

these herds are receiving more feed per head or a more expensive feed mixture than in the overall sample.

The five lowest cost cow calf operations all had annual total costs per cow of less than \$800. Feed cost differences between the low cost herds and the overall sample were also significant (60% lower than the average). Lower costs accumulated in most operating cost categories, leading to a difference in total operating costs of 67% lower costs when compared to the overall sample.

When comparing the high and low cost producers, approximately 37 tonnes of grain were fed on the six high cost herds totalling 143 animals, while only 7 tonnes of grain were fed to the 5 low cost herds, representing 249 animals.

Producers in both the low and high cost groups rotated pasture, so pasture and pasture practices overall do not appear to contribute to these differences.

Calving rates between the two groups was very close, at 98% for the high cost herds and 95% for the low cost herds. Calf loss was higher for the high cost herds (24 calf losses over 6 herds averaging 24 cows/herd) compared to low cost herds (11 calf losses over 5 herds averaging 50 cows per herd). The average loss for the whole sample was 4 per year per farm.

The reader will note that for bedding, some of the farmers show zero expense (2 producers). In these two cases, producers were using the uneaten hay that they feed or had an alternate free source of bedding. This amount of wastage can vary, but if the quality of the hay is poor it can be up to 50% of the total amount fed. This left over material is spread around for bedding. On the other extreme, two producers appeared to use an excessive quantity of straw (\$187 and \$167 per cow). These were two of the smaller herds in the sample.

Backgrounding Data

A total of 6 participants were interviewed and completed as part of this study. The small sample size means that on average the data is less accurate than the data for either cow/calf or feedlots. On PEI most calves when they are weaned are bought by

feedlots for finishing; essentially combining the backgrounding function with the feedlot function.

This study is focused on the cost of adding 100 pounds of live gain to a beef animal. The results are presented in Table 3. It is not a study of profitability and therefore the purchase price of the animal and its' sale price are not reported. Although these greatly affect profitability, they are not production costs. It should be noted that there was a considerable price variance in the cost of animals purchased; but also there could have been a substantial difference in the quality of animals purchased. These are factors that only the producer can consider in their own operations.

Producers did note that the rate of gain can vary substantially between animals and opinion varies why this is so.

The sample size, small as it was, could be divided into 2 groups of 3 producers per group. Three were high cost producers and three were low cost producers. The three high cost producers were relatively small producers while the three low cost producers were 1 small, 1 medium and 1 larger producer. What this suggests is that size matters (larger is more likely to have lower costs), but is not a determinate.

Feed and bedding costs is the highest cost area, equaling 50 % of total production costs, with an average cost of \$69.43 per 100 pounds of gain. However, the variance was considerable. Low cost was \$32 while the high cost was \$268. This is a factor of 8 times and it is reasonable to be suspicious that estimates of feed use were in error by either the low or high cost producer; probably the high cost producer since this cost is so much in excess of the average. High cost producers universally had very high feed costs. This should be the first area of focus for the high cost producers.

Other variable expenses added another 38% to the COP. In order of importance they were labor, veterinary costs, fuel, and machinery and building repairs. Other operating costs were much less influential.

Table 3. Cost of production for the Backgrounding Sector based on the cost per hundred pounds of gain.

