



Economic analysis of farrowing systems

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Committee and Ministry for Primary Industries

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National Animal
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Executive summary

This economic analysis was commissioned by the National Animal Welfare Advisory Committee and Ministry for Primary Industries to provide information on the practical and economic consequences of alternative farrowing¹ systems on indoor pig farms in New Zealand.

Methodology

To assess financial impact at the farm level, three 350-sow farm models were developed. They are (1) status quo farm, (2) one week alternative system and (3) three week alternative system. For the one week system, which relies on the installation of a swing-sided farrowing, this crate can either be retrofitted into existing facilities (base case) or alternatively requires a new building is constructed. Two scenarios for construction of a new farrowing facility are analysed; built in 2016 (100% bank financed) or built in 2025 (50% bank financed). The models also considered three phase-in periods for other changes: 2016 (immediate, base case), 2020 (5 years transition) or 2025 (10 year transition). The following table summarises the scenarios modelled.

Attributes	Status quo farm	One week system	Three week system
Confinement post farrowing	up to 4 weeks in conventional crate	up to 1 week in swing-sided crate	up to 3 weeks in conventional crate
Total days in farrowing crate	33 days (5 days pre-farrowing and 28 days average after)	12 days (5 days pre-farrowing and 7 days average post-farrowing)	26 days (5 days pre-farrowing and 21 days average post-farrowing)
Weaning	after 4 weeks (piglets 28 days old)	after 4 weeks (piglets 28 days old)	after 3 weeks on average (piglets 21 days old on average)
'Nurse sows' confined to farrowing crates up to 5 weeks for fostering purposes	range from 3% to 8% (5% average per year)	range from 3% to 8% (5% average per year)	range from 10% to 15% per year ²
Scenarios	NA	<ul style="list-style-type: none"> Base case – retrofit New building in 2016 (100% bank financed) New building in 2025 (50% bank financed) 	None
Phase-in period		2016, 2020, 2025	2016, 2020, 2025

Note: Farrowing crate size is typically 1.8m x 2.4m = 4.32 m² but can vary

¹ Refer to glossary section for pork industry definition of terminologies.

² For an extra week of nursing for those piglets that are below 5 kg (not physiologically prepared for weaning into New Zealand conditions without spray-dried plasma in the diets). Note that the current New Zealand Code of Welfare for Pigs (2010) requires that nurse sow numbers are no more than 5% of sows farrowed, however the advice of New Zealand industry veterinarians is that this requirement could not be met on most farms under three week weaning, unless a large number of viable piglets that need supplementary nursing were otherwise euthanized.

Data was sought for the analysis from both New Zealand industry and international sources, as there is limited New Zealand data available on the use of swing-sided farrowing crates.

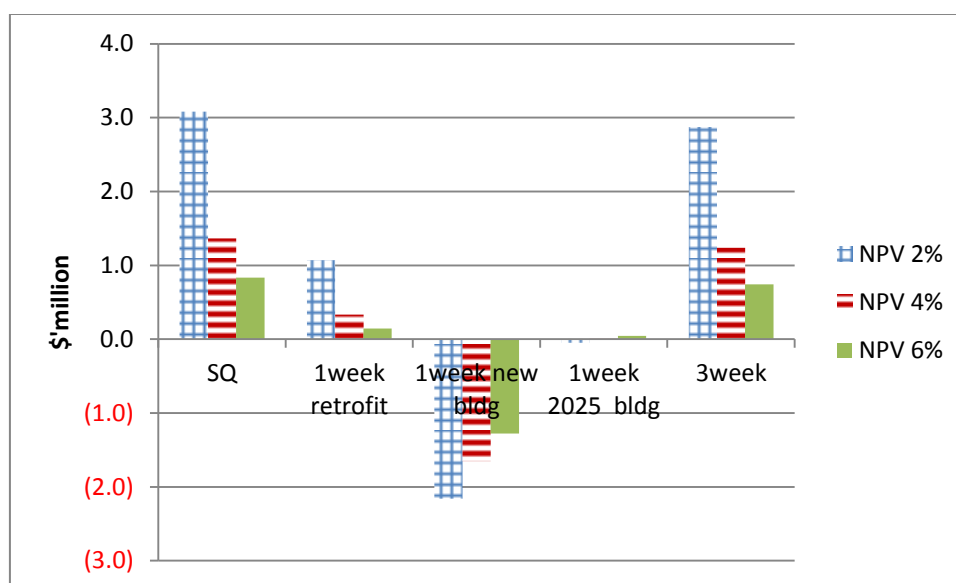
Profit and loss, balance sheet and cashflow analysis were done for all three models over a 20 year period from 2015 to 2035. The net cashflows (all in 2015 prices) were discounted back to Net Present Values (NPV) to show the overall impact of changes. Each scenario was modelled under three discount rates (2%, 4% and 6% real) to reflect time value of money. Quantitative Risk Analysis (QuRA™) was also applied to evaluate the effects of uncertainty in each model. Results from the farm level analysis were then aggregated to show impacts at industry level.

Comparing alternative farrowing systems at the farm level

The status quo farm model generates an NPV of \$1.36 million for the period 2015 to 2035 at a discount rate of 4% (after financing and after tax). Its key financial parameters (net cash flow, net profit after tax) are all positive, except for two cash deficit years in 2025 and 2035. The status quo farm NPV serves as the basis to compare alternative farrowing systems.

The next chart summarises the NPV results of the alternative farrowing systems compared to the status quo farm.

Comparative NPV: Status quo, one week models and three week model (\$'million with discount rates 2%, 4% and 6%)



All the alternative scenarios show reduced NPVs compared with the status quo model. Using the 4% discount rate data, overall the three week system has the closest NPV to the status quo at \$1.0 million compared with \$1.36 million (a 26% reduction). The one week retrofit scenario has an NPV of \$0.33 million (a 76% reduction compared to the status quo). The one week new building scenarios are deemed to be financially unviable as they have negative or close to negative NPVs and more importantly, persistently negative annual cashflows.

The financial impacts are driven by a combination of effects on piglet and growing pig mortality, combined with varying levels of increased debt servicing expenses related to capital expenditure requirements.

Evaluating uncertainty in the models

Incorporating uncertainty for the alternative farm models involves risk analysis on key variables that have a material impact on NPV and high level of uncertainty. The next table summarises results of incorporating uncertainty in the alternative farm models.

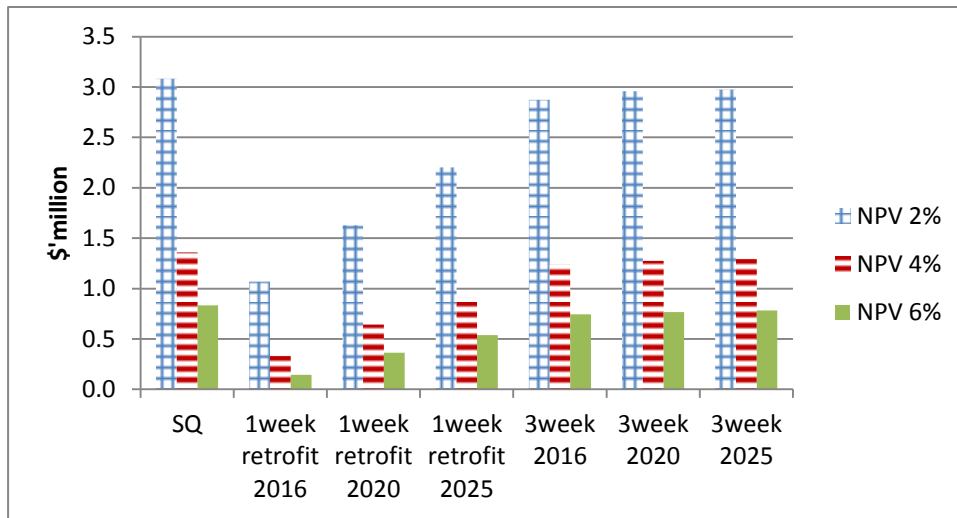
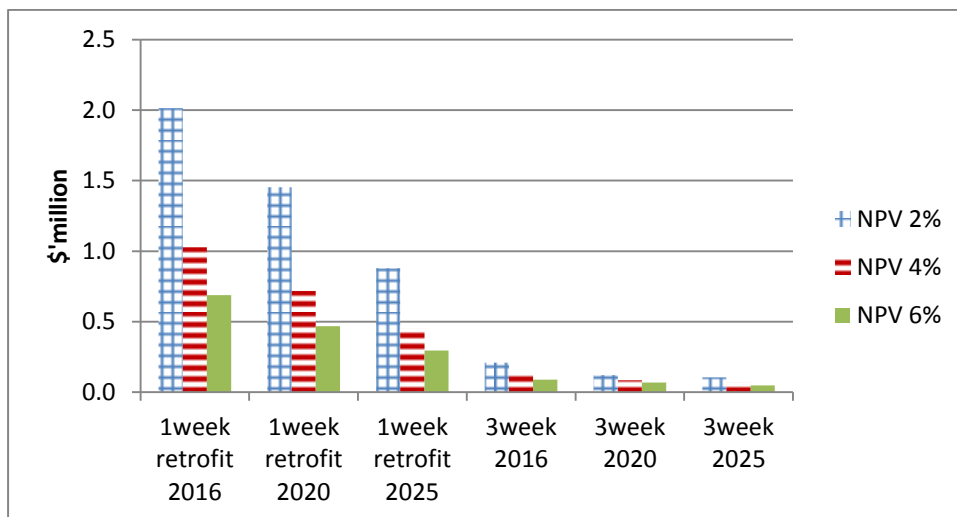
	One week retrofit model	Three week model
Key variables	Pre-weaning mortality , as that variable is a key driver of profitability and is uncertain with limited data available on use of swing-sided crates in New Zealand	a) Post-weaning mortality due to management variation in the shift to three week weaning b) Extra weaner accommodation capital costs due to the range of existing weaner accommodation conditions
Low	11.7% (status quo farm performance)	a) 1%/2% for pork and bacon/trim pork (based on performance of top tier farm) b) \$40,000 capital expenditure
Most likely	13.8%	a) 2.8% and 4.9% for pork and bacon/trim pork b) \$60,000 capital expenditure
High	15.5% (Waratah farms trials with 32% deterioration from status quo performance)	a) 3.2%/5.6% (not coping well to 3 week weaning with 60% deterioration from 4 weeks performance) b) \$80,000 capital expenditure
Expected NPV at 4% discount rate	\$0.33 million (same as the most likely NPV of \$0.33 million) but the range of results reveal there is nearly one third chance that the NPV will fall below zero.	\$1.24 million (higher than the most likely NPV of \$1.0 million as the top tier farm pulled up performance) but ranging between \$0.74 million and \$1.81 million

Whilst the range of results obtained for the one week model is relatively narrow, because the overall values are low, there is a one third probability of NPVs for this scenario being negative. By contrast, the three week model produces a wide range of NPV results ranging from a loss of \$0.62 million to a gain of \$0.45 million, when compared with the status quo. This wide range of values reflects the high level of sensitivity of this model to post-weaning management.

Consideration of phase-in periods for changes

The farm models described above assume conversion to one week or three week models by the end of 2016. A phase-in period provides leeway for the industry to implement changes over a number of years. The analysis then considers phase-in periods of five years (2020) and ten years (2025). An amendment to the Animal Welfare Act in 2015 set a maximum phase out period of 10 years for practices that do not meet the requirements of the Act.

The comparative NPVs for the various phase-in periods and the comparative losses compared to the status quo are shown in the following charts.

Comparative NPV for 2016, 2020 and 2025 scenarios: Status quo, one week and three week models (\$'million with discount rates 2%, 4% and 6%)

Comparative NPV losses (one week and three week models) from status quo model for 2016, 2020 and 2025 scenarios (\$'million with discount rates 2%, 4% and 6%)


The three week model scenarios come closest to the status quo NPV, with improvements evident as the phase-in period is extended. These improvements are much greater with the one week model scenarios. This is due to the relative reduction of debt servicing costs incurred, as the one week model involves significant capital expenditure and deferring this allows for more of it to be funded from equity rather than debt.

The 2025 scenarios show a reduction of NPV losses of 56% for the one week model and 45% for the three week model. In absolute terms, this equates to a saving of \$0.58 million for the one week model and \$0.16 million for the three week model at the 4% discount rate.

The 2025 one week retrofit model shows an NPV loss of \$0.45 million compared to the status quo, which is seven times higher than the three week model that has a comparative NPV loss of \$0.07 million.

Impacts at industry level

The relevant part of the industry affected by proposed changes to farrowing practices comprises farms with sows farrowed indoors. Available industry structure statistics account for more than 95% of total indoor sows, whilst smaller farms (less than 50 sows) that account for less than 5% of total indoor sows have been not captured.

One farm that uses farrowing crates for not more than 7 days, and a proportion of another farm are not affected by the proposed changes. This accounts for 5% of total indoor sows.

Seven farms that use farrowing crates from 8 days to 21 days would already comply with the three week farrowing system but would be affected by the one week farrowing system. This subset accounts for 21% of total indoor sows.

The majority of indoor sows (74%) that use farrowing crates for 22 days or more would be affected by either the one or three week farrowing system.

The table below shows aggregate industry losses for each scenario and category of farm.

Industry NPV aggregate losses with 4% discount rate and phasing (\$'million)

Farm type	1week retrofit 2016	1week retrofit 2020	1week retrofit 2025	3week 2016	3week 2020	3week 2025
Farrowing crates 8 days to 21 days	9.11	6.16	3.64			
Farrowing crates 22 days plus	34.97	24.39	15.34	4.19	2.87	2.28
Total	44.07	30.55	18.97	4.19	2.87	2.28

Note: Farm types based on industry structure statistics.

Immediate conversion to the one week swing-sided farrowing crate system results in the largest industry NPV losses at \$44.1 million with 4% discount rate. Allowing a 10 year phase-in period reduces industry losses by more than half to \$19 million. With fewer farms affected and lower NPV losses per farm, the three week system has a much smaller industry impact with losses ranging from \$4.2 million to \$2.3 million.

Overall conclusions

At both the farm and industry level, the three week system has a smaller negative financial impact than the one week system. However, the range of outcomes that could be expected from enforcing three week weaning at industry level is very wide, ranging from steep losses incurred on some farms to a modest profitability improvement on others. It is likely that enforcing this scenario would produce a substantial further rationalisation of the industry, with a number of farms exiting and possibly some expansion of sow numbers on others (depending on management capacity, capital access and the ability to receive environmental and building resource consents). With three week weaning, financial viability would also require an upward shift in the permitted threshold for numbers of nurse sows, above the current level of 5% of sows farrowed.

The one week swing-sided farrowing crate is largely untested in New Zealand. The limited data available from Waratah Farms trials puts productivity losses at the higher end of expectations compared to international data. The crates used at Waratah require more building space than existing buildings provide. There are swing-sided crates available internationally that may be able to be retrofitted into existing housing, such as the Canadian-built Canarm crate used for the purpose of this analysis. However, financial viability of farm conversions depends on whether successful retrofitting of existing farrowing rooms can be undertaken.

Only in a completely new farm setup could purpose-built housing using these crates be considered. Under current industry profitability assumptions and with current New Zealand construction cost settings, there appears to be very little investment appetite for building new farm facilities, with most producers focusing on maintaining existing depreciated assets to extend their productive life, rather than recapitalising farms with new buildings. This scenario is likely to continue for the foreseeable future unless there is a substantial global and local improvement in pig farming profitability. That means that regulatory enforcement of such a move would most likely face considerable resistance from producers and if implemented may result in a large decline in the New Zealand pork production base, with the gap in the market taken up by imported pork and other meats.

That said, for those individual producers who are in a position of having old farrowing facilities that are no longer able to be maintained, contemplating staying in the industry long-term and with the necessary funding resources available, the Canarm crate or similar alternative could be considered as a component of new farrowing accommodation on existing farms. In doing so, producers would need to consider balancing any increases in piglet mortality incurred with ways to offset the costs from incorporating new technologies or approaches into other parts of their farming system.

Commentary is also provided in this report on additional industry and market considerations, including:

- Barriers to compliance with changes - for the one week system, suitability and performance of imported swing-sided farrowing crates in New Zealand are an unknown while for the three week system, adoption of new management practices to cater to physiologically immature weaners will influence viability of the farm enterprise.
- Impact of alternative farrowing systems on industry structure - restricting use of farrowing crates to three or one week would lead to some unviable pig farm enterprises.
- Price effects in the marketplace and import substitution - product (meat) substitution and availability of imports would prevent farmers from passing higher cost of production (induced by farrowing crates restrictions) to consumers.

1 Introduction

1.1 Background and objectives

The National Animal Welfare Advisory Committee (NAWAC), in cooperation with the Ministry for Primary Industries (MPI) and New Zealand Pork (NZPork), requires an economic analysis of alternative management systems that reduce confinement time for sows post-farrowing. The objective is to provide information on the practical and economic consequences of alternative farrowing systems.

The specific objectives are to develop an understanding of the:

- Financial implications for producers of reducing the number of days (post-farrowing) that a sow spends in a crate; and
- Economic impacts, at both the farm and industry levels, of reducing the number of days that a sow spends in a crate.

