Deschambault Swine Testing Station

Trials 29 and 30

October 2012

Commercial hog performance data Economic study

Yvon Allard, B. Sc. A.
Joël Rivest, Ph. D., analyst
Michel Morin, agricultural economist
Benoît Turgeon, agricultural economist
Frédéric Fortin, M. Sc. A., geneticist

CDPQ
Centre de développement du porc du Québec inc.

Project team

Respondent	Yvon Allard, B. Sc. A., agricultural economist
Collaborators	Joël Rivest, Ph. D., analyst Michel Morin, agricultural economist Benoît Turgeon, agricultural economist Frédéric Fortin, M. Sc. A., geneticist
Report writing	Yvon Allard, B. Sc. A., agricultural economist
Translation	Stefanie Wyss, M.Sc., Technical assistant, Canadian Centre for Swine Improvement (CCSI)

Acknowledgements

The *Centre de développement du porc du Québec inc.* (CDPQ) would especially like to thank pork producers and the following organizations for their support and collaboration in the completion of these trials.

Main financial partners

Agriculture, Pêcheries et Alimentation Québec

Fédération des producteurs de porcs du Québec

Part of the funding for this project was provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In Quebec, the proportion of funds given to the agricultural production sector is managed by the Conseil pour le développement de l'agriculture du Québec.

Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Other financial partners and collaborators

- Centre d'insémination porcine du Québec inc.
- Nucléus porcin du Québec
- Pen Ar Lan Canada inc.
- Société des éleveurs de porcs du Québec
- Sogeporc (La Coop fédérée)
- Ferme Sylvain Beaudry inc.
- Ferme St-Roch
- Maternité St-Norbert
- Ferme Philippe Moulin
- Ferme Panelia
- Ferme Duporcsain sec
- Ferme Lucien et Normand Audet
- Ferme Ste-Catherine
- Ferme St-Victor
- Ferme St-Eugène
- Les Porgreg inc.
- J et R Perreault inc.
- Ferme Jacques Ouellet
- Ferme Géni-Porc inc.
- Porcheries du Button ltée
- Les Élevages Auger
- Ferme Raymond Coutu et fils enr.

Part of the funding for this project was provided through sector councils in Quebec, Ontario and Saskatchewan who manage the Canadian Agricultural Adaptation Program (CAAP) on behalf of Agriculture and Agri-Food Canada and from the financial support program to groups and associations of producers designated by the Ministry of Agriculture, Fisheries and Food of Quebec *(Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec* (MAPAQ)).

Table of contents

List of tables

List of figures

Introduction

As part of the project “Study on the interaction between swine breeding schemes and feeding programs to identify strategies that improve the profitability of pig farms”, a 4-scenario techno-economic analysis was carried out during the grow-finishing phase of commercial pigs. These scenarios are a combination of two feeding strategies and two breeding schemes which are analyzed based on changing feed costs and hog prices. The objective of this analysis is to identify strategies to improve the profitability of pig farms. Initially, the results of Trials 29-30 were planned to be used to obtain growth, feed efficiency and carcass quality performance data from two breeding schemes and two feeding strategies. The two breeding schemes consisted of a “**fat breeding scheme**” which had low lean yield and a “**lean breeding scheme**” which had high lean yield. The two feeding strategies consisted of a “**regular feeding program**” fed for several years to station-tested pigs in previous trials and which met the nutritional requirement of finishing pigs and a “**restricted diet**”, a lower cost ration having lower protein and amino acid content than the regular program. In the actual analysis, since results from Trials 29-30 showed small differences in lean yield performance between both breeding schemes and feeding programs, terminal sire line performance from previous station tests were used and adjusted to a commercial context.

Reference data used based on “lean” or “fat” breeding schemes and with two feeding programs (regular or depleted in amino acids)

Table 1 shows the reference performance for both breeding schemes. Data from trials were adjusted to better reflect a situation in a commercial setting.

Table 1 Reference data used to adapt performance data to a commercial setting

		REGULAR DIET				
		Trials		Commercial	Basic values	
Criteria	Breeding scheme	Lean	Fat	Basic	Lean	Fat
Rearing duration	weeks	15	15	18	18	18
Average daily gain*	g/d	1028	1076	905*	880.9	929.1
Feed conversion* (economic)		2.33	2.40	2.61*	2.57	2.64
Lean yield	%	62.0	60.9		62.0	60.9

* CRAAQ, AGDEX 440/821i, July 2012

From these basic values and a techno-economic tool ($imule-lot) used to simulate shipment and grading of pigs, we were able to generate performance data for both breeding schemes fed a regular diet. All that remained was to adapt these results to simulate performance data in a situation where pigs were fed a diet depleted in amino acids to obtain our four basic scenarios. This last adjustment was made from compiled results from the literature and private tests (Boyaud, 2012, Table 2).

Below are simulated values for results obtained with a regular diet to obtain performance under a restricted diet

Table 2 Adjustments made to the regular diet to reflect pig performance in a situation of a feeding program more restricted in amino-acids

		Performance difference	
Criteria	Breeding scheme	Lean	Fat
Average daily gain	%	- 6.50	- 6.66
Feed conversion	%	7.80	7.82
Lean yield	%	- 0.56	- 0.67

Source: Daniel Boyaud, Cérès group agronomist, 2012

To obtain comparable results, the four scenarios were considered in the same economic environment with the same rearing parameters. This contextualization establishes the same production objective, regardless of considered scenarios.

Table 3 Rearing parameters for the four basic scenarios

Criteria		
Batch size	head	1 000
Rearing duration including cleanout	weeks	18
Mortality rate	%	2,33
Number of pigs produced	head/yr	2 822
Piglet weight at entry	Kg	28
Minimum weight at exit	Kg	122
Hog price, 2011 reference	$/100 kg	164.22
Farm Income Stabilization Insurance Program (ASRA) compensation	$/100 kg	8.49

To complete the information on economic environment, we used actual feed prices paid in 2011 for Trials 29 and 30 for each feed ingredient intended for regular or restricted feeding programs. The "Qualité-Québec, January 2012" grid was chosen as grading grid because it best represented the situation and market requirements for most Quebec pig farms. This grid favours carcass weights between 92.5kg and 112.4kg. This is what justified our goal of setting the minimum live weight at shipping to 122kg.