Average Cost Category (\$ Per 100 lb live gain) Backgrounders	Weighted Average	Percent of Average Total Costs	Minimum	Maximum
Feed	\$56.52	40.7	\$20.61	\$245.69
Pasture	\$6.66	4.8	\$0.00	\$13.85
Straw and Bedding	\$6.24	4.5	\$1.48	\$34.69
Feed Pasture and Bedding	\$69.43	50.0	\$31.97	\$268.40
Veterinary Medicine and Supplies	\$8.81	6.3	\$0.00	\$13.04
Fuel (diesel, gas and oil)	\$8.05	5.8	\$2.92	\$20.30
Paid Labour Costs	\$12.21	8.8	\$0.00	\$21.58
Unpaid (Own) Labour Costs	\$31.43	22.6	\$15.42	\$79.79
Total Labour Costs	\$12.21	8.8	\$0.00	\$21.58
Machinery and Building Repairs	\$6.84	4.9	\$0.92	\$32.33
Custom and Contract Work	\$0.00	0.0	\$0.00	\$0.00
Insurance	\$1.57	1.1	\$0.00	\$6.65
Utilities	\$3.84	2.8	\$0.66	\$10.82
Community pasture	\$0.43	0.3	\$0.00	\$5.53
Marketing and trucking costs	\$1.30	0.9	\$0.00	\$2.29
Levy and check off	\$0.00	0.0	\$0.00	\$0.00
Accounting & legal fees	\$1.10	0.8	\$0.00	\$4.45
Membership fees	\$0.21	0.2	\$0.00	\$1.45
Property taxes	\$1.24	0.9	\$0.00	\$8.83
Shop supplies	\$1.34	1.0	\$0.00	\$11.98
Office expenses	\$0.96	0.7	\$0.00	\$17.46
Registration and licenses	\$1.59	1.1	\$0.00	\$40.65
Lease/rent	\$1.69	1.2	\$0.00	\$14.27
Interest on operating loans	\$3.27	2.4	\$0.00	\$22.78
Bank charges	\$0.07	0.0	\$0.00	\$0.66
Other	\$0.03	0.0	\$0.00	\$0.05
Other operating costs	\$11.04	7.9	\$4.80	\$38.49
Operating Costs	\$121.78	87.7	\$81.47	\$339.61
Depreciation costs	\$12.03	8.7	\$0.59	\$23.26
Interest on capital costs	\$0.51	0.4	\$0.00	\$1.94
Land costs	\$0.00	0.0	\$0.00	\$0.00
Owner equity opportunity cost	\$4.58	3.3	\$0.00	\$24.55
Fixed Costs	\$17.13	12.3	\$2.26	\$35.38
Total Costs (operating +fixed)	\$138.91	100.0	\$96.72	\$374.98
Avg. Farm Size (No. of Feeders sold)	135			
Total Number of Pounds Gained	268301			
Sample Size (No. of Farms Interviewed)	6			

Note: Unpaid labour is not included in the total

Fixed costs (non cash item) added 12 % to the total production costs. Depreciation and owner's opportunity costs were the main items here.

On average, it is clear that backgrounding is not a profitable enterprise. Recognizing that feeds are priced at market value, and that many producers grow their own feeds, estimates of feed use may be very rough. It may also be that forage production is supporting the backgrounding operation.

Size of operations suggests that small operations, although not guaranteeing higher costs, are likely to have higher costs, and that their feed conversion rates are more likely to be poor compared to larger operations. If this is true, we do not know why it is so.

Smaller operations appear to have poorer utilization of equipment and buildings and shows up in higher repair costs per 100 pounds of live gain.

Again, it needs to be noted that the sample size is small, and any inaccuracies have a much larger influence than in a larger sample size.

Feedlot Data

A total of 17 participants were interviewed and data was compiled for each. Two of the participants were removed from the study due to being outside acceptable statistical variance. One of these was due to incomplete and inconsistent data and one because of his size compared to the size of the average sample. This producers' data, because of his size, would have had an unfair influence on the average numbers.

The study is focused on the cost of adding 100 pounds of live gain to a beef animal. Results are reported in Table 4. Participants bought weaned calves and in some cases backgrounded animals for the purpose of finishing them. The cost of purchase, although gathered as part of the interview, is not part of the cost of production studied. The quality and value of these purchases cannot be determined although they are recognized as very important management responsibilities in operating a successful feedlot.

Table 4. Cost of production for the Feedlot Sector based on the cost per hundred pounds of gain.