1.2 Approach

Now that NZPork no longer maintains farm economic models (last updates in 2010), data that underpin the assumptions have been gathered from a number of sources in collaboration with NZPork. Unless otherwise stated, all production and financial parameters for the status quo farm model have been sourced from benchmarking data and knowledge of two industry veterinarians who between them have a client base representing more than 90% of industry sows. The analysis covers indoor farms and excludes outdoor farms which are not affected by proposed changes to farrowing systems.

For the one week alternative system, the three main sources of data were the Waratah farm trials³, Canada's Canarm (manufacturer of swing –sided crates)⁴ and Stockyard Industries (Australian distributor of UK 360 swing-sided freedom farrowers)⁵. These were supplemented by interviews of representatives of reference farms of Canarm and Stockyard Industries. Production parameters were sourced from Lacombe Research Farm in Alberta, Canada. Lacombe installed thirty Canarm swing-sided crates in 2002 and provided production data from 2009 to 2015.

For the three week system, analysis of industry benchmarking data by major industry veterinarians produced data for the assumptions. They also supplied the data for industry structure for indoor farms categorised by number of days in farrowing crates.

1.3 Structure

In developing the economic analysis, NAWAC required a series of outputs. The first output (section 3 to 6) is an assessment of the financial impacts of the changes (marginal changes) on the profitability (gross revenue, farm expenditure and economic farm surplus) of model farms, identifying any

³ Martin Ellis, Waratah Farms

⁴ Paul Fallis, Canarm AgSystems

⁵ Paul Colenso, Stockyard Industries

significant barriers to adopting alternative farrowing systems and considering phase-in time. Three farm models have been developed (please refer to Annex 3 to 5 for detailed models):

1. status quo farm
2. one week alternative system
3. three week alternative system

The second output is a phasing-in analysis where a phase-in period provides leeway for the industry to implement changes over a number of years (sections 7 to 8). The third output is economic impact analysis aggregated at industry level (section 9).

The last part of the report discusses industry implications (section 10) and conclusions (section 11).

2 Status quo farm model

2.1 Description

The status quo indoor farm model is described as:

- Up to 4 weeks confinement post farrowing in a conventional farrowing crate (typically 1.8m x 2.4m = 4.32 m² but can vary);
- A total of 33 days in the farrowing crate (5 days pre-farrowing and 28 days after);
- Weaning after 4 weeks (piglets 28 days old); and
- 'Nurse sows' that can be confined to farrowing crates up to 5 weeks for fostering purposes ranging from 3% to 8% (5% average per year).

Average farm size is estimated at 350 sows, based on industry advice. There is a wide range of farm sizes with data analysis by Ministry for Primary Industries (MPI) of the Statistics New Zealand (SNZ) Agriculture Production Statistics showing a number of farms (indoor and outdoor) with less than 100 sows. However, these account for less than 9% of industry production.

The timeframe for the cashflows commences in 2015 and ends in 2035. The 20 year period provides a sufficient timeline to assess changes in net present value for alternative farrowing systems.

2.2 Production parameters

Data for key production parameters for the status quo farm are shown in the next tables.

Table 1 Status quo farm: Pre-weaning parameters

Total born per litter	13.8
Born alive per litter	12.6
Pigs weaned per litter	11.12
Litters farrowed/mated female/year	2.32
Weaners per sow/year	25.8
Pre-weaning mortality rate	11.7%

Table 2 Status quo farm: Post-weaning parameters

	Mortality	Production share	Carcass weight (kg)
Pork	2.0%	4%	50
Bacon/Trim pork	3.5%	96%	71.4
Choppers	8.5%	NA	142*

*Source of chopper carcass weight is Ian Barugh, Massey University.

Table 3 Status quo farm: Feed consumption (kg)

Dry Sow	680	per year
Lactating Sow	550	per year
Creep	8.5	per piglet
Weaner	20.4	piglet to grower
Grower	86	grower to finish
Finisher	95	finishing stage

2.3 Farm revenues and costs

Price for bacon, pork and chopper used the six year average prices (period from 2010 to 2015) for Auckland/Waikato from NZPork schedule price data. The 6-year average prices, converted to 2015 dollars using the SNZ Consumer Price Index⁶ (CPI), are lower than the June 2015 prices by 5.5%, 4.6% and 0.8% for bacon, pork and chopper, respectively. This implies a downward adjustment to current prices as the long term average price of pigs.

Income per pig has marketing cost deductions as follows (NZPork):

- 9 cents per kg for the effect of the classification grid i.e. not all pigs in a line make the top price;
- \$5 for NZPork Levy;
- \$0.17 for PigCheck (Health Check); and
- \$3 for meat inspection.

Current prices for feed rations were averaged from commercial mills. To determine if current prices represent a premium or discount to long term feed prices, nominal feed prices for the past six years (2010-2015) for the North Island have been converted to 2015 dollars. The price index to convert to 2015 dollars has been sourced from the SNZ CPI. The result shows that the six year average price of feeds in 2015 dollars is higher by 1.1% compared with the current price. This implies an upward adjustment of 1.1% to current price as the long term average price of feeds.

Assumptions for direct costs other than feeds are in the next table.

⁶ CPI is used to convert historical pork and feed prices into 2015 dollars in order to have a consistent inflator.

Table 4 Status quo farm: Other direct costs

Animal Health	\$/sow	160.00
Semen	\$/dose	15.00
Semen	Doses/year/farm	1,610
Semen	Doses/sow/year	4.60
Freight	\$/chopper	11.00
Freight	\$/porker or baconer	5.00
Gilt replacement*	\$/gilt	539.15
Boar replacement	\$/boar	1600.00

* Gilt replacement cost is approximately twice the price of a baconer pig.

Costs for power and general expenses (including vehicles) from a 2010 400-sow farm model⁷ are converted to 2015 dollars using the B+LNZ Sheep and Beef On-Farm Inflation (2014-15) cumulative for the period 2010 to 2015⁸. The inflation rates for power and general expenses (including vehicles) are 20.3% and 12.3% respectively.

Wages, excluding owner drawings, for the 350-sow farm are based on 2.5 labour units (net of owner labour unit who has separate owner drawings) at \$42,500 per labour unit. Costs for insurance, administration, consultancy, rates and other expenses from the 2010 400-sow farm model are converted to 2015 dollars using the B+LNZ Sheep and Beef On-Farm Inflation (2014-15) cumulative for the period 2010 to 2015. The inflation rates for respective components are insurance 18.4%, administration 11.2%, rates 24% and other expenses 4%.

Repairs & maintenance and depreciation for pumps and other plant are closely related. Together, these account for 4% of sales (based on benchmarking data of a major industry veterinarian). This has been allocated as repairs & maintenance expense of 2% and depreciation expense of 2%.

2.4 Capital expenditure

The farm re-invests 2% of sales revenue every year for pumps and other plant. This is simply the depreciation expense that is re-invested into the farm as capital renewal. Capital expenditure for a farm utility vehicle is a net cost of \$20,000 every five years and a net cost of \$30,000 is allocated for farm tractor replacement every 10 years.

2.5 Financing

Interest expense from the 2010 400-sow farm model is converted to 2015 dollars using B+LNZ Sheep and Beef On-Farm Inflation (2014-15) cumulative (2010 to 2015) inflation rate of -5.5%.

Owner/operator pre-tax drawings are calculated to be the cost of employing a labour unit (\$42,500). Available cash reserves are used to top up drawings when cashflows are insufficient for any year. If

⁷ Ian Barugh, Massey University, NZPork Input-Output Analysis, 400 sow: Indoor Farrow to Finish. For these overhead expenses, it was assumed similar levels between 400 and 350 sow farm (i.e. no downward adjustment).

⁸ Beef+Lamb New Zealand, Sheep and beef on-farm inflation 2014-15, May 2015. Expenses from 2010 400-sow farm model are converted to 2015 dollars using relevant items from B+LNZ on-farm inflation. This is a simple conversion from 2010 to 2015 while the use of CPI for pork and feed prices is to determine historical price levels in 2015 dollars compared with current prices and requires a common inflator.

cash reserves are depleted, it is assumed that bank overdraft is available with an interest rate of 10%⁹.

A company structure and a company tax rate of 28% are assumed. It is also assumed that there are no opening tax losses to carry forward. Whilst tax has been accounted for in the cashflows and balance sheet, the accounts may overstate actual tax paid as individual farm taxation structures may vary.

2.6 Balance sheet values

Values applied to breeding and growing stock are shown in the next table.

Table 5 Status quo farm: livestock values

Sows	\$/sow	300
Boars	\$/boar	1,200
Growing stock	\$/pig	150
Growing stock	number	3,892

Debt funding is 30% of beginning total assets.

Creditors and debtors are assumed to be constant and equal, i.e. that amounts owed for sale of livestock equal amounts owed for purchase of feed and other inputs, and do not change between annual balance dates.

Buildings and plant & equipment are 50% depreciated as existing facilities, valued at \$4,430 per sow place. Estimates of new facilities are about \$8,500 to \$8,570 per sow place. \$4,430 per sow place is just above half of these estimates.

2.7 Interest and discount rate

Interest rates of six percent are used based on Reserve Bank of New Zealand January to June 2015 average business retail lending rate¹⁰. It is assumed that new lending to cover the capital costs of change would be secured on a table mortgage with a period of 15 years.

The Net Present Value (NPV) discount rate used is four percent (real rate) with a sensitivity analysis using two percent and six percent. The higher discount rate would represent higher cost of capital when interest rates rise. The four percent is the (rounded) post-tax cost of equity as the cashflows are after cost of financing and taxes. It is derived as follows in Table 6:

⁹ RBNZ Retail interest rates on SME overdraft, retrieved 24 Aug 2015:
<http://www.rbnz.govt.nz/statistics/tables/b3/>

¹⁰ RBNZ Retail interest rates on lending & deposits, retrieved 24 Aug 2015:
<http://www.rbnz.govt.nz/statistics/tables/b3/>

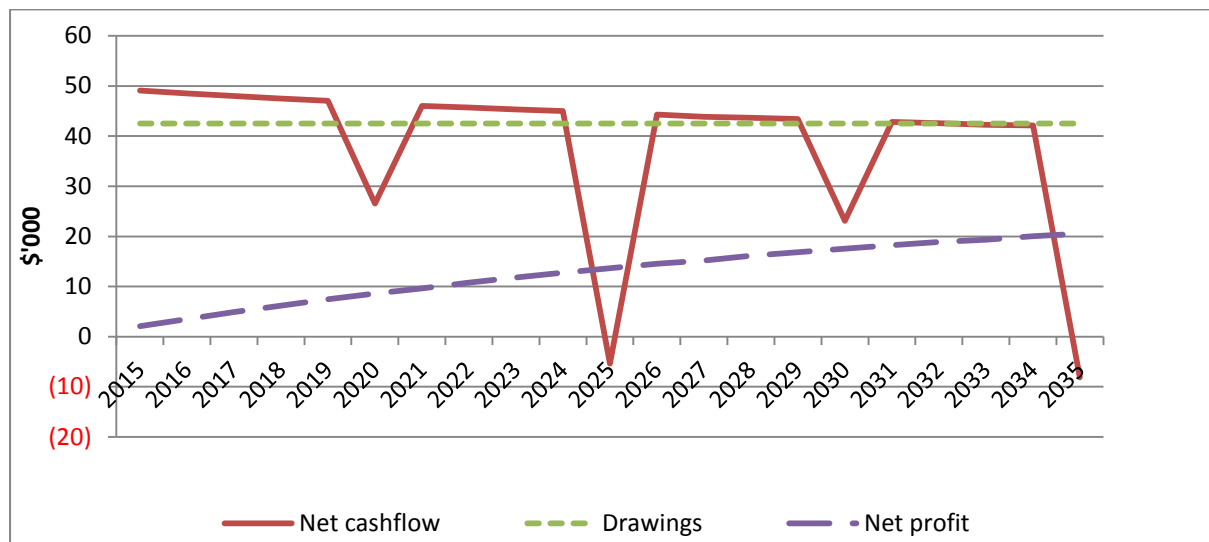
Table 6 Derivation of the post-tax cost of equity discount rate (%)

NZ Treasury forecast for the 10 year government bond (average 2015-2019)	4.2
Less forecasted inflation rate (average 2015-2019)	1.6
Equals	2.6
Plus risk premium of 100 percent	2.6
Equals	5.2
Less tax at 28 percent	1.5
Post tax discount rate	3.8

A residual value at the end of the 2035 year is included in the NPV calculation. This is based on the maximum of either the land value of \$200,000 or the average free cashflows for the last six years treated as a perpetuity using the post-tax cost of equity.

2.8 Model results

Key financial parameters (net cash flow, drawings, net profit after tax) over the time horizon are presented in the next chart.

Figure 1 Status quo farm model: Net cashflow, drawings and net profit

In the status quo farm, key financial parameters are all positive, except for two cash deficit years in 2025 and 2035 with cashflow becoming negative when there is capital expenditure to replace the farm utility vehicle and tractor.

The NPV of the net cashflows (after financing and after tax) of the status quo farm for the period 2015 to 2035 at a discount rate of 4% is \$1.36 million.

3 One week farm model

3.1 Description

The one week model is described as:

- Up to 1 week confinement post farrowing in a swing-sided farrowing crate (typically 1.8m x 2.4m = 4.32 m² but can vary);
- A total of 12 days in the farrowing crate (5 days pre-farrowing and 7 days post-farrowing);
- Weaning after 4 weeks (piglets 28 days old); and
- ‘Nurse sows’ that can be confined to farrowing crates up to 5 weeks for fostering purposes ranging from 3% to 8% (5% average per year).

For the 2015-2035 cashflow timeframe, this model assumes that farm conversion occurs by end-2016 and new production parameters take effect from 2017.

3.2 Production parameters

The one week model assumes higher pre-weaning mortality, hence lower overall sow productivity. Data for key production parameters for the one week model farm compared with the status quo farm is shown in the next table.

Table 7 One week farm: Pre-weaning parameters

	One week	Status quo
Total born per litter	13.8	13.8
Born alive per litter	12.6	12.6
Pigs weaned per litter	10.86	11.12
Litters farrowed/mated female/year	2.32	2.32
Weaners per sow/year	25.2	25.8
Pre-weaning mortality rate	13.8%	11.7%

Compared with the status quo farm, there are no changes in post-weaning parameters and feed consumption.

3.3 Capital expenditure

The farrowing facility will be completely retrofitted with swing-side crates imported from overseas. After evaluating three manufacturers (360 Freedom Farrower from UK, Canarm Crates from Canada and EU freedom pens adopted by Waratah Farms), the one-week model adopted Canarm costings (see Annex 1 for comparative analysis). Total retrofit capital expenditure is estimated at \$282,500 plus \$15,000 in resource consent costs for the 350 sow farm.

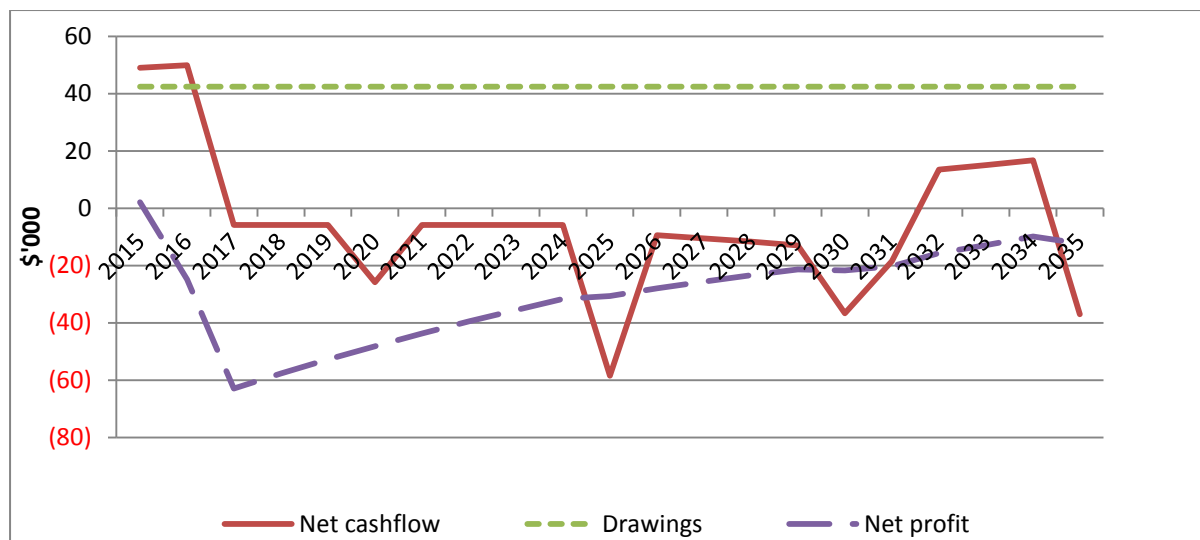
3.4 Financing

New lending to cover the costs of new capital expenditure would be secured on a table mortgage with a period of 15 years with an interest rate of 6%. It would be paid with fixed annual amortisation comprising principal and interest.