Table 4 Feed prices used

Feed price		Start	Growth	Finish
Regular diet	$/MT	400	375	360
Restricted diet	$/MT	380	350	340

Table 5 "Qualité-Québec, January 2012" grading grid

	Yield	c1	c2	c3	c4	c5	c6	c7	c8	c9	c10
		WEIGHT (kg)									
	Meat %	0.1 to 70	70.1 to 77.4	77.5 to 82.4	82.5 to 87.4	87.5 to 92.4	**92.5** to 99.9	100 to 107.4	107.5 to **112.4**	112.5 to 115.4	115.5 to 999.9
1	64.3 to 100	*40*	*65*	*80*	*95*	*103*	*110*	*110*	*110*	*99*	*80*
2	61.8 to 64.29	*40*	*65*	*85*	*99*	*103*	*110*	*110*	*110*	*100*	*80*
3	59.6 to **61.79**	*40*	*65*	*85*	*100*	*109*	***115***	***115***	***115***	*104*	*80*
4	**57.7** to 59.59	*40*	*65*	*85*	*102*	*107*	***112***	***112***	***112***	*102*	*80*
5	56.8 to 57.69	*40*	*65*	*85*	*95*	*100*	*107*	*107*	*107*	*96*	*75*
6	56.1 to 56.79	*40*	*65*	*80*	*85*	*90*	*102*	*102*	*102*	*90*	*75*
7	54.7 to 56.09	*40*	*65*	*80*	*80*	*90*	*95*	*95*	*95*	*85*	*70*
8	1 to 54.69	*40*	*65*	*80*	*65*	*70*	*75*	*75*	*75*	*70*	*50*

Performance comparison of both breeding schemes evaluated with a regular feeding program

Firstly, it would be appropriate to simply compare techno-economic results between both breeding schemes with an identical feeding program, the regular diet.

Table 6 Main techno-economic performance results obtained from two breeding schemes with the "Qualité-Québec, January 2012" grading grid and with 2011 hog prices and feed costs

		Regular feeding program	
Criteria on an annual basis	**Breeding scheme**	**Lean**	**Fat**
Average weight at shipping	kg/pig	123.9	125.9
Average carcass weight	kg/pig	100.1	101.8
Kilograms of carcass produced	**kg/pig-place**	**282.4**	**287.2**
Grading index		110.4	111.7
Animals in the good stratum	%	86.0	89.6
Average daily gain	g/day	881	929
Feed conversion		2.57	2.64
Lean yield	%	62.0	60.9
Feed intake	kg/pig	250	261
Average price of consumed feed	$/Tm	373	374
Feeding costs	$/pig	93.33	97.74
	$/100 kg	93.26	96.03
	$/pig-place	**263.34**	**275.78**
Hog sales*	$/100 kg	189.79	191.92
	$/pig-place	**535.86**	**551.15**
Margin (income– feed)	$/100 kg	96.52	95.89
	$/pig-place	**272.53**	**275.37**

* Includes Farm Income Stabilization Insurance Program (ASRA) compensation

With a higher growth rate, the "fat breeding scheme" performs better than the "lean breeding scheme" with an average weight of 125.9kg compared to 123.9kg. The hog grading according to the regular "Qualité-Québec, January 2012" grid favours relatively fatter animals, belonging to the third class for lean yield. In our production parameters, we had set the growing phase to 18 weeks with a targeted minimum shipping weight of 122kg. The pigs from the "lean breeding scheme" struggled more to reach this target with the set rearing period of 18 weeks. Consequently, the two following tables show that more pigs from the "lean breeding scheme" were shipped to the slaughter plant during the last week.

Table 7 Regular feeding program

"Lean breeding scheme"					
	Slaughtered pigs		Average Carcass weight	Average index	Good stratum
week	head	%	kg	%	%
14	150	*15*	99.0	111.3	87
15	170	*17*	99.2	111.5	91
16	214	*22*	101.8	111.3	93
17	168	*17*	103.4	110.7	92
18	275	*28*	**97.8**	**107.9**	73

«Fat breeding scheme»					
	Slaughtered pigs		Average Carcass weight	Average index	Good stratum
week	head	%	kg	%	%
14	248	*25*	100.7	111.9	87
15	232	*24*	101.1	112.4	94
16	191	*20*	103.3	112.3	94
17	126	*13*	105.0	110.8	90
18	180	*18*	100.3	110.6	82

Results obtained the last week of shipment explain in large part why the average index was lower in pigs from the "lean breeding scheme". These pigs had an average grading index of 110.4 compared to 111.7 for pigs from the "fat breeding scheme".

All these factors confer an annual economic benefit to the latter with an additional net margin (income– additional feeding costs) of $2.84 per pig-place (see Figure 1).

The annual additional income is $15.29 per pig-place. This comes in large part from the additional quantity of meat produced, which represents 59% of additional income. The remaining 41% is explained by the better indices received by pigs from the "fat breeding scheme". To obtain the additional net margin, the additional $12.44 per pig-place in feeding costs is subtracted. This last amount essentially comes from greater feed intake and represents 98% of total additional feed costs. The remaining 2% is explained by the differences in the proportion of feed consumed by phase between both breeding schemes. There were three feeding phases with a different price for each type of feed.