Average Cost Category (\$ Per 100 lb of live gain) Feedlots	Weighted Average	Percent of Average Total Costs	Minimum	Maximum
Feed	\$82.09	63.8	\$34.57	\$143.55
Pasture	\$0.13	0.1	\$0.00	\$2.40
Straw and Bedding	\$7.99	6.2	\$2.61	\$17.55
Feed Pasture and Bedding	\$90.22	70.2	\$37.89	\$161.09
Veterinary Medicine and Supplies	\$0.98	0.8	\$0.00	\$9.73
Fuel (diesel, gas and oil)	\$4.71	3.7	\$1.56	\$14.51
Paid Labour Costs	\$4.18	3.2	\$0.00	\$22.46
Unpaid (Own) Labour Costs	\$15.87	12.3	\$4.17	\$82.64
Total Labour Costs	\$4.18	3.2	\$0.00	\$22.46
Machinery and Building Repairs	\$4.30	3.3	\$1.45	\$10.39
Custom and Contract Work	\$0.13	0.1	\$0.00	\$0.67
Insurance	\$1.55	1.2	\$0.59	\$4.72
Utilities	\$1.03	0.8	\$0.00	\$11.71
Community pasture	\$0.00	0.0	\$0.00	\$0.00
Marketing and trucking costs	\$0.26	0.2	\$0.00	\$4.09
Levy and check off	\$0.58	0.4	\$0.27	\$1.00
Accounting & legal fees	\$0.49	0.4	\$0.00	\$2.48
Membership fees	\$0.14	0.1	\$0.00	\$0.51
Property taxes	\$1.00	0.8	\$0.00	\$4.86
Shop supplies	\$0.45	0.4	\$0.00	\$2.91
Office expenses	\$0.15	0.1	\$0.00	\$0.58
Registration and licenses	\$0.13	0.1	\$0.00	\$0.38
Lease/rent	\$0.67	0.5	\$0.00	\$6.17
Interest on operating loans	\$2.53	2.0	\$0.00	\$32.14
Bank charges	\$0.06	0.0	\$0.00	\$0.23
Tags	\$0.13	0.1	\$0.00	\$1.14
Other	\$0.17	0.1	\$0.00	\$1.34
Other operating costs	\$6.76	5.3	\$2.50	\$41.56
Operating Costs	\$113.86	88.5	\$67.63	\$185.30
Depreciation costs	\$5.89	4.6	\$0.00	\$16.76
Interest on capital costs	\$0.00	0.0	\$0.00	\$0.00
Land costs	\$0.00	0.0	\$0.00	\$0.00
Owner equity opportunity cost	\$8.85	6.9	\$2.48	\$21.11
Fixed Costs	\$14.75	11.5	\$5.34	\$29.89
Total Costs (operating +fixed)	\$128.61	100.0	\$73.99	\$199.53
Avg. Farm Size (# sold to slaughter)	126			
Total Number of Pounds Gained	1314350			
Sample Size (No. of Farms Reported)	15			

Note: Unpaid labour is not included in the total

The sample size we feel is sufficient to reflect with some accuracy the costing experience of the average feedlot on PEI. Feed, Pasture and Bedding are by far the most significant cost category totalling 70% of the average total cost. When the three high cost producers are looked at in isolation, this cost increases to 96% of the average total cost. If the three low cost producers are looked at separately, this cost decreases to 51% of the average total cost. Feed in particular is clearly the most important cost item ranging from a minimum of \$44 to a maximum of \$144 per 100 pounds of gain. Although both of these examples may be extreme, the average of \$82 is very important representing 64% of total average costs. It also needs to be kept in mind that market values were applied to all feeds in a uniform way, meaning that quantity, feed mix and conversion ratios are the only variables.

When looking more closely at the herd information of the three low cost producers compared to the three high cost producers, a number of observations can be made. The total animals sold for the year for the three high cost producers totalled 324 animals while the total sold by the three low cost producers was 323 animals. The volume of animals is not the issue. The average weight of feeders purchased by the low cost group was 725 pounds. The average weight of feeders purchased by the high cost group was 571 pounds. The average price per pound paid by the low price group was \$1.17 while the average price for the high cost group was \$1.05. The average sales weight for the low cost group was 1,333 pounds averaging \$1.01 per pound. The high cost group sales group averaged 1,435 pounds and \$.88 per pound.

The most surprising issue when comparing the low cost group and the high cost group was the death rate. The low cost group lost in total 1 animal in 2011. The high cost group lost 13 animals. This was surprising, and for the high cost group, a substantial extra expense. Quality and size of feeders need to be considered as possible factors in this difference.

Buying inexpensive feeders may not be the bargain that they appear to be at purchase time. When the more expensive feeders were finished and sold they captured a higher price, and of course this higher price was applied to a much larger animal.