3.5 Retrofit model results

Key financial parameters (net cash flow, drawings, net profit after tax) over the time horizon are presented in the next chart.

Figure 2 One week retrofit farm model: Net cashflow, drawings and net profit



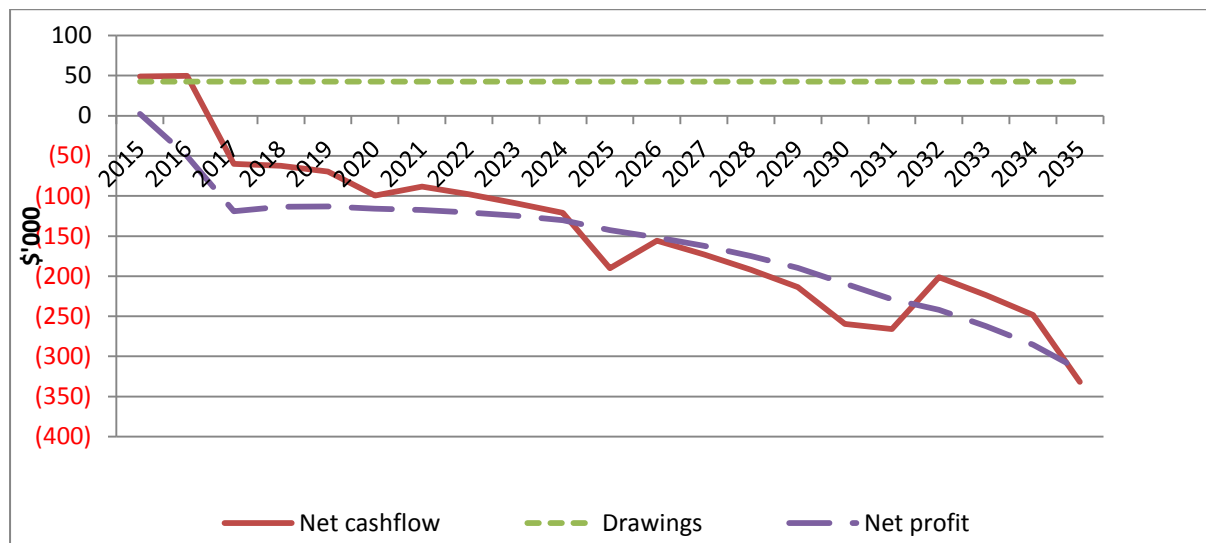
In the one week retrofit model farm, higher pre-weaning mortality leads to a \$55,000 reduction in annual income. Coupled with the higher interest expense for retrofit capital expenditure plus overdraft interest when cash reserves are depleted, this results in net losses for most years.

Net cashflow is negative from 2017 to 2031 due to debt servicing with a significant deficit in 2020 and 2025 due to replacement of the farm utility vehicle and/or tractor. From 2032, cashflow turns positive and the overdraft starts to reduce with an interruption in 2035 due to the capital expenditure for vehicle replacement incurred in that year.

3.6 New building scenario results and discussion

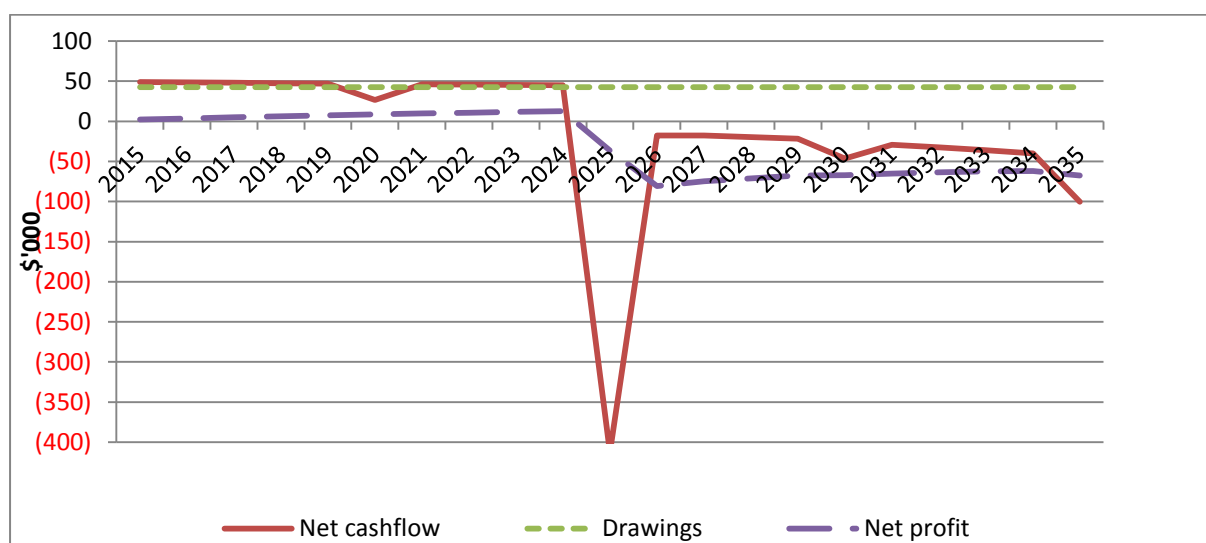
As all swing-sided crate reference farms constructed a new building (Canarm disclosed that smaller farm customers undertook retrofitting but so far have been unable to provide contact details), a new building scenario was modelled. Total new building capital expenditure is estimated at \$795,000 plus \$30,000 in resource consent expenses (see Annex 2 for breakdown).

With an additional \$0.5 million in capital expenditure financed by bank lending, the one week new building model results in net losses and deficit in cashflows for most years. This scenario is infeasible as net profit and cashflows steadily deteriorate into negative throughout the forecast period.

Figure 3 One week new building farm model: Net cashflow, drawings and net profit


3.7 10 year phase-in time scenario

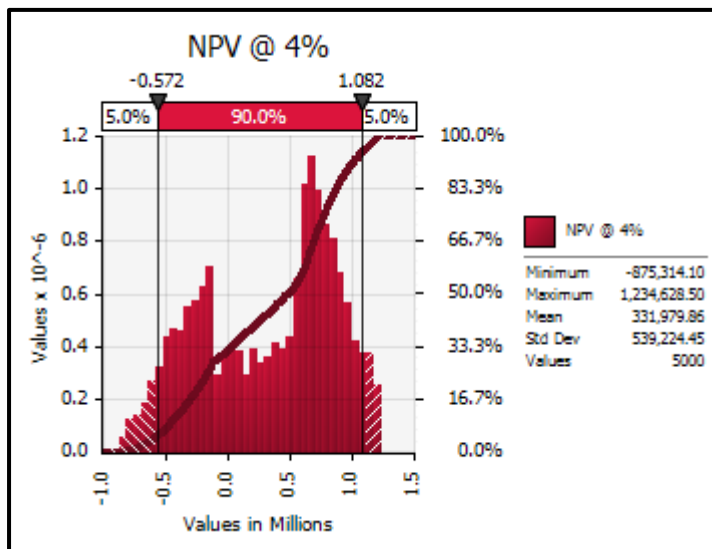
Given the scenario above, it is unlikely that a bank will fully finance the capital expenditure for the one week new building farm model and in any case the net losses and cashflow deficits are not sustainable. Therefore an alternative scenario has been modelled whereby the owner contributes half of the capital expenditure required, amounting to \$0.4125 million. By 2025 (a ten year phase-in period) the owner has sufficient cash in the balance sheet to finance half of the capital expenditure. The net losses and cash deficits from 2025 to 2035 are much less but overdraft steadily grows every year reaching \$0.33 million in 2035. Even with 50% equity financing for the new building capital expenditure, the free cashflow of about \$45,000 prior to 2025 is insufficient to cover debt servicing of \$42,500 and the \$26,200 reduction in trading cashflow from higher pre-weaning mortality. This scenario is therefore also infeasible.

Figure 4 One week new building (2025) farm model: Net cashflow, drawings and net profit


3.8 Modelling uncertainty

Risk analysis was undertaken on the one week retrofit model for the key variable of pre-weaning mortality, as that variable is a key driver of profitability and is uncertain with limited data available on use of swing-sided crates in New Zealand. With 13.8% pre-weaning mortality as the most likely figure, the range is a low of 11.7% (status quo farm performance) and a high of 15.5% (Waratah trials with 32% deterioration from status quo performance). With 5,000 draws from this range, the expected net present value at 4% discount is \$0.33 million (same as the most likely NPV of \$0.33 million). However, the range of results reveal there is nearly one third chance that the NPV will fall below zero.

Figure 5 One week retrofit model: Expected NPV and range



4 Three week farm model

4.1 Description

The three week model is described as:

- Up to 3 weeks confinement post farrowing in a conventional farrowing crate (typically 1.8m x 2.4m = 4.32 m² but can vary);
- Average of 26 days in the farrowing crate (5 days pre-farrowing and 21 days average post-farrowing);
- Weaning after 3 weeks on average (piglets 21 days old on average). Sows farrow on several days of the week so a spread in weaning days occurs;
- 'Nurse sows', that can be confined to farrowing crates up to 5 weeks for fostering purposes and for an extra week of nursing for those piglets that are below 5 kg (not physiologically prepared for weaning into New Zealand conditions without spray-dried plasma in the diets), ranging from 10% to 15% per year.

Note that the current New Zealand Code of Welfare for Pigs (2010) requires that nurse sow numbers are no more than 5% of sows farrowed, however the advice of New Zealand industry veterinarians is

that this requirement could not be met on most farms under three week weaning, unless a large number of viable piglets that need supplementary nursing were otherwise euthanized.

For the 2015-2035 cashflow timeframe, this model assumes that farm conversion occurs by end-2016 and new production parameters take effect from 2017.

4.2 Production parameters

The three week model assumes similar pre-weaning mortality and sow productivity compared with the status quo. However, there is a smaller litter size due to shorter lactation (resulting in a shorter period of physiological preparation of the sow for the following mating), compensated by more litters farrowed per year. Data for key production parameters for the three week model farm compared with status quo farm are shown in the next table.

Table 8 Three week farm: Pre-weaning parameters

	Three week	Status quo
Total born per litter	13.5	13.8
Born alive per litter	12.3	12.6
Pigs weaned per litter	10.90	11.12
Litters farrowed/mated female/year	2.37	2.32
Weaners per sow/year	25.8	25.8
Pre-weaning mortality rate	11.7%	11.7%

Due to younger weaning age resulting in lower weaning weight, there is a 40% deterioration in post-weaning mortality rates compared with the status quo.

Table 9 Three week farm: Post-weaning mortality

	Three week	Status quo
Pork	2.8%	2.0%
Bacon/Trim pork	4.9%	3.5%

Feed consumption changes for lactating sows and piglets. With a shorter lactation, lactating sow feed consumption reduces whilst piglets' creep feed consumption rises.

Table 10 Three week farm: Feed consumption

	Three week	Status quo
Lactating Sow (kg per year)	470	550
Creep (kg per piglet)	11.5	8.5

4.3 Capital expenditure

With a shorter lactation, accommodation is required for the extra week of post-weaning time. This translates to about 175 weaners. At 0.3 m² per pig plus support infrastructure, new accommodation will require 60 m² of additional building space. This new building space is estimated to cost between \$40,000 and \$80,000 depending on factors such as land area availability on farm and whether an extension of existing weaner accommodation (ability to connect effluent drains, feed systems, water, stock and people access) or a stand-alone building (replicate services e.g. feed and effluent systems). Further additional capital expenditure (not costed) may be required to upgrade existing

weaner accommodation in relation to temperature and environment control, in order to take care of the younger 3-week weaners.

Capital expenditure for extra weaner accommodation is considered most likely \$60,000 plus \$15,000 in resource consent, if that is feasible.

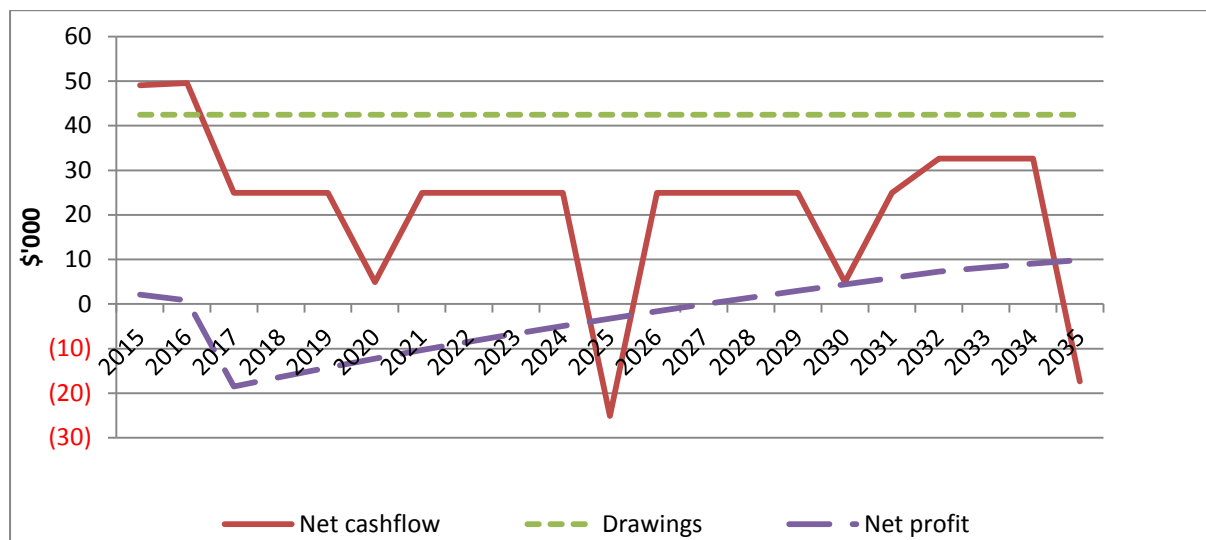
4.4 Financing

New lending to cover the capital costs of new capital expenditure would be secured on a table mortgage with a period of 15 years with an interest rate of 6%. It would be paid with fixed annual amortisation comprising principal and interest.

4.5 Model results and discussion

Key financial parameters (net cash flow, drawings, net profit after tax) over the time horizon are presented in the next chart.

Figure 6 Three week farm model: Net cashflow, drawings and net profit



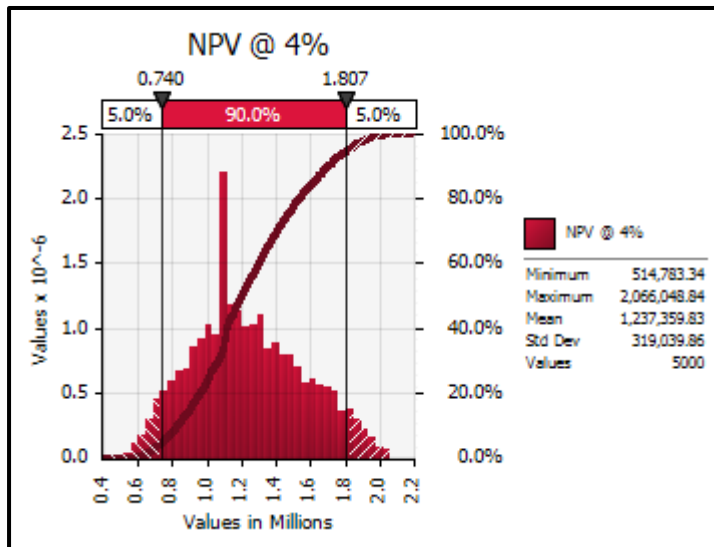
In the three week model farm, deterioration in post-weaning mortality rates lead to \$32,000 reduction in annual income. Coupled with higher interest expense for a modest capital expenditure, this results in a reduction in net profit and cashflow. Net profit is negative from 2017 to 2027 whilst cashflow is mostly positive except for 2025 and 2035 due to significant status quo capital expenditure for vehicle replacement.

4.6 Modelling uncertainty

The three week model has undergone risk analysis for the key variable of post-weaning mortality, as that variable is uncertain with management variation in the shift to three week weaning. With post-weaning mortality deteriorating to 2.8% and 4.9% for pork and bacon/trim pork, respectively, the high will be 3.2%/5.6% (not coping well to 3 week weaning with 60% deterioration from 4 weeks performance) and the low will be 1%/2% (based on performance of top tier farm). Extra weaner accommodation capital expenditure is also an uncertain variable due to range of existing weaner accommodation conditions. With \$60,000 as most likely amount, the high is \$80,000 and the low is \$40,000. With 5,000 draws from the range of uncertain variables, the expected net present value at

4% discount rate is \$1.24 million (higher than the most likely NPV of \$1.0 million as the top tier farm pulled up performance).