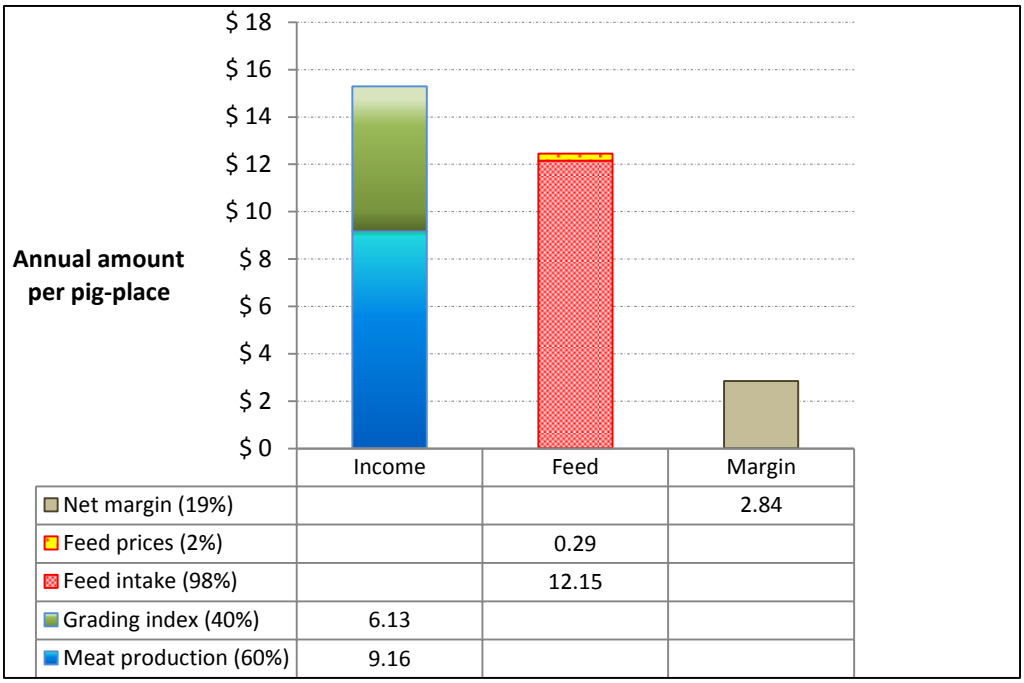


Figure 1 Annual economic benefit of the "fat breeding scheme"

In light of this graph, if we solely take into account the increase in meat production, pigs produced from the "fat breeding scheme" are penalized. In fact, the extra kilograms of meat produced at the same price as meat from the "lean breeding scheme" generates $9.16 per pig-place annually in income but costs $12.44 in feed per pig-place for these pigs. However, the type of meat produced from pigs from the "fat breeding scheme" fits better the market targeted by the "Qualité-Québec, January 2012" grading grid. The improvement results in a better average index and allows hogs from the "fat breeding scheme" to obtain an additional economic gain of $6.13 per pig place-and thus surpasses "lean breeding scheme" pig production.

In short, despite the fact that they cost more in terms of feed, "fat breeding scheme" pigs produce more meat and especially receive higher index averages which corresponds more to the market, the "Qualité-Québec, January 2012" grading grid. Consequently, the higher hog prices are, the higher the economic advantage for the "fat breeding scheme" and reversely. Yet, with higher feed costs, more advantages are transferred towards pigs from the "lean breeding scheme" and *vice versa*. Then, the choice between "lean or fat breeding scheme" hogs is dictated by hog prices, grading grid and feed costs.

Techno-economic impact of using a restricted feeding program on both breeding schemes

To obtain performance data for both breeding schemes with restricted diet, we applied the values presented in Table 2 to scenarios with a regular feeding program. Using "$imule-lot", a decision-making tool, we simulated performance data for both breeding schemes with the new feeding program. The following table shows the techno-economic performance obtained from this simulation. For each breeding scheme, we indicated the variation in performance level between both diets in comparison to the regular feeding program.

Table 8 Main techno-economic performance data obtained for both breeding schemes fed a diet depleted in amino-acids

Criteria on an annual basis	Breeding scheme	Lean		Fat	
	Feeding program	Restricted	Variation*	Restricted	Variation*
Average weight at exit	kg/pig	121.3	-2.6	123.4	-2.6
Average carcass weight	kg/pig	97.9	-2.2	99.6	-2.2
Kilograms of carcass produced	**kg/pig-place**	**276.2**	**-6.2**	**281.1**	**-6.1**
Grading index		109.5	-0.87	111.5	-0.24
Animals in the good stratum	%	78.8	-7.2	85.8	-3.8
Average daily gain	g/d	824	-57	867	-62
Feed conversion		2.74	0.17	2.82	0.18
Lean yield	%	61.8	-0.2	60.7	-0.2
Feed conversion	kg/pig	259	9	273	11
Average feed price	$/MT	351	-22	351	-22
Feed costs	$/pig	91.04	-2.29	95.79	-1.95
	$/100 kg	93.00	-0.26	96.17	0.13
	$/pig-place	**256.88**	**-6.46**	**270.28**	**5.50**
Hog sales**	$/100 kg	188.35	-1.43	191.54	-0.39
	$/pig-place	**520.24**	**-15.62**	**538.29**	**-12.86**
Margin (income – feed)	$/100 kg	95.35	-1.17	95.36	-0.53
	$/pig-place	**263.37**	**-9.16**	**268.01**	**-7.36**

* Variation is obtained by using data from the regular diet minus those of the restricted diet.

** Includes ASRA's net compensation

At first glance, using a feeding program that is depleted in amino acid content yields lower techno-economic performance results, regardless of the breeding schemes used. Always with the objective of reaching a 122kg minimum live weight at shipping, the restricted feeding program has a greater impact on the production of pigs from the “lean breeding scheme”.

Just like for the regular feeding program, we show both pig shipment tables with their grading performance at the plant.

Table 9 Depleted feeding program

“Lean breeding scheme”					
	Slaughtered pigs		Average carcass weight	Average index	Good stratum
week	head	%	kg	%	%
14	62	*6*	97.0	111.3	84
15	115	*12*	97.2	110.9	83
16	156	*16*	100.0	111.9	92
17	178	*18*	101.7	111.4	94
18	466	*48*	**96.0**	**106.7**	67

“Fat breeding scheme”					
	Slaughtered pigs		Average carcass weight	Average index	Good stratum
week	head	%	kg	%	%
14	119	*12*	98.5	112.4	90.8
15	162	*17*	98.7	112.3	87.7
16	210	*21*	100.9	112.6	94.3
17	174	*18*	102.5	112.1	94.3
18	312	*32*	98.0	109.3	72.1

Having been subjected to a depleted feeding program has considerably increased the number of pigs shipped to the plant during the last week. Moreover, the average index for these pigs was lower in comparison to what was observed when they were fed the regular diet. Overall, the average grading index and number of pigs that fell in the good stratum were the criteria that were particularly affected. The result is that the net margin decreases by $9.16 and $7.36 per pig-place for pigs from “lean and fat breeding schemes”, respectively. These reductions in margin are due to the impact of the feeding program change on income and feeding costs. To better illustrate this, we present in the following graph, the impact on revenue both in regards to the quantity and type of meat produced.