Veterinary costs were also higher for the high cost group, the group that lost the most animals. It is not known if these additional expenses prevented additional deaths, but the costs were incurred adding to the COP for this group. It is fair to say that veterinary costs do not explain why the difference in deaths between the groups.

The cost of feed to produce 100 pounds of beef is the dominant cost issue. This is the cost issue that qualifies the low cost producers as low cost producers and high cost producers as high cost producers. There may be a direct connection to high cost producers buying less expensive feeders and smaller feeders and their rates of converting feed to beef. It might be suspected that the feed regimes were quite different, but one feeder in each group fed corn silage, and all fed haylage. An analysis of feed quality might add light to this issue. The factors that determine the value of feeders should be considered since it appears that higher value feeders yield much better results.

High cost producers' fixed costs were not higher than the low cost producers' fixed costs; in fact were a few cents lower. When compared to the total average costs high cost producers had lower fixed costs per 100 pounds of gain on average. This suggests that high cost producers were efficient in the use of their equipment and buildings, but were not as focused on the efficiency and effectiveness of their feeding regime. If the issue was poor rates of gain, for whatever reason, this should also show up in higher fixed costs.

It is clear from the data that the size of operation and the cost of gain are not connected. Another way of saying this is to observe that the highest cost producer was not the smallest producer and the lowest cost producer was not the largest producer.

One of the shortcomings of this type of study is that it gathers information for a period of time, in this case for a calendar year, and it is based on historical information. When considering cow/calf operations, the number of animals (the basis of the cost study) is quite easy to count. For backgrounding and feedlot

operations the weight of animals on Jan 1st and Dec 31st is estimated. This is the only information available and may not be totally accurate. The expectation is that if the sample is large enough, the accuracy will increase with errors both on the conservative side and the liberal side balancing out. We believe this to be the case.

Paid labour and machinery and building repairs are the next most important operating expenses on average. They represent a little over 3% each when compared to total costs.

Fixed costs represented 11.5 % of total average costs. These are not cash costs and will not affect the short term viability of the operation. Because it is quite a low number, it suggests that producers are using their equipment and buildings effectively.

During interviews with farmers, a variety of opinions were expressed on feeding regimes and on the best shipping weights. Corn is playing a larger role in agriculture in PEI when compared to 10 years ago. Producers feeding corn seem to be very pleased with its results and more producers are feeding corn. Several producers expressed that shipping heavier animals was a better use of feed than shipping lighter animals. It is recognized that these are anecdotal reflections and should be considered as such.

Cost of feed is the COP issue for feedlots. Reducing feed costs per 100 weight of gain will improve the bottom line. Improved management of feeder purchases, feed costs, and feed types used should yield positive results.

Observations:

There was wide variability in the cost of production in all three sectors: cow / calf, backgrounding and feedlots represented in the sample. The report has already documented the weaknesses in the data – namely estimating data by producers, segregating costs by enterprises and the small sample size for backgrounding. After considering all of these, the authors are quite confident that the data represented in the cow / calf and feedlot sectors is quite representative of the industry. Outlying

producers (data out of range) were removed, and overall, the range of COP is within reason.

Increasing the level of participation by more backgrounding producers would be the only way to strengthen the data for this sector.

The PEI Cattle Producers and individual producers can draw a number of conclusions from this data.

First, there are operations included in the sample that are profitable at recent or current market prices and there are operations in the sample that are not profitable at recent or current market prices. The impacts of safety net programs and other policy initiatives that impact farm and off farm (or personal) income are beyond the scope of this project.

Secondly, there is a wide range of variability in the cost of production (and its components) on the various operations included in the sample. The authors are confident that much of this variability accurately reflects the variability of the industry.

Thirdly, considering that the cost of feed was allocated consistently at farm gate market value, producers who produced their own feed at less than these market values lowered their out of pocket cost for production of beef. Some producers would see this as increasing their profitability and others would question this.

The cost of feed was by far the single largest cost category in the sample, and also contributed strongly to the variability in cost of production. This provides an excellent opportunity for high cost producers to move their costs towards those of low cost herds. It also provides an excellent opportunity for the PEI Cattle Producers to use this data as a basis for benchmarking and learning. PEI cattle producers are also fortunate in that the Provincial Department of Agriculture has excellent expertise in feed and feed conversion. It was noted by several of the low cost producers that they use this expertise in determining their feeding regimes.