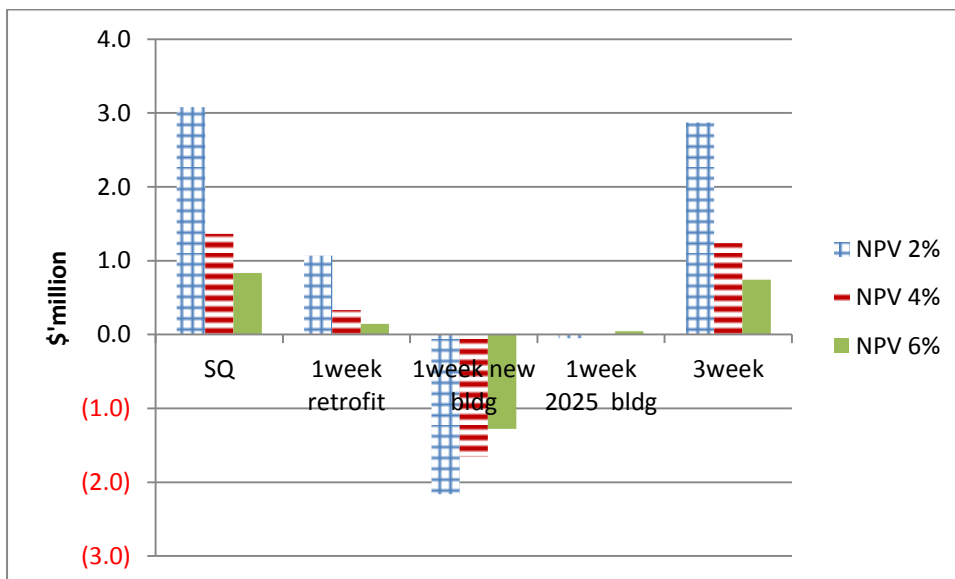
Figure 7 Three week model: Expected NPV and range



5 Comparing alternative systems

Figure 8 shows the NPV for each farrowing system for the period 2015 to 2035. The three week model has the least impact among alternative systems as its NPV is closest to the status quo model. The new buildings scenarios are not viable even with a phase in period of 10 years (1 week 2025 building).

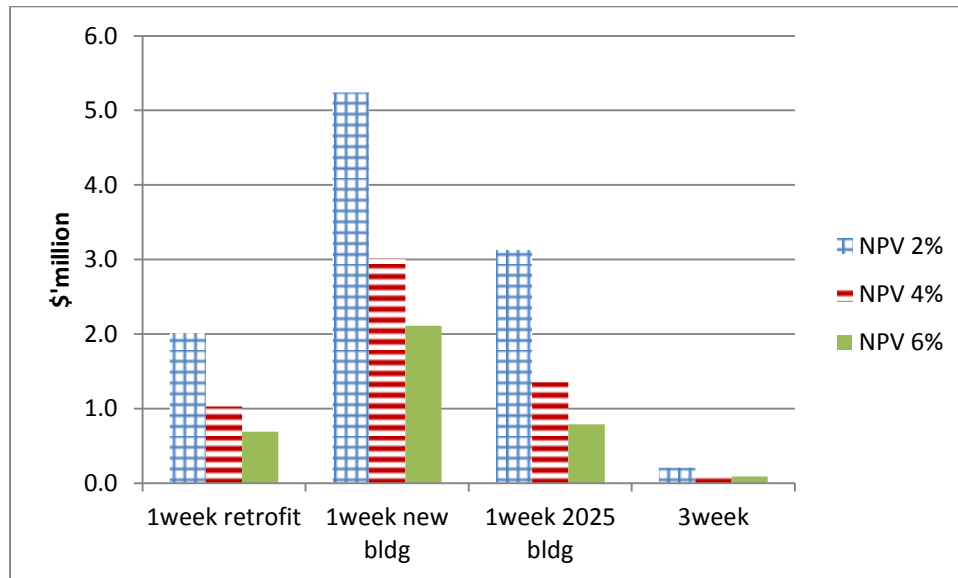
Figure 8 Comparative NPV: Status quo, one week models and three week model (\$'million with discount rates 2%, 4% and 6%)



Note: Results of risk analysis shown for 1 week retrofit and 3 week models

Figure 9 illustrates the magnitude of NPV losses compared with the status quo model. The three week model's impact is an NPV loss of \$0.12 million at 4% discount rate while the one week retrofit model's NPV loss is 8x more at \$1.03 million.

Figure 9 Comparative NPV losses (one week and three week models) from status quo model (\$'million with discount rates 2%, 4% and 6%)



With a 90% confidence interval that NPV lies between \$0.74 million and \$1.81 million, the impact of the 3 week model could be a loss of \$0.62 million to a gain of \$0.45 million relative to the status quo model. The wide range of values reflects the high level of sensitivity of this model to post-weaning management.

Table 11 shows the breakdown of the NPV losses. The losses are slightly different from the losses from Figure 9 as the latter is the average of 5,000 iterations while the former is the most likely iteration. The losses derive from reduced income/residual value and higher financing costs. Lower expenses cushion the impact of losses.

Table 11 Breakdown NPV losses with 4% discount rate (\$'000)

	1week retrofit 2016	1week retrofit 2020	1week retrofit 2025	3week 2016	3week 2020	3week 2025
Income	(612)	(443)	(266)	(136)	(98)	(59)
Expenses	(321)	(232)	(139)	(105)	(76)	(46)
Interest, capex, principal and tax	256	185	149	49	44	39
Residual value	(321)	(305)	(171)	(41)	(12)	(10)
Total NPV losses	(868)	(702)	(446)	(120)	(78)	(63)

Table 12 shows the weight of components contributing to NPV losses. Reduced income is typically the largest contributor to losses in all scenarios for the alternative systems. Increase in financing cost is the smallest contributor to losses in the one week model. In the three week model, reduction in residual value is the smallest contributor.

Table 12 Contributors to NPV losses with 4% discount rate

	1week retrofit 2016	1week retrofit 2020	1week retrofit 2025	3week 2016	3week 2020	3week 2025
Reduction in income	71%	63%	60%	113%	125%	94%
Increase expenses	-37%	-33%	-31%	-87%	-97%	-73%
Increase Interest, capex, principal and tax	29%	26%	33%	41%	57%	63%
Reduction in residual value	37%	44%	38%	34%	15%	16%
Total	100%	100%	100%	100%	100%	100%

6 Phase-in time analysis

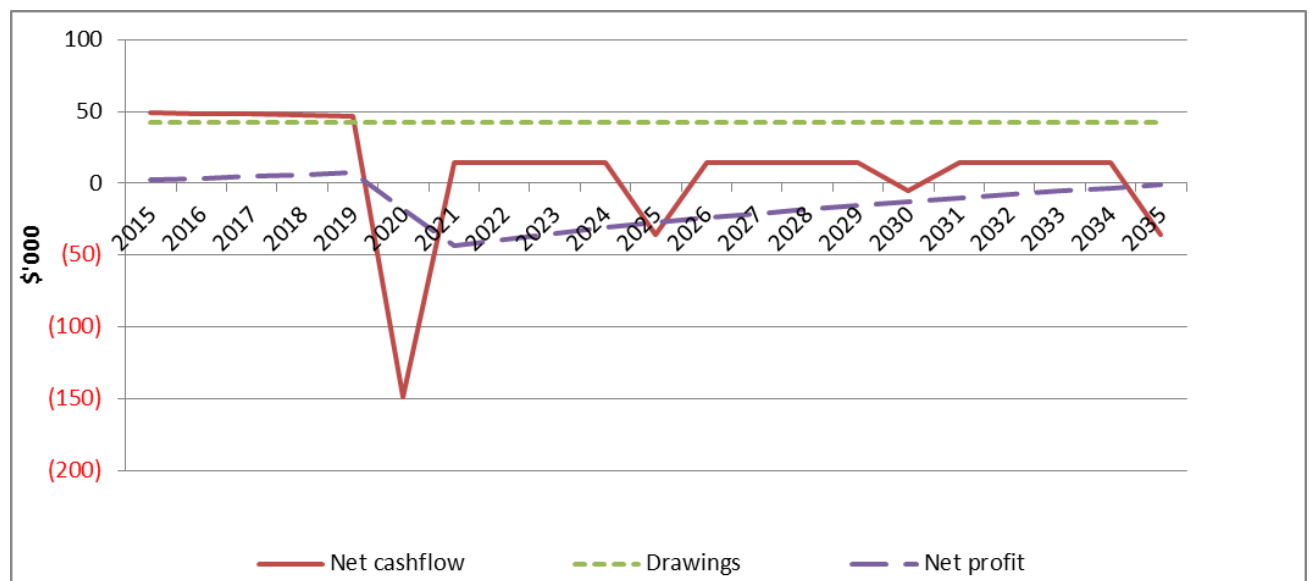
6.1 Description

The farm models assumed conversion to one week or three week models by the end of 2016. A phase-in period provides leeway for the industry to implement changes over a number of years. The phase-in periods considered are five years (2020) and ten years (2025). An amendment to the Animal Welfare Act in 2015 set a maximum phase out period of ten years for practices that do not meet the requirements of the Act.

6.2 One week farm model phase-in scenarios

One week model (2020)

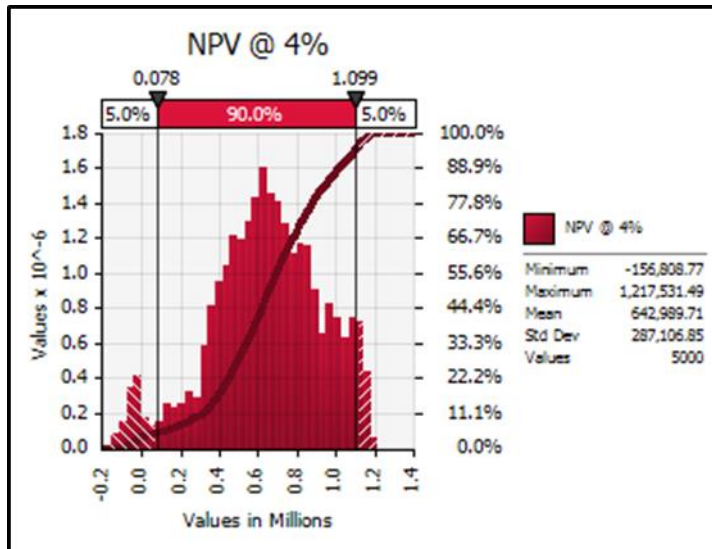
Capital expenditure for retrofitting into swing-sided farrowing crates is deferred to 2020 with one week model production parameters commencing by 2021. As the farm has accumulated some cash surplus by 2020, the capital expenditure amounting to \$297,500 only requires 40% debt funding (new debt of \$119,000). Key financial parameters over the time horizon are presented in the next chart (net cash flow, drawings, net profit after tax).

Figure 10 One week model (2020): Net cashflow, drawings and net profit

In the 2020 scenario for the one week model farm, net losses peak in 2021 and improve through 2035. Cashflow deficit is at worst in 2020 for the retrofit capital expenditure. Other cashflow deficit years are 2025, 2030 and 2035 when significant status quo capital expenditure occurs.

Integrating uncertainty for post-weaning mortality and capital expenditure, the expected net present value at 4% discount rate is \$0.6 million (better than the 2016 scenario NPV of \$0.3 million).

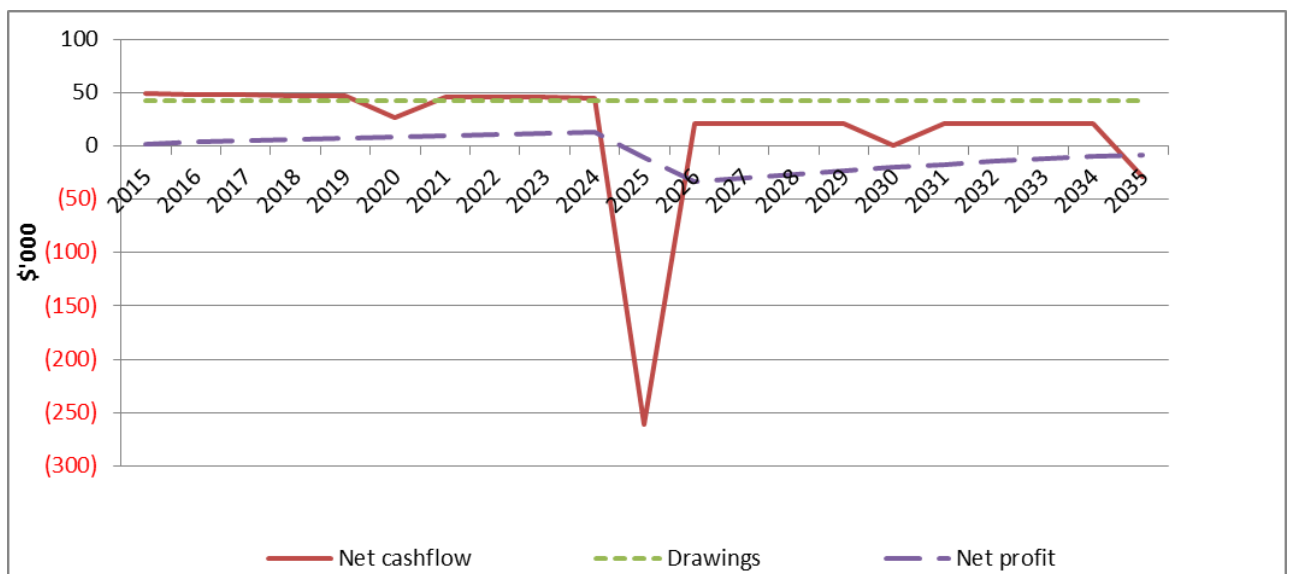
Figure 11 One week model (2020): Expected NPV and range



One week model (2025)

Capital expenditure for retrofitting into swing-sided farrowing crates is deferred to 2025 with one week model production parameters commencing by 2026. As the farm has accumulated more cash surplus by 2025, the capital expenditure amounting to \$297,500 only requires 12.5% debt funding (new debt of \$37,200). Key financial parameters over the time horizon are presented in the next chart.

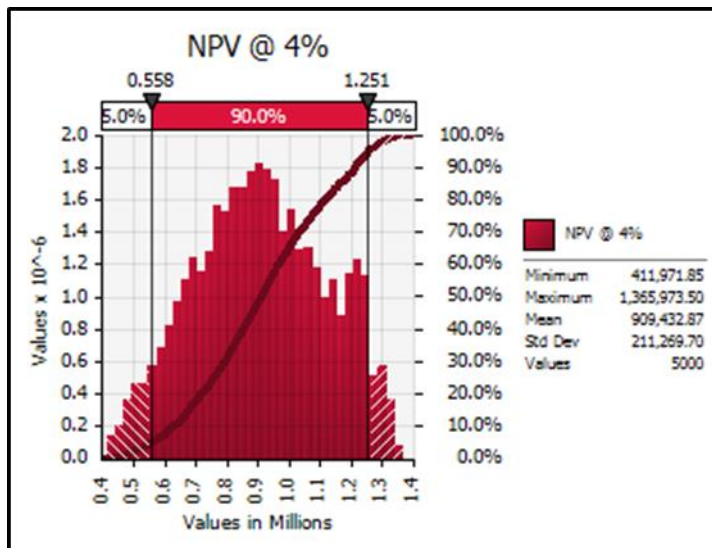
Figure 12 One week model (2025): Net cashflow, drawings and net profit



In the 2025 scenario for the one week model farm, net losses peak in 2026 and improve through 2035. Cashflow deficit is at worst in 2025 for the retrofit capital expenditure. The only other cashflow deficit year is 2035 when significant status quo capital expenditure occurs.

Integrating uncertainty for post-weaning mortality and capital expenditure, the expected net present value at 4% discount rate is \$0.9 million (better than the 2016 scenario NPV of \$0.3 million).

Figure 13 One week model (2025): Expected NPV and range

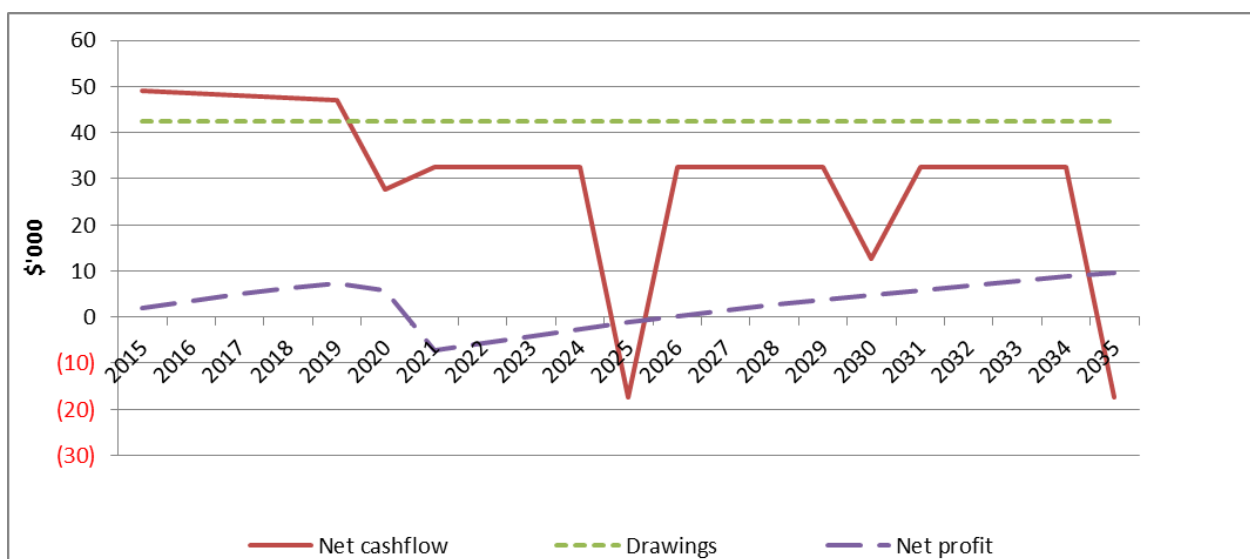


6.3 Three week farm model phase-in scenarios

Three week model (2020)

Capital expenditure amounting to \$75,000 is deferred to 2020 with three week weaning production parameters commencing by 2021. As the farm has sufficient cash surplus by 2020, the capital expenditure is fully funded by equity. Key financial parameters over the time horizon are presented in the next chart.