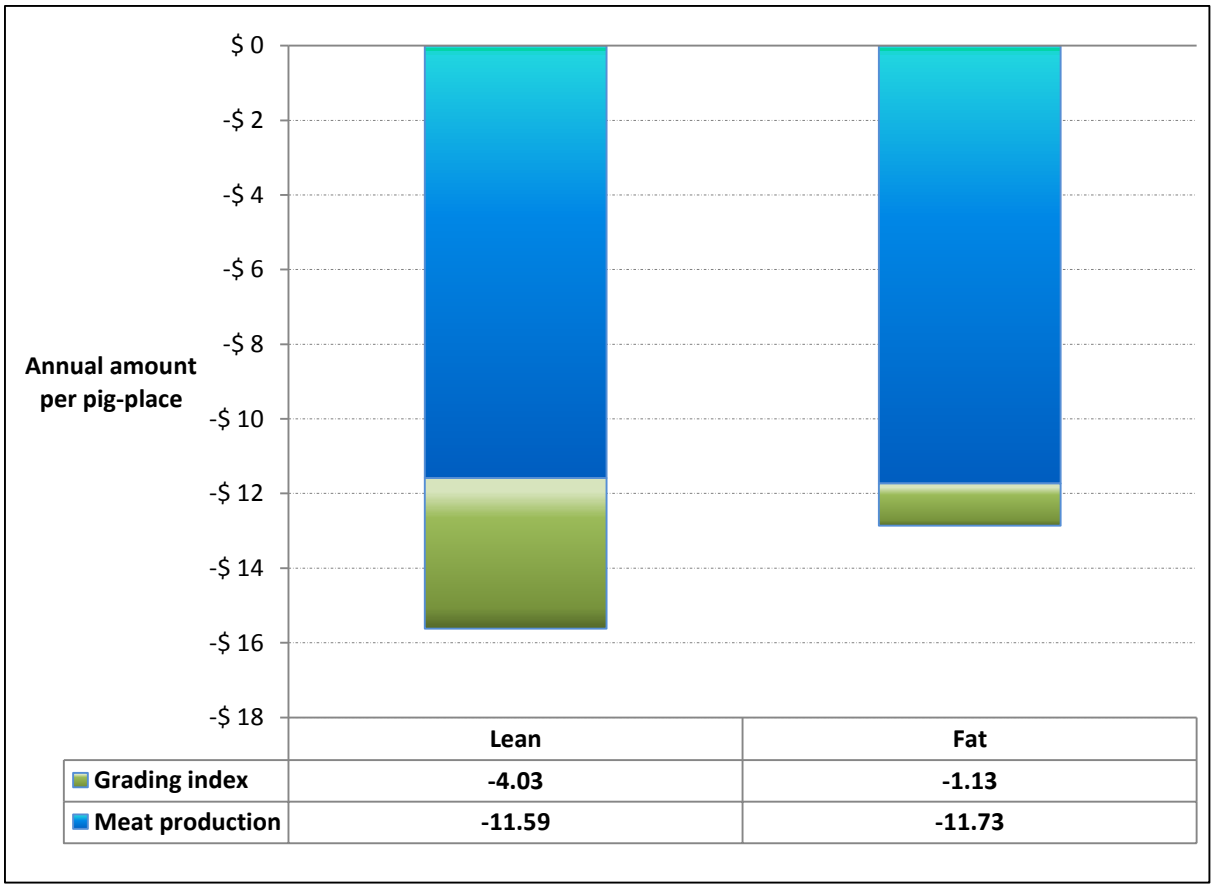
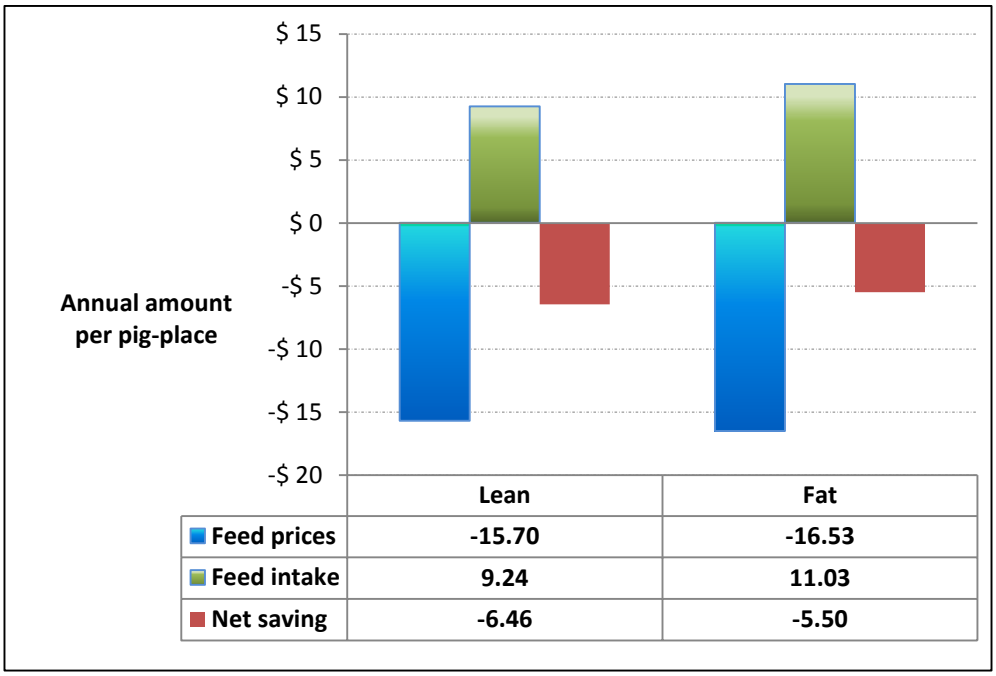