As corn and soybeans become more important crops on PEI and will likely grow in importance as an animal feed; their efficient production as a field crop becomes more and more important. Producers using corn expressed their satisfaction with its performance both as a field crop and as a feed. We do not know the level of knowledge of beef producers as a whole about corn and soybean production and the economics of using them as feed. This may be an area of opportunity for the industry.

At some point in the future there may be a desire to do an in depth COP study that would follow a number of producers for a full calendar year. Each animal would be weighed at the start of the year and when leaving the farm. The herd would be weighed at the end of the year as well. All feed stuffs would need to be weighed and analyzed (moisture and nutrient levels) and the producers' practices recorded. Purchased feeders would need to be assessed for quality and followed for the period of time. Equipment and labour hours would need to be tracked as well. This would be a major undertaking and would require compensation to the participating producers, but it would address some of the weaknesses that were observed in this study.

The authors are aware that there are some misconceptions about the relationship between carcass yield and live weights. Based on observations in this study, we believe that clarifying how carcass yield is calculated would be beneficial for feedlot operators.

Appendix 1. Descriptions of Cost Variables.

The following information applies to all commodities unless otherwise noted.

1. Feed includes all types of feed for livestock, including hay, haylage, corn silage, supplements, salt, mineral and other feeds. Both purchased and home grown feed is included in this variable.
2. Pasture includes the cost of any fertilizer, lime, seed or other improvements. Community pasture fees and land rental are also included. Labour costs and materials and repairs for fencing are captured elsewhere
3. Straw and Bedding includes any material used for bedding, including hay, straw, shavings and other materials. No cost was assigned to left-over hay that was fed to the animals.
4. Feed, Pasture, Bedding and Straw is an accumulation of #'s 1 – 3.
5. Veterinary Medicine and Supplies includes the purchase of self-administered medicines, Vet administered medicines and costs for site visits.
6. Fuel includes diesel, gas and oil. Expensed vehicle costs are also included.
7. Total labour costs are the total labour costs paid including wages, workers compensation, CPP, UIC, and other benefits. Owners' unpaid labour is not included.
8. Paid labour costs include wages, workers compensation, CPP, UIC, and other benefits.
9. Unpaid Owners Labour is an estimate of the hours that owners dedicate to running their operation. The hourly wage assigned is \$15.
10. Maintenance and Repairs are the total costs of for equipment, buildings and fencing.

11. Custom Work and Rental costs are the expenses contracted to off-farm service providers to do specific activities. Equipment rental costs are accounted for the Other Expenses section.
12. Insurance costs include crop insurance, vehicle, building, content, and liability insurance. It does not include life insurance costs.
13. Utilities included electricity costs, heating costs, telephone and telecommunications costs.
14. Other costs included accounting and legal fees, membership fees, property taxes, shop supplies, office expenses, advertisement, registration and licenses, lease and rent (equipment), interest on operating loans, bank charges, farm safety audit, and miscellaneous costs.
15. Total Operating Costs are the totals from the previous sections. In general terms these costs per acre would remain very similar under similar cropping practices as acreage allocated to this crop changes.
16. Depreciation costs are calculated on a straight line basis for equipment, and buildings based on the equipment and building assessment sheet filled out with the producer. This takes into account the purchase date, used life, expected life and residual value of the asset.
17. Interest on capital costs is the interest paid on long term debt (total debt minus operating debt). It is assumed that the operating line is secured by the animals in production and will be paid as they go to market. The remaining debt is long term and usually secured by land, buildings and equipment.
18. Land costs include land, buildings and long term equipment rental expenses. If pasture rental was identified separately, it is captured under pasture.
19. Owner Equity Opportunity Cost reflects the estimated “opportunity” cost of equity invested in the farm. Equity was estimated by the producer, or determined by subtracting long term liabilities from long term assets plus cash. The value

assigned to equity was prime plus 1%, or 4%. This cost conservatively estimates the income “lost” by the owner’s investment in the farm. If equity were \$100,000 then the total opportunity cost would be \$4,000.

20. Fixed Costs is the total of costs 17 through 20.

21. Total Costs is the sum of operating and fixed costs.