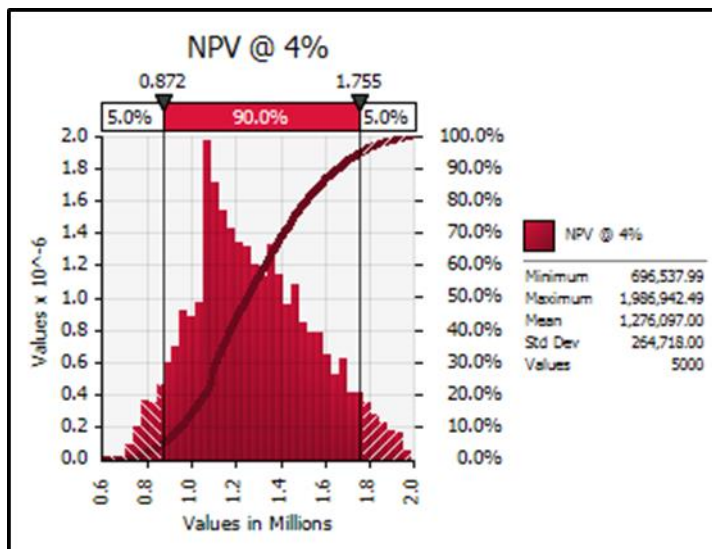
Figure 14 Three week farm model (2020): Net cashflow, drawings and net profit



In the 2020 scenario for the three week model farm, net losses commence in 2021 and net profit resumes sooner (compared with 2016 scenario) by 2026 as there is no extra debt servicing related to the capital expenditure. Cashflow is mostly positive except for 2025 and 2035 when significant status quo capital expenditures occur.

Integrating uncertainty for post-weaning mortality and capital expenditure, the expected net present value at 4% discount rate is \$1.3 million (higher than the 2016 scenario NPV of \$1.2 million).

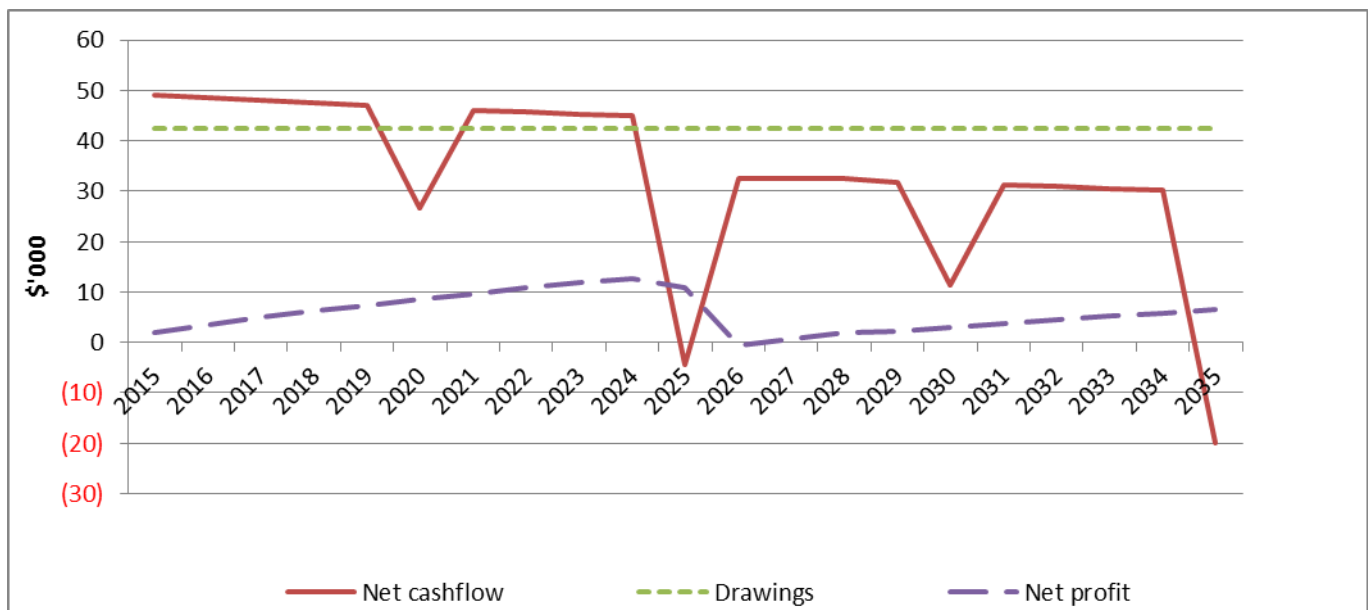
Figure 15 Three week model (2020): Expected NPV and range



Three week model (2025)

Capital expenditure amounting to \$75,000 is deferred to 2025 (10 year phase-in period) with three week weaning production parameters commencing by 2026. Capital expenditure is fully funded by equity. Key financial parameters are presented in the next chart.

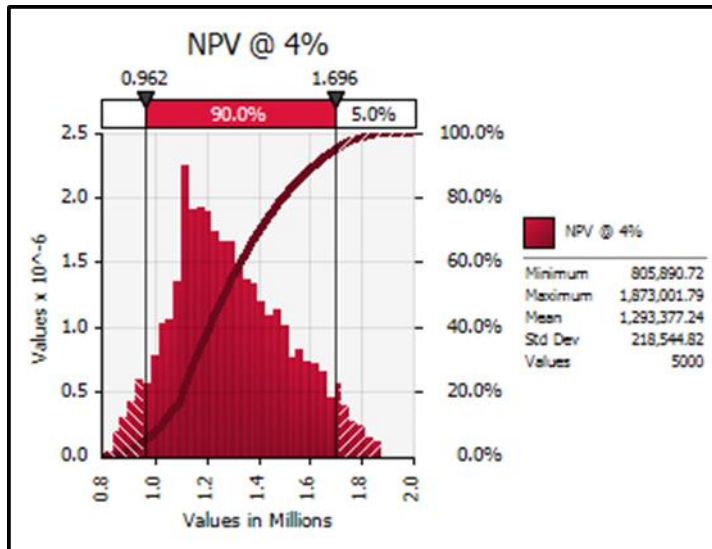
Figure 16 Three week farm model (2025): Net cashflow, drawings and net profit



In the 2025 scenario for the three week model farm, a small net loss is experienced only in 2026. Cashflow is mostly positive except for 2025 and 2035 when significant status quo capital expenditures occur.

Integrating uncertainty for post-weaning mortality and capital expenditure, the expected net present value at 4% discount rate is \$1.3 million (higher than the 2016 scenario NPV of \$1.2 million).

Figure 17 Three week model (2025): Expected NPV and range



7 Comparing alternative systems: farm models with phase-in period

The NPVs for the status quo, one week and three week models across 2016 (immediate), 2020 (5-year) and 2025 (10 year) phase-in scenarios are shown in the next chart. The three week model, especially the 2020 and 2025 scenarios, come closest to the status quo NPV.

Figure 18 Comparative NPV for 2016, 2020 and 2025 scenarios: Status quo, one week and three week models (\$'million with discount rates 2%, 4% and 6%)

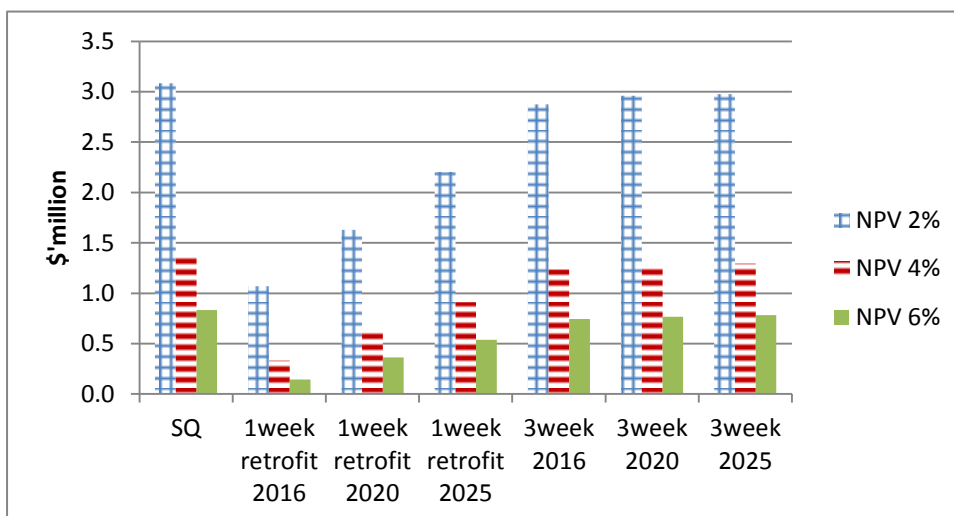
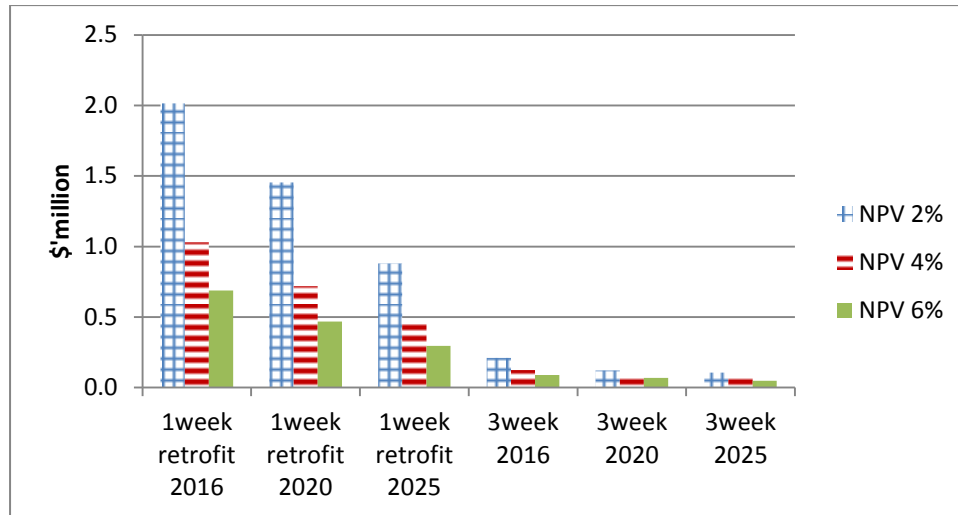


Figure 19 shows the 2025 three week model's impact is an NPV loss of \$0.07 million at 4% discount rate whilst the 2025 one week retrofit model's NPV loss is 7x more at \$0.45 million.

Figure 19 Comparative NPV losses (one week and three week models) from status quo model for 2016, 2020 and 2025 scenarios (\$'million with discount rates 2%, 4% and 6%)



The 2025 scenarios show the lowest NPV losses, with a reduction of 56% for the one week model (vs 2016) and 45% for the three week model.

8 Industry impact

8.1 Industry structure

The relevant part of the industry affected by proposed changes to farrowing practices comprises farms with sows farrowed indoors. Industry structure statistics have been provided by industry veterinarians who account for more than 95% of total sows (refer to Table 13). The average farm size of 349 sows from these data is close to the model farm size of 350 sows. Smaller farms (less than 50 sows) that account for less than 5% of total sows have been not captured in the industry structure statistics.

Table 13 Indoor farms by farrowing crate confinement

	No. of farms	No. of sows	Average sows per farm
Farrowing crates 7 days or less	2	850	425
Farrowing crates 8 days to 21 days	7	3,315	474
Farrowing crates 22 days plus	37	11,899	322
Total	46	16,064	349

Two farms that use farrowing crates not more than 7 days collectively have 850 sows that are not affected by the proposed changes. This accounts for 5% of total indoor sows. These two farms are Waratah (who have provided performance data for their system, which has been used in the farm level analyses) and another farm that has installed swing-sided crates as part of a new greenfield operation. That farm has brought the productivity impacts of the new system into their calculations

and incorporated other new approaches and technologies into the overall farm design to offset the costs.

Seven farms that use farrowing crates not more than 21 days would already comply with the three week farrowing system but would be affected by the one week farrowing system. This subset accounts for 21% of total indoor sows. The majority of indoor sows (74%) would be affected by either the one or three week farrowing system.

8.2 Industry losses

8.2.1 Losses at 4% discount rate

As farms vary in size, translating losses from farm to industry level requires adjustment of NPV of model farms to per sow (divide by 350 sows) and multiplying to number of sows for the farrowing category. For farms that are practising the three week weaning system, the losses incurred in converting to the one week swing-side crate have been calculated by comparing the NPVs between three week farm model against the one week farm model. This resulted in slightly lower losses compared with farms currently practising four week weaning.

Immediate conversion to the one week swing sided farrowing crate system results in the largest NPV losses at \$44.1 million with 4% discount rate (refer to Table 14). Allowing a 10 year phase-in period reduces industry losses by more than half to \$19 million. With fewer farms affected and lower NPV losses per farm, the three week system has a much smaller industry impact with losses ranging from \$4.2 million to \$2.3 million.

Table 14 Industry NPV aggregate losses with 4% discount rate and phasing (\$'million)

	1week retrofit 2016	1week retrofit 2020	1week retrofit 2025	3week 2016	3week 2020	3week 2025
Farrowing crates 8 days to 21 days	9.11	6.16	3.64			
Farrowing crates 22 days plus	34.97	24.39	15.34	4.19	2.87	2.28
Total	44.07	30.55	18.97	4.19	2.87	2.28

8.2.2 Discount rate sensitivity for industry losses

At 2% discount rate (refer to Table 15), the industry losses are magnified, reaching a high of \$86.5 million for the one week retrofit (2016) and a low of \$3.6 million for the three week system (2025).

Table 15 Industry NPV aggregate losses with 2% discount rate and phasing (\$'million)

	1week retrofit 2016	1week retrofit 2020	1week retrofit 2025	3week 2016	3week 2020	3week 2025
Farrowing crates 8 days to 21 days	18.06	12.75	7.32			
Farrowing crates 22 days plus	68.45	49.39	29.88	7.13	4.15	3.62
Total	86.52	62.14	37.20	7.13	4.15	3.62

At 6% discount rate (refer to Table 16), the industry losses are reduced to \$29.5 million for the one week retrofit (2016) and \$1.7 million for the three week (2025) scenario.

Table 16 Industry NPV aggregate losses with 6% discount rate and phasing (\$'million)

	1week retrofit 2016	1week retrofit 2020	1week retrofit 2025	3week 2016	3week 2020	3week 2025
Farrowing crates 8 days to 21 days	6.05	3.97	2.33			
Farrowing crates 22 days plus	23.40	15.94	10.06	3.06	2.31	1.68
Total	29.45	19.91	12.39	3.06	2.31	1.68

9 Industry implications

9.1 Significant barriers to compliance for producers

For the one week system, suitability and performance of imported swing-sided farrowing crates in New Zealand are an unknown. The implications of this unknown are:

- Can swing-sided crates be retrofitted into farrowing rooms considering the variety of current farrowing crates dimensions and footprint of rooms or will new buildings be required?
- Will sow productivity be within expectations of the one week model farm?
- Will pig farmers and workers adapt to new practices required for one week farrowing system?

For the three week system, adoption of new management practices to cater to physiologically immature weaners will influence viability of the farm enterprise. Inability of industry workers to adapt or an insufficient supply of suitable workers from the labour market would hinder successful conversion to the three week system. Higher utilisation of nurse sows is an unknown and risks breaching the requirement that nurse sow numbers are no more than 5% of sows farrowed during the year.

9.2 Impact of alternative farrowing systems on industry structure

Restricting use of farrowing crates to three or one week would lead to some unviable pig farm enterprises. For the one week system, the critical factor is ability to service capital expenditure in light of reduced gross margin. Enterprises that have low cash reserves or higher debt leverage will struggle to adopt the one week system and will most likely exit the industry.

For the three week system, the critical factor is management of post-weaning mortality rates. Farmers that have higher than average mortality rates in the traditional system will most likely experience unviable mortality rates in the three week system. This group will most likely exit the industry.

NZPork has indicated that any further decline in the industry's production base may put at risk the 'critical mass' required to retain supporting infrastructure, such as abattoir facilities and industry good services. This factor is difficult to quantify as the extent of these impacts would depend on

individual farm capital structures and producer long-term intentions, for which no data are readily available.