Figure 2 Impact of a depleted feeding program on income

It is interesting to notice that an almost identical loss in the quantity of meat produced is seen with both breeding schemes. This represents an annual income reduction of $11.59 and $1.73 per pig-place for “lean and fat breeding schemes”, respectively. There is a greater loss in index points for meat produced from “lean breeding scheme” hogs. For these pigs, the percentage of animals shipped during the last week increased from 28% to 48%, when they were fed a regular diet compared to a diet depleted in amino-acids. In other words, nearly half of the pigs had difficulty conforming to production requirements including a rearing period of 18 weeks and a targeted minimum shipping weight of 122kg. The loss in index leads to a decrease in income per pig-place of $4.03 for the “lean breeding scheme” and $1.13 for the “fat breeding scheme”. In short, these two items totaled a loss of $15.62 and $12.86 in annual income per pig-place, respectively.

We know that the depleted feeding program is made up of cheaper feed ingredients. Is this enough to compensate the income loss? The following graph illustrates the consequences of applying such a feeding program on feed costs.



	Lean	Fat
Feed prices	-15.70	-16.53
Feed intake	9.24	11.03
Net saving	-6.46	-5.50

Figure 3 Impact of a depleted feeding program on feeding costs

Despite an annual net saving on feed costs of $6.46 and $5.50 per pig-place for “lean and fat breeding schemes” hogs respectively, it is far from being sufficient to make up for the shortfall in income which represents a reduction of $15.62 and $12.86 per pig-place. The savings in feed costs results in cheaper feed prices as well as a larger quantity of feed. With lower unit prices for consumed feed, pigs from “lean and fat breeding schemes” achieve a savings of $15.70 and $16.53 per pig-place, respectively. This advantage is reduced by the additional feed quantity required to maintain our objective of a 122kg targeted live weight at slaughter. With this feeding program, for both breeding schemes, there is a reduction in meat production and an increase in feed intake. Despite a net reduction in feed costs, the change in feeding program generates a net annual loss of $9.16 and $7.36 per pig-place for the lean and fat breeding schemes (see Table 8).

In short, considering that the “Qualité-Québec, January 2012” grading grid reflects market requirements, these results show that investing in cheaper feed depleted in amino-acids is not financially advantageous regardless of the breeding schemes used. Additionally, it is not surprising that pigs from the “fat breeding scheme” are favoured with this grid.

Impact of feed costs and hog price variations on the four scenarios, (lean and fat breeding schemes) and both feeding programs (regular and depleted in amino-acids (restricted))

Based on results from the four scenarios under study, we show in the following tables the net margins (income – additional feed costs) according to breeding schemes by feeding program or the impact of different diets by breeding scheme.

Table 10 Net margin (income – feed costs) comparisons between different breeding schemes and diets

Net margins (income – additional feeding costs)		Breeding scheme		
Feeding program		**Fat**	**Lean**	**Difference**
Regular	*$/pig-place*	275.37	272.53	2.84
Restricted	*$/pig-place*	268.01	263.37	4.65
	Difference	**7.36**	**9.16**	

Note: Results from 2011 prices and the « Qualité-Québec, January 2012 » grading grid

At first, this table highlights the advantages of pigs from the fat breeding scheme. These pigs distinguish themselves from the lean breeding scheme pigs by producing more meat and especially by obtaining a higher average grading index. This already raises questions on the impact of hog price variations on results or the difference in margin between both breeding schemes. To produce this quantity of quality meat which better addresses market requirements, pigs must take in more food. Therefore, feed price fluctuations also have an impact on the economic difference between both breeding schemes.

Finally, this table outlines the economic advantage of opting for a regular feeding program. By choosing a depleted feeding program, margins were reduced by $7.36 and $9.16 per pig-place for all pigs from fat and lean breeding schemes respectively. Results from both breeding schemes in a situation where animals are submitted to the “Qualité-Québec, January 2012” grading grid shows smaller margin differences of $2.84 and $4.65 per pig-place for the regular and depleted feeding programs.

Sensitivity analyses

Note on net ASRA compensation

For Quebec, let's note that hog and feed market price fluctuations have an impact on the Farm Income Stabilization Insurance Program (ASRA) compensation amount. This compensation is determined from indexed production costs of the 2007-2011 model, published April 20th, 2012 on *la Financière agricole du Québec* (FADQ) website. For purposes of comparison, the compensation was not adjusted to take into account the efficiency clause that was in place at that time. Additionally, the membership cost to the program is estimated at a third of the compensation to represent the contribution of the pig farm over a long period. Note that compensation to "finisher" barns is paid on the basis of kilograms of pork produced (sold).

Table 11 Net ASRA amounts used and based on the 2007 performance model indexed to 2011 and according to changes in hog and feed prices in reference to 2011 values

Hog price fluctuations		0 %	-5 %	-10 %	-15 %	-20 %	-25 %	-30 %	-35 %
Pool price, 100 index	$/kg	1.6420	1.5601	1.4780	1.3959	1.3138	1.2317	1.1495	1.0674
Net ASRA compensation	$/kg	0.0849	0.1216	0.1583	0.1950	0.2317	0.2684	0.3051	0.3418

Table 12 Net ASRA amounts used and based on the 2007 performance model indexed to 2011 and according to changes in feed and hog prices in reference to 2011 values

Feed price variations 2011 reference		0 %	5 %	10 %	15 %	20 %	25 %	30 %	35 %
Net ASRA compensation	$/kg	0.0849	0.1099	0.1349	0.1599	0.1849	0.2098	0.2348	0.2598

Effect of hog and feed price fluctuations on both breeding schemes with an identical feeding program

Table 10 shows the difference in margins between both breeding schemes, which favours pigs from the “fat breeding scheme”, regardless of feeding program. Note that this difference is even greater when a restricted feeding program is applied. The difference in margins goes from $2.84 for a regular feeding program to $4.65 per pig-place with a feeding program restricted in amino acids. The latter diet erases even more margins of “lean breeding scheme” pigs. In the current economic context, any deviation of margin should arouse attention, because the border between profit and loss is very small in some cases.