9.3 Price effects and import substitution

Product (meat) substitution and availability of imports would prevent farmers from passing higher cost of production (induced by farrowing crates restrictions) to consumers. A higher price of fresh pork would lead some consumers to switch to other white meat (chicken), red meat (lamb, beef) or imported frozen pork. For processed pork products, manufacturers have ability to switch to imported pork.

10 Conclusion

At both the farm and industry level, the three week system has a smaller negative impact than the one week system. The three week farrowing system has a smaller decline in gross margin (reduced income net of reduced expenses) and more modest capital expenditure requirement. Furthermore, it carries a relatively lower level of predictive risk as it has fewer unknowns in the New Zealand setting. However, the range of outcomes that could be expected from enforcing three week weaning at industry level is very wide, ranging from steep losses incurred on some farms to a modest profitability improvement on others. It is likely that enforcing this scenario would produce a substantial further rationalisation of the industry, with a number of farms exiting and possibly some expansion of sow numbers on others (depending on management capacity and capital access). With three week weaning, financial viability would also require an upward shift in the permitted threshold for numbers of nurse sows, above the current level of 5% of sows farrowed (i.e. 10% to 15%).

The one week swing-sided farrowing crate is largely untested in New Zealand. The limited data available from Waratah Farms trials puts productivity losses at the higher end of expectations compared to international data. However, even with the Canarm crate, which appears to be a more cost-effective alternative to the Euro crates installed by Waratah Farms, financial viability of farm conversions depends on whether successful retrofitting of existing farrowing rooms can be undertaken. Only in a completely new farm setup could purpose-built housing using these crates be considered. Under current industry profitability assumptions and with current New Zealand construction cost settings, there appears to be very little investment appetite for building new farm facilities, with most producers focusing on maintaining existing depreciated assets to extend their productive life, rather than recapitalising farms with new buildings. This scenario is likely to continue for the foreseeable future unless there is a substantial global and local improvement in pig farming profitability. That means that regulatory enforcement of such a move would most likely face considerable resistance from producers and if implemented may result in a large decline in the New Zealand pork production base, with the gap in the market taken up by imported pork and other meats.

That said, for those individual producers who are in a position of having old farrowing facilities that are no longer able to be maintained, contemplating staying in the industry long-term and with the necessary funding resources available, the Canarm crate or similar alternative could be considered as a component of new farrowing accommodation on existing farms. In doing so, producers would need to consider balancing any increases in piglet mortality incurred with ways to offset the costs from incorporating new technologies or approaches into other parts of their farming system.

Glossary

Adult pig - A pig more than 9 months old

Boar - Male adult pig over 9 months of age

Piglet - A baby pig. For the first four weeks (or so) between birth and weaning baby pigs are called piglets.

Weaner - Young pig, which no longer drinks milk from the sow. Weaners are moved from the farrowing shed to the weaner shed where the environment and specific diet help them grow.

Weaner - Young pig, which no longer drinks milk from the sow. Aged between 3-10 weeks.

Grower – 10+ weeks. Grower pigs are housed in facilities called barns, sheds, or houses.

Finisher - A grower pig almost ready to be sent to market.

Gilt - A young female adult breeding pig. Once she has her first litter she is called a sow.

Sow - A female pig that has given birth to a litter of piglets.

Dry sow – An adult female pig that is between litters (doesn't currently have any piglets) and isn't lactating.

Lactating sow - A sow that has given birth, and is producing milk to feed her piglets

Nurse sow - A sow that is used to suckle piglets that are not her own.

Litter - All the piglets born to one sow from the same pregnancy.

Herd - A group of pigs.

Farrowing - When a sow gives birth to piglets.

Farrowing (birthing) crate - Provides care for the sow before and after birthing by allowing her individual care, water and feed. The farrowing pen also protects piglets after farrowing as it reduces the risk of the sow from squashing her piglets. Piglets need higher temperatures than sows so pens allow a separate area called a creep for piglets to keep warm.

Weaning - Separating piglet from sow/mother – usually at around 4 weeks or when they are strong enough.

Source: www.nzpork.co.nz

Annex 1: Swing-sided crates comparative capital expenditures

Exchange rates RBNZ (27/7/15)

AUD/NZD: 0.9048, EU/NZD: 0.5998, NZD/CAD: 0.8596, NZD/USD: 0.6594

96 sow places, 6 rooms, 16 per room (2 rows of 8 per room) - Retrofit

Criteria	Canada Canarm Euro crate	UK 360 freedom farrower	Waratah
Crates assembly	CAD107,270	AUD218,374 protected up to 75c per USD	Each crate EU1,490 = \$2,485 x 96 = \$238,560
With Flooring	CAD148,454	AUD51,500 (additional for flooring) delivered protected up to forex of 73c per USD	Feeding equipment, valves, air lines, \$38,400
Freight	CAD13,800	AUD 13,600 excluding container unloading and import duties	\$28,800
Total landed cost	CAD162,254	AUD 283,500	\$305,760
Total landed cost in NZD	\$188,755	\$313,330	\$305,760
Freight to farm site (NZD)	\$1,500 x 2 = \$3,000	Included	Included
Installation (NZD)	8 hrs/crate \$40/hr = \$30,720 Services = \$60,000	Approximate installation time per crate including floor PVC panelling, crate etc. is 5 hrs. This includes carrying the equipment into the shed. Another 3 hrs to dismantle old crates \$40/hr = \$30,720 Services = \$60,000	plus 1280 sqm new bldg. @\$400/sqm = \$512,000 Services = \$60,000
Total installed cost (NZD)	\$282,475	\$404,050	\$877,760
Dimensions	1.8m x 2.4m? Please provide dimensions and lay-out of whole pen.	1.8m x 2.4m: 600mm creep on left side, 600mm width of closed crate for sow and 600mm creep area with heater on right side. The installed crate footprint is 1.8m x 2.4m.	
Reference site	Lacombe Research – Sheri <ul style="list-style-type: none"> Installed 1.65m x 2.7m Plastic milk flooring with hot water heat pads 	Australian site <ul style="list-style-type: none"> 250 freedom crates installed controlled ventilation shed 	Waratah Farms
Parameters to compare:			
Number of installed farms	15 farms	2 in Australia, many in UK	
Number of installed sow places	1600	274 in Australia, >1000 for UK and Europe	

Criteria	Canada Canarm Euro crate	UK 360 freedom farrower	Waratah
Years since first commercial installation	Some of the earlier units that are not included in the 1600 were over 10 years ago	Manufacturer farm in 2011 with several version upgrades, now version 2.1	
Performance claims from company on % pre-weaning mortality		Feedback is same or better Own farm from 9-10% to 7% 10% more food to sow = increased weaning weight 1kg per piglet Better sow body condition = better standing heat at service	
Data from reference sites on:	Alberta Lacombe Research (2009-2015)	WA Craig Mostyn farms	
<ul style="list-style-type: none"> Date of installation No of sow places installed No of sows farrowed per year Total pigs sold/sow/year 	2002 as new -30 crates, climate control in summer 32C -92 -24.7 weaned/sow/yr	-May 2014 -255 crates, 5 rooms of 51, climate controlled farrowing rooms and hasn't got older parity sows yet, new, 1200 sow farm, site is farrow to finish, used to be a finishing/ grow-out property, also has breeder facilities with same genetics; only at parity 3, not sure how it will go when getting to parity 6	
<ul style="list-style-type: none"> Dimensions 		-2.4m x 1.8m, others 2.1m x1.6m	
<ul style="list-style-type: none"> Days pre-farrowing sow goes in crate 	-5 to 7 days and 2 days prior is locked down, farrow naturally	-1 week prior, batched by 1 room, group housing with ESF	
<ul style="list-style-type: none"> Av. no. of pigs born 	-12.7 born alive/litter	-10.5 to 11, same as traditional	-12.1 born alive
<ul style="list-style-type: none"> Days post farrowing when crate opened up 	-7 days, piglets castrated, open in daytime	-7-10 days, no jumpers, lose piglet when crate opened	-7 days
<ul style="list-style-type: none"> Av no. of pigs weaned (hence pre-wean mortality) 	-10.96/litter; 13.8%, higher mortality in summer, previously loose pens hence 18% mortality	-just under 10% mortality, similar performance as conventional, temp controlled so no issue in hot summer	-11.6%
<ul style="list-style-type: none"> Comments on ease of use 	-sound structurally, lots of room, washing is easy, don't lift plastic mesh floor so no flooring failure, strict washing protocol, 2 heat pads on each side, natural gravity flow, constant slurry under sow, no ammonia problem in summer	-easy to open, issue to tilt, , hygiene no problem, heat pads flap with floor, so use heated tiles for piglet warmth, sow can go in any direction even opposite the feeder, retrofit will be issue if different size pen, through back for in-out of pen	

Criteria	Canada Canarm Euro crate	UK 360 freedom farrower	Waratah
<ul style="list-style-type: none"> • Comment on any % labour hours increase due to change • Comment on any change in feed consumption due to change – creep feed, sow feed • Comment on any change in sow health status • Any suggestions for improvement of design 	<p>-easy to remove sow and crate, staff happy</p> <p>- more sow longevity, easier farrowing, not pushing sows, disposable sows maximise production in short span western Canada, breeders looking for new genetics</p> <p>- sow feeder is not big enough, drinker location is not good, nipple bar is good over fender, flexibility for milk consumption, did not replace anything for 13 years, no rust as hot dip galvanised, flooring to be replaced by year 15 as surface smoothed; nesting/bedding/ enriching – slurry underneath is constraint, have to change flooring, extra cleaning labour and biosecurity issue, do offer roughage like hay but not bedding</p>	<p>- no additional labour, set daily routine, 1 person in front and 1 at back to clean</p> <p>- no change, weaning weight 8.5 kg in 4 weeks for piglets, same weaning weight</p> <p>- no health status change</p> <p>- minor operations improvements, mainly latches</p>	
Conclusions	<ul style="list-style-type: none"> • Lack of retrofit reference farm 	<ul style="list-style-type: none"> • Installed new, retrofit in naturally ventilated room scenario unknown • Litter size smaller than NZ hence lower mortality • Not yet in parity 6 	<ul style="list-style-type: none"> •

Annex 2: Swing-sided crates with new building cost comparison

96 sow places, 6 rooms, 16 per room (2 rows of 8 per room) - new building for all options

Criteria	Canada Canarm Euro crate	UK 360 freedom farrower	Waratah
Crates assembly	CAD107,270	AUD218,374 protected up to 75c per USD	Each crate EU1,490 = \$2,485 x 96 = \$238,560
With Flooring	CAD148,454	AUD51,500 (additional for flooring) delivered protected up to forex of 73c per USD	Feeding equipment, valves, air lines, \$38,400
Freight	CAD13,800	AUD 13,600 excluding container unloading and import duties	\$28,800
Total landed cost	CAD162,254	AUD 283,500	\$305,760
Total landed cost in NZD	\$188,755	\$313,330	\$305,760
Freight to farm site (NZD)	\$1,500 x 2 = \$3,000	Included	Included
New building costs (NZD) no allowance for power, water, computer cabling, any resource or building consents, demolition costs	1280 sqm new bldg. @\$400/sqm = \$512,000 Services = \$60,000	1280 sqm new bldg. @\$400/sqm = \$512,000 Services = \$60,000	1280 sqm new bldg. @\$400/sqm = \$512,000 Services = \$60,000
Installation (NZD)	8 hrs/crate \$40/hr = \$30,720	Approximate installation time per crate including floor PVC panelling, crate, etc. is 5 hrs. This includes carrying the equipment into the shed. Another 3 hrs to dismantle old crates \$40/hr = \$30,720	
Total installed cost (NZD)	\$794,475	\$916,050	\$877,760
Dimensions	1.8m x 2.4m	1.8m x 2.4m: 600mm creep on left side, 600mm width of closed crate for sow and 600mm creep area with heater on right side. The installed crate footprint is 1.8m x 2.4m.	

Annex 3: Status quo farm model

BUDGET ASSUMPTIONS										Lew, health, inspection	\$/pig	8.17
Debt interest		6%		Debt no. of years	15					Classification deduction	\$/kg	0.09
Discount rate		4%								Financial assumptions		
Production assumptions										Price		
No. of sows - opening		350								Pork	\$/pig	195.83
No. of boars		8								Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr		25.8								Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork		2.0%		Replacement rate						Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork		3.5%		Sows	175	50%				Chopper	\$/kg	1.54
Choppers		8.5%	30	Boars	6	65%				Gilt replacement	\$/gilt	539.15
Pre-weaning		11.7%								Boar replacement	\$/boar	1600.00
Product mix										Pre-weaning mortality rate		
Pork		4%		Total born per litter		13.8				Feed costs		
Bacon/Trim pork		96%		Born alive per litter		12.6				Dry Sow	\$/tonne	548.97
Carcass weight										Lact.Sow	\$/tonne	635.01
Pork		50		Farrowing rate of sows		84.6%				Creep	\$/tonne	1053.46
Bacon/Trim pork		71.4		Litters farrowed/mated female/yr		2.32				Weaner	\$/tonne	789.59
Choppers		142		Pigs weaned per sow weaned		11.12				Grower	\$/tonne	590.42
Production volume										Finisher	\$/tonne	565.15
Pork	pigs	354								Feed consumption		
Bacon/Trim pork	pigs	8,365								Dry Sow	kg	
Choppers	sows and boars	151								Lact.Sow	per year	
Pork	kg	17,700		Labour						Creep	8.5 per piglet	
Bacon/Trim pork	kg	597,261		Standard	units	2.5				Weaner	20.4 piglet to grower	
Choppers	Kg	21,442								Grower	86 grower to finish	
				Extra labour per 250 sows						Finisher	95 finishing stage	
Replacement cost	per sow place	\$500		Hours/day		-				Direct costs		
Replacement frequency	years	15		Labour rate/hr		\$20.43				Animal Health	\$/sow	160.00
				Extra feed per sow						Semen	\$/dose	15.00
				Extra requirements/sow	0.00%	7% * 12/16				Semen	doses/yr	1,610
				Dry sow	\$/tonne	548.97				Semen	Doses/sow/yr	4.60
Asset values										Freight	\$/chopper	11.00
				Depreciation		DV				Freight	\$/pork or TP	5.00
				Sow places (new)	10.0%					Labour unit	\$	42,500
				Buildings	5.0%					Base owner wage	\$	42,500
Sows	\$/sow	300		Plant/equipment % sale	2.0%					Inflation rate 2010-15		
Boars	\$/boar	1,200		R&M as % of sales	2.0%					R&M+vehicles		12.3%
Growing stock	\$/pig	150								Power		20.3%
Growing stock	number	3,892								Insurance		18.4%
										Administration		11.2%
										Rates		24.0%
										General		4.0%
										Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow SQ		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,719	8,719	8,719	8,719	8,718	8,719	8,719	8,719	8,719	8,719	8,718	8,719	8,719	8,719	8,719	8,719	8,718	8,719	8,719
Financial																						
Cashflow																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,571	2,354,571	2,354,304	2,354,571	2,354,571	2,354,571	2,354,571	2,354,571	2,354,304	2,354,571	2,354,571	2,354,571	2,354,571	2,354,571	2,354,304	2,354,525	2,354,525
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,577	1,985,577	1,985,508	1,985,577	1,985,577	1,985,577	1,985,577	1,985,577	1,985,508	1,985,577	1,985,577	1,985,577	1,985,577	1,985,577	1,985,508	1,985,565	1,985,565
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure		47,090	47,090	47,090	47,090	47,091	67,091	47,086	47,091	47,091	47,091	97,091	47,091	47,086	47,091	47,091	67,091	47,091	47,091	47,086	47,090	97,090
Tax		811	1,371	1,903	2,409	2,898	3,354	3,734	4,199	4,590	4,962	5,315	5,650	5,915	6,271	6,558	6,832	7,091	7,337	7,518	7,785	7,996
Net cash flow		49,086	48,526	47,994	47,488	47,032	26,576	46,005	45,731	45,340	44,968	(5,385)	44,280	43,824	43,659	43,372	23,098	42,839	42,593	42,220	42,112	(8,099)
Profit & Loss																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,571	2,354,571	2,354,304	2,354,571	2,354,571	2,354,571	2,354,571	2,354,571	2,354,304	2,354,571	2,354,571	2,354,571	2,354,571	2,354,571	2,354,304	2,354,525	2,354,525
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,577	1,985,577	1,985,508	1,985,577	1,985,577	1,985,577	1,985,577	1,985,577	1,985,508	1,985,577	1,985,577	1,985,577	1,985,577	1,985,577	1,985,508	1,985,565	1,985,565
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	92,090	90,190	88,385	86,672	85,043	83,490	82,025	80,628	79,301	78,041	76,843	75,700	74,625	73,598	72,623	71,696	70,816	69,975	69,185	68,430
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380
Profit before drawings & tax		45,397	47,397	49,297	51,102	52,850	54,479	55,835	57,496	58,893	60,220	61,480	62,678	63,624	64,896	65,923	66,898	67,825	68,705	69,350	70,303	71,057
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	1,371	1,903	2,409	2,898	3,354	3,734	4,199	4,590	4,962	5,315	5,650	5,915	6,271	6,558	6,832	7,091	7,337	7,518	7,785	7,996
Profit after tax		2,086	3,526	4,894	6,193	7,452	8,625	9,601	10,797	11,803	12,758	13,666	14,528	15,209	16,125	16,865	17,567	18,234	18,868	19,332	20,018	20,561
BALANCE SHEET																						
Current assets																						
Cash		49,086	97,612	145,606	193,094	240,126	266,702	312,707	358,438	403,778	448,746	443,361	487,641	531,465	575,124	618,496	641,594	684,433	727,026	769,246	811,358	803,259
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,774	583,748	583,872	583,846	583,820	583,795	583,769	583,743	583,867	583,841	583,815	583,789	583,763	583,737	583,861	583,861	583,861
Total current assets		747,486	796,012	844,006	891,494	938,500	965,050	1,011,179	1,056,884	1,102,198	1,147,141	1,141,730	1,185,984	1,229,932	1,273,565	1,316,911	1,339,983	1,382,796	1,425,363	1,467,707	1,509,819	1,501,720
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	722,000	685,900	651,605	619,025	588,074	558,670	530,736	504,200	478,990	455,040	432,288	410,674	390,140	370,633	352,101	334,496	317,771	301,883	286,789	272,449
Equipment/vehicles	750,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000
Total fixed assets		1,703,000	1,658,000	1,614,900	1,573,605	1,534,025	1,516,074	1,479,670	1,444,736	1,411,200	1,378,990	1,398,040	1,368,288	1,339,674	1,312,140	1,285,633	1,280,101	1,255,496	1,231,771	1,208,883	1,186,789	1,215,449
Total assets		2,450,486	2,454,012	2,458,906	2,465,099	2,472,525	2,481,124	2,490,849	2,501,621	2,513,398	2,526,130	2,539,770	2,554,272	2,569,605	2,585,705	2,602,544	2,620,084	2,638,292	2,657,135	2,676,590	2,696,608	2,717,170
Liabilities																						
Term loan		735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146
Equity		1,715,340	1,718,866	1,723,760	1,729,953	1,737,379	1,745,978	1,755,703	1,766,475	1,778,252	1,790,984	1,804,624	1,819,126	1,834,460	1,850,559	1,867,398	1,884,939	1,903,147	1,921,989	1,941,444	1,961,462	1,982,024

Annex 4A: One week farm model – retrofit

BUDGET ASSUMPTIONS			Overdraft						Levy, health, inspection	\$/pig	8.17
Debt interest		6%	10%	Debt no. of years	15				Classification deduction	\$/kg	0.09
Discount rate		4%							Financial assumptions		
Production assumptions			3-week						Price		
No. of sows - opening		350							Pork	\$/pig	195.83
No. of boars		8							Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr		25.8	25.2	-2.4%					Chopper	\$/pig	197.73
Mortality									Pork	\$/kg	4.17
Pork		2.0%	2.0%	Replacement rate					Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork		3.5%	3.5%	Sows	175	50%	same as SC		Chopper	\$/kg	1.54
Choppers	30	8.5%		Boars	6	65%					
Pre-weaning		11.7%	13.8%				1-week		Gilt replacement	\$/gilt	539.15
Product mix				Pre-weaning mortality rate					Boar replacement	\$/boar	1600.00
Pork		4%		Total born per litter		13.8	13.8				
Bacon/Trim pork		96%		Born alive per litter	91.3%	12.6	12.6		Feed costs	Adjustment	1.1%
Carcass weight				Farrowing rate of sows		84.6%			Dry Sow	\$/tonne	548.97
Pork		50		Litters farrowed/mated female/yr		2.32	2.32		Lact.Sow	\$/tonne	635.01
Bacon/Trim pork		71.4		Pigs weaned per sow weaned		11.12	10.86		Creep	\$/tonne	1053.46
Choppers		142							Weaner	\$/tonne	789.59
Production volume									Grower	\$/tonne	590.42
Pork	pigs	354	346						Finisher	\$/tonne	565.15
Bacon/Trim pork	pigs	8,365	8,167								
Choppers	sows and boars	151							Feed consumption		
Pork	kg	17,700							Dry Sow	680	per year
Bacon/Trim pork	kg	597,261		Labour					Lact.Sow	550	per year
Choppers	Kg	21,442		Standard	units	2.5			Creep	8.5	per piglet
									Weaner	20.4	piglet to grower
				Extra labour per 250 sows					Grower	86	grower to finish
									Finisher	95	finishing stage
Replacement cost	per sow place	\$500		Hours/day		-			Direct costs		
Replacement frequency	years	15		Labour rate/hr		\$20.43			Animal Health	\$/sow	160.00
				Extra feed per sow					Semen	\$/dose	15.00
				Extra requirements/sow	0.00%	7% * 12/16			Semen	doses/yr	1,610
				Dry sow	\$/tonne	548.97			Semen	Doses/sow/yr	4.60
Asset values				Depreciation	DV				Freight	\$/chopper	11.00
				Sow places (new)	10.0%				Freight	\$/pork or TP	5.00
				Buildings	5.0%				Labour unit	\$	42,500
Sows	\$/sow	300		Plant/equipment % sal	2.0%				Base owner wage	\$	42,500
Boars	\$/boar	1,200		R&M as % of sales	2.0%				Inflation rate 2010-15		
Growing stock	\$/pig	150							R&M+vehicles		12.3%
Growing stock	number	3,892		Swing-sided crates					Power		20.3%
				Retrofit capex	282,500				Insurance		18.4%
									Administration		11.2%
									Rates		24.0%
									General		4.0%
									Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512
Finacial																						
Cashflow																						
Income		2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses		1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	97,230	96,463	95,650	94,789	93,875	92,907	91,881	90,793	92,274	91,995	91,748	91,539	91,377	93,494	93,702	90,614	89,110	87,438	91,136
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	12,781	13,548	14,361	15,223	16,136	17,104	18,131	19,219	20,372	21,594	22,890	24,263	25,719	27,262	28,898	0	0	0	0
Capital expenditure		47,090	47,090	45,989	45,989	45,989	65,989	45,989	45,989	45,989	45,989	95,989	45,989	45,989	45,989	45,989	65,989	45,989	45,989	45,989	45,989	95,989
Tax		811	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow		49,086	49,897	(5,855)	(5,855)	(5,855)	(25,855)	(5,855)	(5,855)	(5,855)	(5,855)	(58,489)	(9,433)	(10,481)	(11,645)	(12,939)	(36,599)	(18,443)	13,542	15,047	16,719	(36,979)
Profit & Loss																						
Income		2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses		1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	121,840	115,864	111,382	107,257	103,459	99,960	96,733	93,755	91,005	88,464	86,114	83,939	81,925	80,058	78,327	76,719	75,227	73,839	72,549	71,347
Interest		79,380	79,380	97,230	96,463	95,650	94,789	93,875	92,907	91,881	90,793	92,274	91,995	91,748	91,539	91,377	93,494	93,702	90,614	89,110	87,438	91,136
Profit before drawings & tax		45,397	17,647	(20,448)	(15,199)	(10,262)	(5,602)	(1,189)	3,006	7,010	10,847	11,907	14,536	16,959	19,182	21,211	20,825	22,224	26,805	29,697	32,659	30,163
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit after tax		2,086	(24,853)	(62,948)	(57,699)	(52,762)	(48,102)	(43,689)	(39,494)	(35,490)	(31,653)	(30,593)	(27,964)	(25,541)	(23,318)	(21,289)	(21,675)	(20,276)	(15,695)	(12,803)	(9,841)	(12,337)
BALANCE SHEET																						
Current assets																						
Cash		49,086	98,983	93,128	87,273	81,418	55,563	49,708	43,853	37,998	32,143	(26,346)	(35,779)	(46,260)	(57,905)	(70,844)	(107,443)	(125,886)	(112,344)	(97,297)	(80,578)	(117,557)
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets		747,486	797,383	791,528	785,673	779,818	753,963	748,108	742,253	736,398	730,543	672,054	662,621	652,140	640,495	627,556	590,957	572,514	586,056	601,103	617,822	580,843
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	722,000	685,900	651,605	619,025	588,074	558,670	530,736	504,200	478,990	455,040	432,288	410,674	390,140	370,633	352,101	334,496	317,771	301,883	286,789	272,449
Equipment/vehicles	750,000	743,000	1,003,750	969,975	938,878	910,190	903,671	879,104	856,293	835,064	815,258	846,732	829,359	813,023	797,621	783,058	789,253	776,127	763,615	751,653	740,188	779,169
Total fixed assets		1,703,000	1,925,750	1,855,875	1,790,483	1,729,215	1,691,744	1,637,774	1,587,030	1,539,264	1,494,247	1,501,772	1,461,647	1,423,696	1,387,760	1,353,691	1,341,354	1,310,624	1,281,386	1,253,536	1,226,977	1,251,618
Total assets		2,450,486	2,723,133	2,647,403	2,576,156	2,509,033	2,445,707	2,385,882	2,329,283	2,275,662	2,224,790	2,173,826	2,124,268	2,075,836	2,028,255	1,981,247	1,932,311	1,883,138	1,867,442	1,854,639	1,844,799	1,832,461
Liabilities																						
Term loan		735,146	1,032,646	1,019,864	1,006,316	991,955	976,732	960,596	943,491	925,361	906,142	885,770	864,176	841,287	817,024	791,305	764,043	735,146	735,146	735,146	735,146	735,146
Equity		1,715,340	1,715,340	1,690,487	1,627,539	1,569,839	1,517,078	1,468,975	1,425,286	1,385,791	1,350,301	1,318,648	1,288,055	1,260,091	1,234,550	1,211,232	1,189,942	1,168,268	1,147,992	1,132,296	1,119,493	1,109,653

Annex 4B: One week farm model – new building

BUDGET ASSUMPTIONS				Overdraft						Lew, health, inspection	\$/pig	8.17
Debt interest			6%	10%	Debt no. of years	15				Classification deduction	\$/kg	0.09
Discount rate			4%							Financial assumptions		
Production assumptions				3-week						Price		
No. of sows - opening			350							Pork	\$/pig	195.83
No. of boars			8							Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr			25.8	25.2	-2.4%					Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork			2.0%	2.0%	Replacement rate					Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork			3.5%	3.5%	Sows	175	50%	same as SC		Chopper	\$/kg	1.54
Choppers		30	8.5%		Boars	6	65%					
Pre-weaning			11.7%	13.8%				1-week		Gilt replacement	\$/gilt	539.15
Product mix					Pre-weaning mortality rate					Boar replacement	\$/boar	1600.00
Pork			4%		Total born per litter		13.8	13.8				
Bacon/Trim pork			96%		Born alive per litter	91.3%	12.6	12.6		Feed costs	Adjustment	1.1%
Carcass weight					Farrowing rate of sows		84.6%			Dry Sow	\$/tonne	548.97
Pork			50		Litters farrowed/mated female/yr		2.32	2.32		Lact.Sow	\$/tonne	635.01
Bacon/Trim pork			71.4		Pigs weaned per sow weaned		11.12	10.86		Creep	\$/tonne	1053.46
Choppers			142							Weaner	\$/tonne	789.59
Production volume										Grower	\$/tonne	590.42
Pork	pigs		354	346						Finisher	\$/tonne	565.15
Bacon/Trim pork	pigs		8,365	8,167								
Choppers	sows and boars		151							Feed consumption	kg	
Pork	kg		17,700							Dry Sow	680 per year	
Bacon/Trim pork	kg		597,261		Labour					Lact.Sow	550 per year	550
Choppers	Kg		21,442		Standard	units	2.5			Creep	8.5 per piglet	8.5
										Weaner	20.4 piglet to grower	
					Extra labour per 250 sows					Grower	86 grower to finish	
										Finisher	95 finishing stage	
Replacement cost	per sow place		\$500		Hours/day		-			Direct costs		
Replacement frequency	years		15		Labour rate/hr		\$20.43			Animal Health	\$/sow	160.00
					Extra feed per sow					Semen	\$/dose	15.00
					Extra requirements/sow	0.00%	7% * 12/16			Semen	doses/yr	1,610
					Dry sow	\$/tonne	548.97			Semen	Doses/sow/	4.60
Asset values					Depreciation	DV				Freight	\$/chopper	11.00
					Sow places (new)	10.0%				Freight	\$/pork or TP	5.00
					Buildings	5.0%				Labour unit	\$	42,500
Sows	\$/sow		300		Plant/equipment % sale	2.0%				Base owner wage	\$	42,500
Boars	\$/boar		1,200		R&M as % of sales	2.0%				Inflation rate 2010-15		
Growing stock	\$/pig		150							R&M+vehicles		12.3%
Growing stock	number		3,892		Swing-sided crates					Power		20.3%
					Crates capex	282,500				Insurance		18.4%
					New building capex	512,500				Administration		11.2%
										Rates		24.0%
										General		4.0%
										Interest		-5.5%

Summary - 350 sow			2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physcial																							
Sows			350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold			8,719	8,719	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512
Finanacial																							
Cashflow																							
Income			2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses			1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead			150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest			79,380	79,380	128,880	129,126	133,820	141,374	147,667	154,789	162,839	171,929	187,738	199,913	213,613	229,019	246,332	267,996	290,065	305,379	327,737	352,579	385,737
Drawings			42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan			0	0	35,444	37,571	39,825	42,215	44,748	47,432	50,278	53,295	56,493	59,882	63,475	67,284	71,321	75,600	80,136	0	0	0	0
Capital expenditure (net of new debt)			47,090	47,090	45,989	45,989	45,989	65,989	45,989	45,989	45,989	45,989	95,989	45,989	45,989	45,989	45,989	65,989	45,989	45,989	45,989	45,989	95,989
Tax			811	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow			49,086	49,897	(60,168)	(62,540)	(69,489)	(99,432)	(88,258)	(98,064)	(108,960)	(121,067)	(190,075)	(155,638)	(172,932)	(192,146)	(213,496)	(259,440)	(266,044)	(201,222)	(223,580)	(248,422)	(331,580)
Profit & Loss																							
Income			2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses			1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead			150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation			94,090	147,465	140,283	134,647	129,420	124,569	120,063	115,875	111,980	108,355	104,979	101,832	98,897	96,159	93,601	91,212	88,977	86,887	84,930	83,098	81,380
Interest			79,380	79,380	128,880	129,126	133,820	141,374	147,667	154,789	162,839	171,929	187,738	199,913	213,613	229,019	246,332	267,996	290,065	305,379	327,737	352,579	385,737
Profit before drawings & tax			45,397	(7,978)	(76,517)	(71,127)	(70,595)	(73,297)	(75,084)	(78,018)	(82,173)	(87,638)	(100,071)	(109,099)	(119,865)	(132,532)	(147,287)	(166,562)	(186,396)	(199,620)	(220,022)	(243,031)	(274,472)
Drawings			42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax			811	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit after tax			2,086	(50,478)	(119,017)	(113,627)	(113,095)	(115,797)	(117,584)	(120,518)	(124,673)	(130,138)	(142,571)	(151,599)	(162,365)	(175,032)	(189,787)	(209,062)	(228,896)	(242,120)	(262,522)	(285,531)	(316,972)
BALANCE SHEET																							
Current assets																							
Cash			49,086	98,983	38,815	(23,725)	(93,214)	(192,646)	(280,904)	(378,968)	(487,928)	(608,995)	(799,070)	(954,708)	(1,127,640)	(1,319,786)	(1,533,282)	(1,792,722)	(2,058,766)	(2,259,988)	(2,483,568)	(2,731,990)	(3,063,570)
Breeding stock			114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock			583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets			747,486	797,383	737,215	674,675	605,186	505,754	417,496	319,432	210,472	89,405	(100,670)	(256,308)	(429,240)	(621,386)	(834,882)	(1,094,322)	(1,360,366)	(1,561,588)	(1,785,168)	(2,033,590)	(2,365,170)
Fixed assets																							
Land, less house and curtilagehouse			200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																							
Buildings	800,000		760,000	1,237,375	1,175,506	1,116,731	1,060,894	1,007,850	957,457	909,584	864,105	820,900	779,855	740,862	703,819	668,628	635,197	603,437	573,265	544,602	517,372	491,503	466,928
Equipment/vehicles	750,000		743,000	990,250	957,825	927,943	900,348	894,813	871,132	849,119	828,607	809,446	841,502	824,651	808,786	793,808	779,627	786,164	773,348	761,113	749,402	738,162	777,345
Total fixed assets			1,703,000	2,427,625	2,333,331	2,244,673	2,161,243	2,102,663	2,028,589	1,958,703	1,892,712	1,830,346	1,821,357	1,765,514	1,712,605	1,662,436	1,614,824	1,589,601	1,546,613	1,505,715	1,466,773	1,429,665	1,444,273
Total assets			2,450,486	3,225,008	3,070,546	2,919,348	2,766,429	2,608,417	2,446,085	2,278,135	2,103,184	1,919,751	1,720,687	1,509,206	1,283,365	1,041,050	779,942	495,279	186,247	(55,873)	(318,395)	(603,925)	(920,897)
Liabilities																							
Term loan			735,146	1,560,146	1,524,702	1,487,131	1,447,305	1,405,091	1,360,343	1,312,911	1,262,632	1,209,337	1,152,844	1,092,962	1,029,487	962,203	890,882	815,282	735,146	735,146	735,146	735,146	735,146