As seen earlier, one of the factors explaining the margin differences between breeding schemes is a higher income coming from larger meat production and a better use of the price to favour "fat breeding scheme" pigs. The following graph illustrates the change in margin differences between breeding schemes for each feeding program, for different pork prices, considering a fixed feed cost.

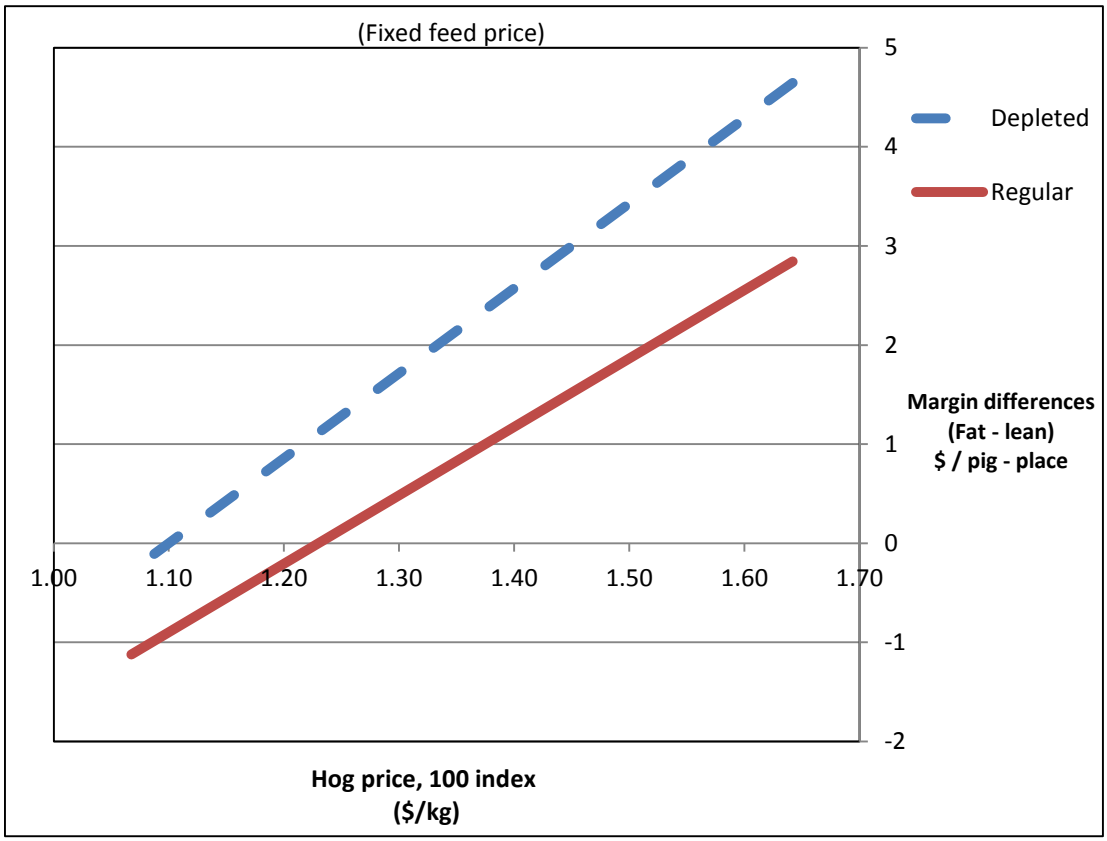


Figure 4 **Difference between margins of “fat and lean breeding schemes” based on two different feeding programs considering hog price fluctuation**

The graph shows that if feed prices remain as they were in 2011, a hog price of $1.23/kg for a 100 index with a regular feeding program and $1.10/kg with the depleted feeding program would result in net equivalent margins for both breeding schemes. Obviously, a greater reduction in hog prices would favour hogs from the “lean breeding scheme”.

Another factor influencing the annual difference in margins of both breeding schemes is the additional quantity of feed required for pigs from the “fat breeding scheme”. Based on this fact, any feed price fluctuation will have a direct impact on economic results. Figure 5 illustrates the change of both net margins when feed prices vary while hog prices are fixed at the levels observed in 2011.

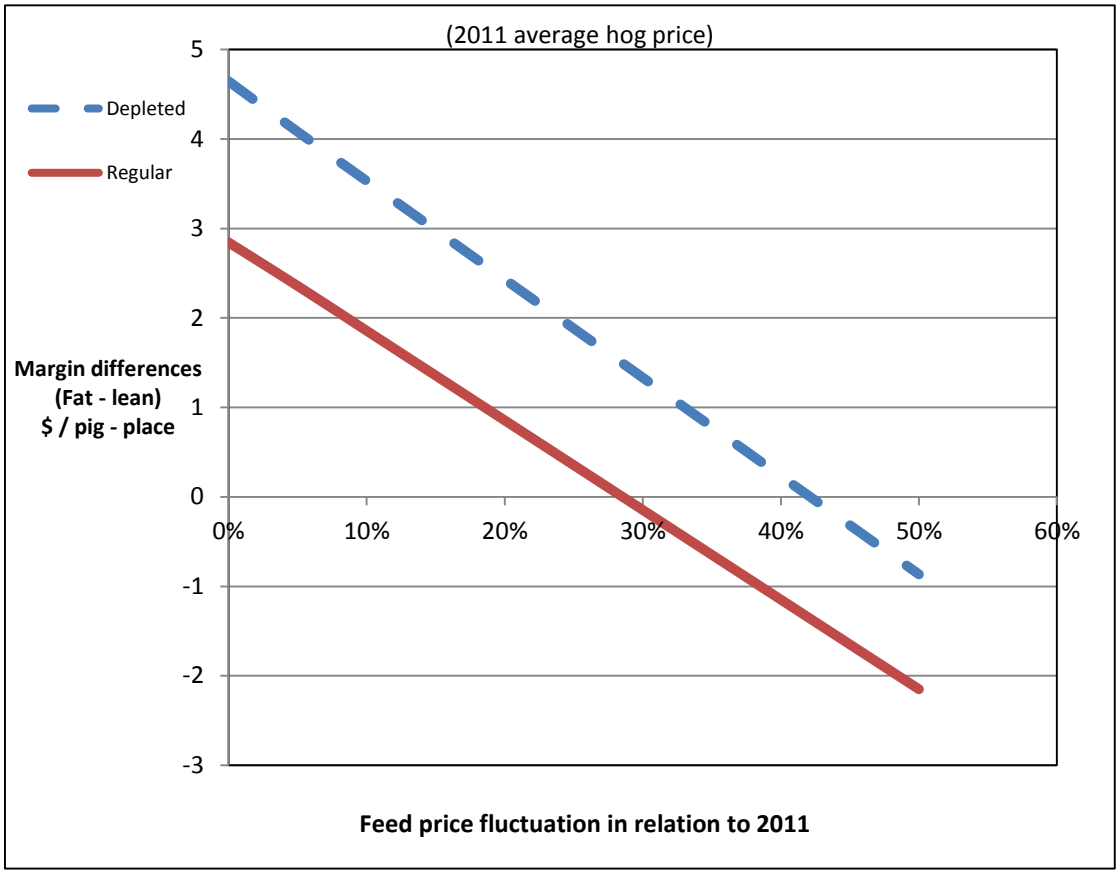


Figure 5 Difference between margins of lean and fat breeding schemes based on two different feeding programs considering feed price fluctuation

Note that by varying feed prices and by considering that we are still in the Quebec context, income is influenced by a net ASRA compensation adjustment. Therefore, when feed prices go up, a portion is alleviated by an increase in net compensation affecting income. This implies that the pig farm bears a third of the adjustments. That being said, the straight line representing the difference between net margins with a regular feeding program shows that, when feed prices increase to nearly 30% in relation to 2011 prices, there is no longer an advantage to using pigs from the “fat breeding scheme”. For the depleted feeding program, the threshold or equilibrium is close to 42%.

Therefore, it is possible that hogs from the “lean breeding scheme” are favoured, but for this to occur, feed prices would have to increase substantially.

Impact of hog and feed price variations on both feeding programs according to breeding schemes under study

Table 10 highlights the differences between margins of both feeding programs for each of the breeding schemes under study. These differences are $7.36 and $9.16 per pig-place for “fat and lean breeding scheme” hogs respectively. With these important differences, we can presume that attaining an equilibrium threshold between both feeding programs by varying prices will be more difficult to obtain.

The following graph shows the annual impact of hog price fluctuations on margins independently of feed prices.

It shows that the hog price variations have a greater effect on the difference between margins of both feeding programs, with the slope of the line being greater for the “lean breeding scheme”.

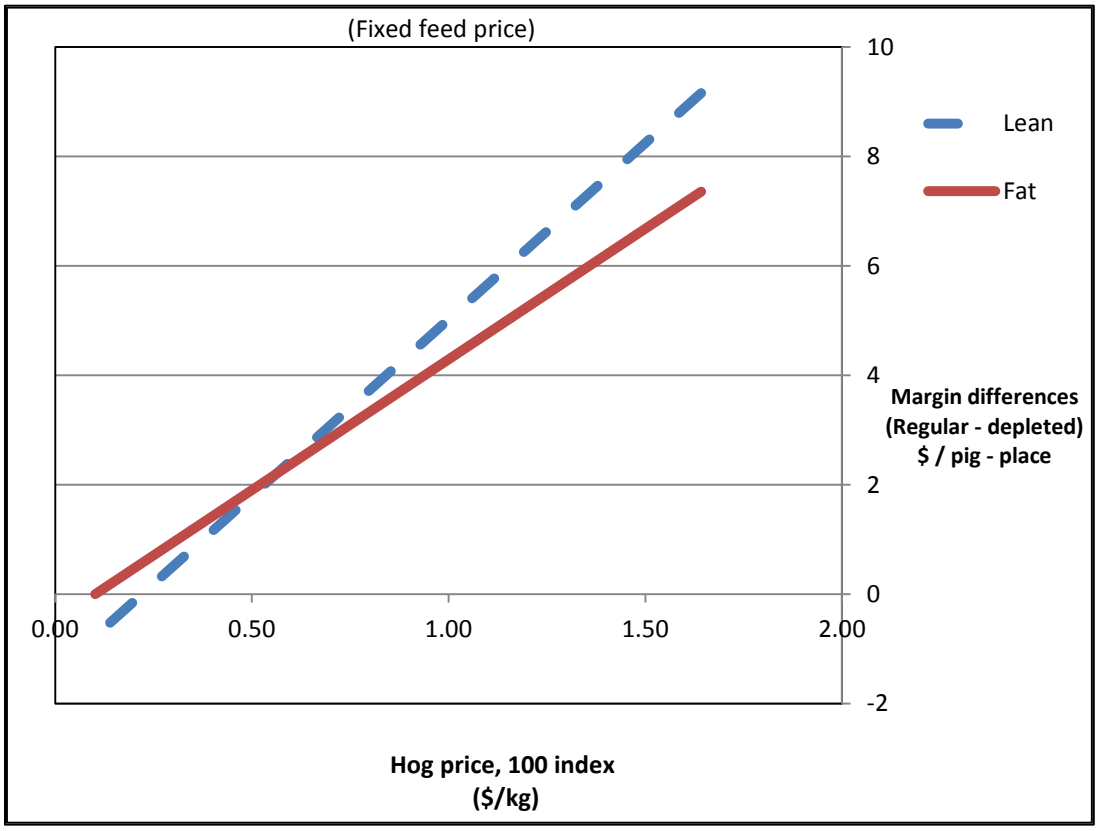


Figure 6 **Difference between margins of feeding programs for each of the breeding schemes considering hog price fluctuations**

Hog price values not showing any difference between margins of both feeding programs and for each breeding scheme under study, are $0.22/kg and $0.10/kg for the “lean and fat breeding schemes” respectively. With these results, it becomes more difficult to financially justify opting for a restricted feeding program with 2011 feed prices, regardless of breeding scheme. The following graph highlights margin differences due to feed price variations while maintaining the 2011 reference price for hogs.

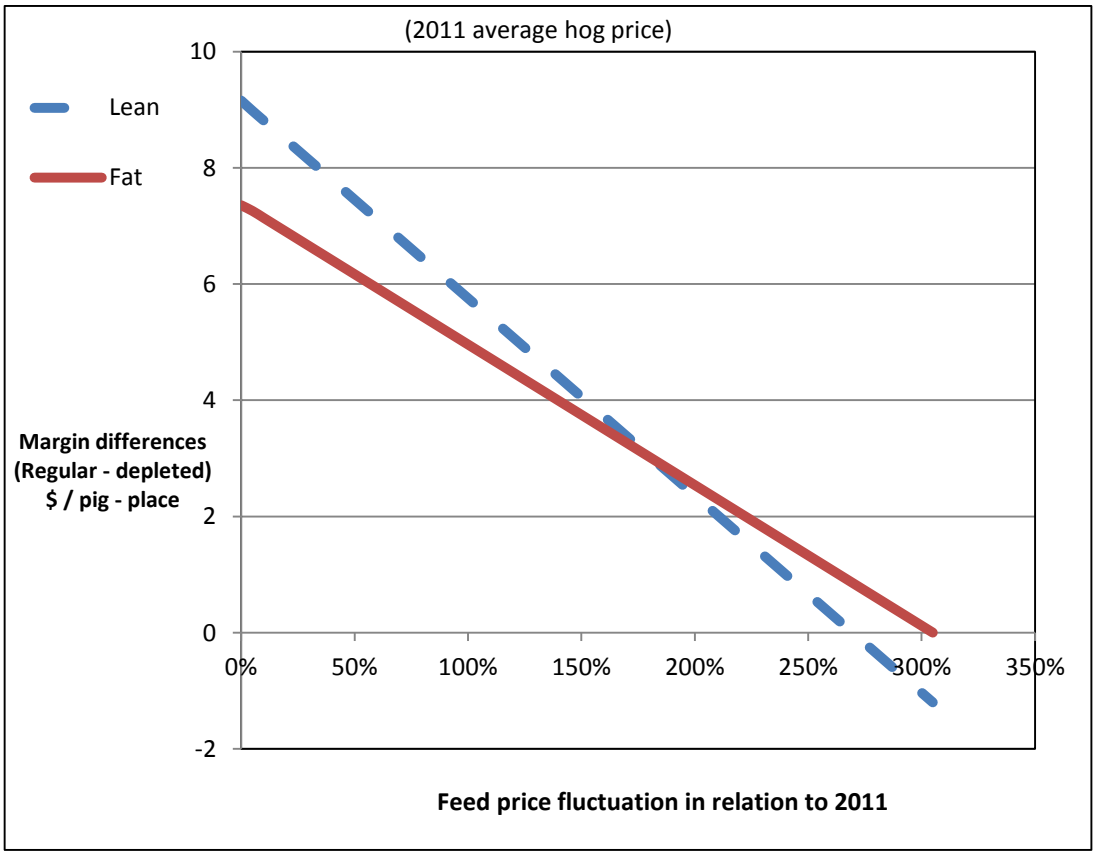


Figure 7 Difference between margins of feeding programs for each of the breeding schemes considering feed price fluctuation

Once again, we observe that “lean breeding scheme” hogs are more sensitive to price fluctuations. Additionally, this graph shows that to reach equilibrium between both feeding programs, feed prices would need to increase by 275% and 305% for “lean and fat breeding schemes” respectively. These variations expressed in percentages are based on the 2011 reference price and represents a nearly three-fold increase.

The last two graphs show that hog and feed price variations hardly favour the option of a feeding program depleted in amino-acids.

Conclusion

Three main factors will dictate the choice between “lean and fat breeding schemes”. The first is market demand, that is to say the grading grid used. A grid favouring lean yield will attribute a better index to “lean breeding scheme”, whereas a grid favouring a lower lean yield (like the “Qualité-Québec, January 2012” grading grid used in this study) will attribute a better index to “fat breeding scheme”.

The second factor is hog price which also plays an important role. Like the ‘fat breeding scheme’ which produces more meat per pig-place annually, this scheme allows for greater returns from sales at the same index. If the grading grid favours carcasses with a lower lean yield, the impact of hog price will favour pigs from the “fat breeding scheme”. On the contrary, if the grading grid favours carcasses with a high lean yield, the price will favour “lean breeding scheme” hogs, only by a higher grading index and therefore a higher price per kilogram but for less meat produced.

The third factor is related to feeding. The “lean breeding scheme” which has a better performance with regards to feeding will be more and more favoured as feed prices increase.

The final choice between a “lean or a fat breeding scheme” will therefore depend on a combination between the type of grading grid used, hog prices and feed prices for pigs.

Besides, the choice of a feeding program is strictly a financial one. The global cost of feeding should be looked at and not only the monetary value. Remember that a diet deficient in amino acids produces less meat with more feed and despite a cost savings due to reduced feed prices, this choice is not a financially advantageous one. In this situation, regardless of hog or feed prices, there is really no choice; a regular feeding program should be favoured.

It is important to underline that results and conclusions drawn from these techno-economic analyses are based on performance differences of four basic scenarios, the difference in performance between two breeding schemes (lean and fat), as well as the impact of two feeding programs on performance (regular and amino acid deficient feeding program), and the difference in costs between both feeding programs. In a commercial setting, there are as many scenarios as there are breeding schemes, feeding programs and production contexts and each of these scenarios requires a specific analysis. Simulation tools were developed and are available on the CDPQ and CCSI websites to assist consultants or producers better assess the economic impacts of their choices.

Centre de développement du porc du Québec inc.
Place de la Cité, tour Belle Cour
2590, boulevard Laurier, bureau 450
Québec (Québec) G1V 4M6
☎ 418 650-2440 • 🖷 418 650-1626
cdpq@cdpq.ca • www.cdpq.ca