[illegible]

Final report: Economic analysis of farrowing systems

Summary - 350 sow				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	
Physical																									
Sows				350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	
Pigs sold				8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	
Finacial																									
Cashflow																									
Income				2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	
Farm expenses				1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	
Overhead				150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	
Interest				79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	104,130	103,067	103,823	104,803	108,176	109,766	111,602	113,714	116,138	124,468	
Drawings				42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	
Principal on loan				0	0	0	0	0	0	0	0	0	0	0	0	17,722	18,785	19,913	21,107	22,374	23,716	25,139	26,648	29,941	
Capital expenditure (net of new debt)				47,090	47,090	47,090	47,090	47,090	67,090	47,090	47,090	47,090	47,090	47,090	509,590	45,989	45,989	45,989	45,989	65,989	45,989	45,989	45,989	95,989	
Tax				811	1,371	1,903	2,409	2,889	3,345	3,778	4,190	4,581	4,952	0	0	0	0	0	0	0	0	0	0	0	
Net cash flow				49,086	48,526	47,994	47,488	47,008	26,552	46,119	45,707	45,316	44,945	(412,603)	(17,695)	(17,695)	(19,578)	(21,754)	(46,393)	(29,326)	(32,584)	(36,205)	(40,227)	(100,253)	
Profit & Loss																									
Income				2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	
Farm expenses				1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	
Overhead				150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	
Depreciation				94,090	92,090	90,190	88,385	86,671	85,042	83,494	82,024	80,627	79,300	133,415	126,935	121,966	117,373	113,124	109,191	105,547	102,168	99,034	96,123	93,419	
Interest				79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	104,130	103,067	103,823	104,803	108,176	109,766	111,602	113,714	116,138	124,468	
Profit before drawings & tax				45,397	47,397	49,297	51,102	52,817	54,446	55,993	57,463	58,860	60,187	6,072	(38,419)	(32,387)	(28,550)	(25,282)	(24,721)	(22,667)	(21,124)	(20,102)	(19,615)	(25,242)	
Drawings				42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	
Income tax				811	1,371	1,903	2,409	2,889	3,345	3,778	4,190	4,581	4,952	0	0	0	0	0	0	0	0	0	0	0	
Profit after tax				2,086	3,526	4,894	6,193	7,428	8,601	9,715	10,774	11,779	12,735	(36,428)	(80,919)	(74,887)	(71,050)	(67,782)	(67,221)	(65,167)	(63,624)	(62,602)	(62,115)	(67,742)	
BALANCE SHEET																									
Current assets																									
Cash				49,086	97,612	145,606	193,094	240,102	266,654	312,773	358,480	403,796	448,741	36,138	18,443	748	(18,830)	(40,584)	(86,977)	(116,303)	(148,887)	(185,092)	(225,319)	(325,572)	
Breeding stock				114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	
Growing stock				583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	
Total current assets				747,486	796,012	844,006	891,494	938,502	965,054	1,011,173	1,056,880	1,102,196	1,147,141	734,538	716,843	699,148	679,570	657,816	611,423	582,097	549,513	513,308	473,081	372,828	
Fixed assets																									
Land, less house and curtilagehouse				200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	
Farm and buildings																									
Buildings	800,000			760,000	722,000	685,900	651,605	619,025	588,074	558,670	530,736	504,200	478,990	970,415	921,894	875,800	832,010	790,409	750,889	713,344	677,677	643,793	611,604	581,023	
Equipment/vehicles	750,000			743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	997,250	964,825	934,943	907,348	881,813	878,132	856,119	835,607	816,446	798,502	831,651	
Total fixed assets				1,703,000	1,658,000	1,614,900	1,573,605	1,534,025	1,516,074	1,479,670	1,444,736	1,411,200	1,378,990	2,167,665	2,086,719	2,010,742	1,939,358	1,872,223	1,829,021	1,769,463	1,713,284	1,660,239	1,610,105	1,612,675	
Total assets				2,450,486	2,454,012	2,458,906	2,465,099	2,472,527	2,481,128	2,490,843	2,501,616	2,513,396	2,526,131	2,902,203	2,803,562	2,709,890	2,618,928	2,530,039	2,440,444	2,351,560	2,262,797	2,173,547	2,083,186	1,985,503	
Liabilities																									
Term loan				735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	1,147,646	1,129,924	1,111,138	1,091,226	1,070,118	1,047,744	1,024,028	998,889	972,241	943,995	914,054	
Equity				1,715,340	1,715,340	1,718,866	1,723,760	1,729,953	1,737,381	1,745,982	1,755,697	1,766,471	1,778,250	1,790,985	1,754,557	1,673,639	1,598,752	1,527,702	1,459,920	1,392,699	1,327,532	1,263,908	1,201,306	1,139,191	1,071,449

Annex 5: Three week farm model

BUDGET ASSUMPTIONS										Levy, health, inspection \$/pig		8.17
Debt interest			6%		Debt no. of years	15				Classification deduction \$/kg		0.09
Discount rate			5%							Financial assumptions		
Production assumptions				3-week						Price		
No. of sows - opening			350							Pork	\$/pig	195.83
No. of boars			8							Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr			25.8	25.8	0.0%					Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork			2.0%	2.80%	Replacement rate					Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork			3.5%	4.90%	Sows	175	50%			Chopper	\$/kg	1.54
Choppers		30	8.5%		Boars	6	65%			Gilt replacement	\$/gilt	539.15
Pre-weaning			11.7%	11.7%				3-week		Boar replacement	\$/boar	1600.00
Product mix					Pre-weaning mortality rate							
Pork			4%		Total born per litter		13.8	13.5		Feed costs		
Bacon/Trim pork			96%		Born alive per litter	91.3%	12.6	12.3		Dry Sow	\$/tonne	548.97
Carcass weight					Farrowing rate of sows		84.6%			Lact.Sow	\$/tonne	635.01
Pork			50		Litters farrowed/mated female/yr		2.32	2.37		Creep	\$/tonne	1053.46
Bacon/Trim pork			71.4		Pigs weaned per sow weaned		11.12	10.90		Weaner	\$/tonne	789.59
Choppers			142				2.24	9.94		Grower	\$/tonne	590.42
Production volume										Finisher	\$/tonne	565.15
Pork	pigs		354	351						Feed consumption	kg	
Bacon/Trim pork	pigs		8,365	8,248						Dry Sow	680 per year	
Choppers	sows and boars		151							Lact.Sow	550 per year	470
Pork	kg		17,700		Labour					Creep	8.5 per piglet	11.5
Bacon/Trim pork	kg		597,261		Standard	units	2.5			Weaner	20.4 piglet to grower	
Choppers	Kg		21,442							Grower	86 grower to finish	
										Finisher	95 finishing stage	
					Extra labour per 250 sows							
Replacement cost	per sow place		\$500		Hours/day		-			Direct costs		
Replacement frequency	years		15		Labour rate/hr		\$20.43			Animal Health	\$/sow	160.00
					Extra feed per sow					Semen	\$/dose	15.00
					Extra requirements/sow	0.00%	7% * 12/16			Semen	doses/yr	1,610
					Dry sow	\$/tonne	548.97			Semen	Doses/sow/yr	4.60
Asset values					Depreciation	DV				Freight	\$/chopper	11.00
					Sow places (new)	10.0%				Freight	\$/pork or TP	5.00
					Buildings	5.0%				Labour unit	\$	42,500
Sows	\$/sow		300		Plant/equipment % sale	2.0%				Base owner wage	\$	42,500
Boars	\$/boar		1,200		R&M as % of sales	2.0%				Inflation rate 2010-15		
Growing stock	\$/pig		150							R&M+vehicles		12.3%
Growing stock	number		3,892		Extra weaner accomodation					Power		20.3%
					Building	sqm	60			Insurance		18.4%
					Capex	Most likely	60,000			Administration		11.2%
						Low	40,000			Rates		24.0%
						High	80,000			General		4.0%
										Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow SQ		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599
Financial																						
Cashflow																						
Income		2,354,525	2,354,525	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535
Farm expenses		1,985,565	1,985,565	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	83,880	83,687	83,482	83,265	83,034	82,790	82,531	82,257	81,966	81,658	81,332	80,985	80,618	80,229	79,817	79,380	79,380	79,380	79,380
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	3,222	3,416	3,620	3,838	4,068	4,312	4,571	4,845	5,136	5,444	5,770	6,117	6,484	6,873	7,285	0	0	0	0
Capital expenditure		47,090	47,090	46,451	46,451	46,451	66,451	46,451	46,451	46,451	46,451	96,451	46,451	46,451	46,451	46,451	66,451	46,451	46,451	46,451	46,451	96,451
Tax		811	321	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow		49,086	49,576	24,915	24,915	24,915	4,915	24,915	24,915	24,915	24,915	(25,085)	24,915	24,915	24,915	24,915	4,915	24,915	32,637	32,637	32,637	(17,363)
Profit & Loss																						
Income		2,354,525	2,354,525	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535
Farm expenses		1,985,565	1,985,565	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	95,840	93,113	91,130	89,246	87,456	85,756	84,141	82,606	81,148	79,764	78,448	77,198	76,011	74,883	73,811	72,793	71,826	70,907	70,034	69,205
Interest		79,380	79,380	83,880	83,687	83,482	83,265	83,034	82,790	82,531	82,257	81,966	81,658	81,332	80,985	80,618	80,229	79,817	79,380	79,380	79,380	79,380
Profit before drawings & tax		45,397	43,647	23,975	26,151	28,240	30,247	32,178	34,037	35,830	37,562	39,238	40,862	42,438	43,972	45,467	46,927	48,358	49,762	50,681	51,553	52,383
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	321	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit after tax		2,086	826	(18,525)	(16,349)	(14,260)	(12,253)	(10,322)	(8,463)	(6,670)	(4,938)	(3,262)	(1,638)	(62)	1,472	2,967	4,427	5,858	7,262	8,181	9,053	9,883
BALANCE SHEET																						
Current assets																						
Cash		49,086	98,662	123,577	148,492	173,407	178,322	203,237	228,152	253,067	277,982	252,897	277,812	302,727	327,642	352,557	357,472	382,387	415,024	447,661	480,298	462,935
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets		747,486	797,062	821,977	846,892	871,807	876,722	901,637	926,552	951,467	976,382	951,297	976,212	1,001,127	1,026,042	1,050,957	1,055,872	1,080,787	1,113,424	1,146,061	1,178,698	1,161,335
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	793,250	753,588	715,908	680,113	646,107	613,802	583,112	553,956	526,258	499,945	474,948	451,201	428,641	407,209	386,848	367,506	349,130	331,674	315,090	299,336
Equipment/vehicles	750,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000
Total fixed assets		1,703,000	1,729,250	1,682,588	1,637,908	1,595,113	1,574,107	1,534,802	1,497,112	1,460,956	1,426,258	1,442,945	1,410,948	1,380,201	1,350,641	1,322,209	1,314,848	1,288,506	1,263,130	1,238,674	1,215,090	1,242,336
Total assets		2,450,486	2,526,312	2,504,565	2,484,800	2,466,920	2,450,829	2,436,439	2,423,664	2,412,423	2,402,640	2,394,242	2,387,160	2,381,328	2,376,683	2,373,166	2,370,720	2,369,293	2,376,554	2,384,735	2,393,788	2,403,671
Liabilities																						
Term loan		735,146	810,146	806,924	803,508	799,888	796,050	791,982	787,670	783,099	778,254	773,118	767,675	761,904	755,787	749,304	742,431	735,146	735,146	735,146	735,146	735,146
Equity		1,715,340	1,715,340	1,716,166	1,697,641	1,681,292	1,667,032	1,654,779	1,644,457	1,635,994	1,629,324	1,624,386	1,621,124	1,619,486	1,619,424	1,620,895	1,623,862	1,628,289	1,634,147	1,641,409	1,649,589	1,658,642

Annex 6A: One week farm model retrofit (2020)

BUDGET ASSUMPTIONS				Overdraft						Lew, health, inspection	\$/pig	8.17
Debt interest			6%	10%	Debt no. of years	15				Classification deduction	\$/kg	0.09
Discount rate			4%		% debt finance	40%				Financial assumptions		
Production assumptions				3-week						Price		
No. of sows - opening			350							Pork	\$/pig	195.83
No. of boars			8							Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr			25.8	25.2	-2.4%					Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork			2.0%	2.0%	Replacement rate					Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork			3.5%	3.5%	Sows	175	50%	same as SC		Chopper	\$/kg	1.54
Choppers	30		8.5%		Boars	6	65%					
Pre-weaning			11.7%	13.8%				1-week		Gilt replacement	\$/gilt	539.15
Product mix					Pre-weaning mortality rate					Boar replacement	\$/boar	1600.00
Pork			4%		Total born per litter		13.8	13.8				
Bacon/Trim pork			96%		Born alive per litter	91.3%	12.6	12.6		Feed costs	Adjustment	1.1%
Carcass weight					Farrowing rate of sows		84.6%			Dry Sow	\$/tonne	548.97
Pork			50		Litters farrowed/mated female/yr		2.32	2.32		Lact.Sow	\$/tonne	635.01
Bacon/Trim pork			71.4		Pigs weaned per sow weaned		11.12	10.86		Creep	\$/tonne	1053.46
Choppers			142							Weaner	\$/tonne	789.59
Production volume										Grower	\$/tonne	590.42
Pork	pigs		354	346						Finisher	\$/tonne	565.15
Bacon/Trim pork	pigs		8,365	8,167								
Choppers	sows and boars		151							Feed consumption	kg	
Pork	kg		17,700							Dry Sow	680 per year	
Bacon/Trim pork	kg		597,261		Labour					Lact.Sow	550 per year	550
Choppers	Kg		21,442		Standard	units	2.5			Creep	8.5 per piglet	8.5
										Weaner	20.4 piglet to grower	
										Grower	86 grower to finish	
										Finisher	95 finishing stage	
Replacement cost	per sow place		\$500		Hours/day	-				Direct costs		
Replacement frequency	years		15		Labour rate/hr	\$20.43						
					Extra feed per sow					Animal Health	\$/sow	160.00
					Extra requirements/sow	0.00%	7% * 12/16			Semen	\$/dose	15.00
					Dry sow	\$/tonne	548.97			Semen	doses/yr	1,610
										Semen	Doses/sow/yr	4.60
Asset values					Depreciation	DV				Freight	\$/chopper	11.00
					Sow places (new)	10.0%				Freight	\$/pork or TP	5.00
					Buildings	5.0%				Labour unit	\$	42,500
Sows	\$/sow		300		Plant/equipment % sale	2.0%				Base owner wage	\$	42,500
Boars	\$/boar		1,200		R&M as % of sales	2.0%				Inflation rate 2010-15		
Growing stock	\$/pig		150							R&M+vehicles		12.3%
Growing stock	number		3,892		Swing-sided crates					Power		20.3%
					Retrofit capex	282,500				Insurance		18.4%
										Administration		11.2%
										Rates		24.0%
										General		4.0%
										Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,719	8,719	8,719	8,719	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512
Finacial																						
Cashflow																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	79,380	79,380	79,380	79,380	86,520	86,213	85,888	85,543	85,178	84,791	84,380	83,945	83,484	82,995	82,477	81,927	81,345	80,728	80,074
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	0	0	0	0	5,113	5,419	5,744	6,089	6,455	6,842	7,252	7,687	8,149	8,638	9,156	9,705	10,287	10,905	11,559
Capital expenditure (net of new debt)		47,090	47,090	47,090	47,090	47,090	245,590	45,989	45,989	45,989	45,989	95,989	45,989	45,989	45,989	45,989	65,989	45,989	45,989	45,989	45,989	95,989
Tax		811	1,371	1,903	2,409	2,889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow		49,086	48,526	47,994	47,488	47,008	(148,603)	12,524	12,524	12,524	12,524	(37,476)	12,524	12,524	12,524	12,524	(7,476)	12,524	12,524	12,524	12,524	(37,476)
Profit & Loss																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	92,090	90,190	88,385	86,671	114,792	109,168	105,020	101,214	97,718	94,506	91,551	88,833	86,329	84,022	81,894	79,930	78,116	76,440	74,889	73,454
Interest		79,380	79,380	79,380	79,380	79,380	86,520	86,213	85,888	85,543	85,178	84,791	84,380	83,945	83,484	82,995	82,477	81,927	81,345	80,728	80,074	78,544
Profit before drawings & tax		45,397	47,397	49,297	51,102	52,817	24,696	(3,042)	1,412	5,544	9,384	12,962	16,303	19,433	22,371	25,140	27,757	30,239	32,602	34,861	37,029	39,118
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	1,371	1,903	2,409	2,889	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit after tax		2,086	3,526	4,894	6,193	7,428	(17,804)	(45,542)	(41,088)	(36,956)	(33,116)	(29,538)	(26,197)	(23,067)	(20,129)	(17,360)	(14,743)	(12,261)	(9,898)	(7,639)	(5,471)	(3,382)
BALANCE SHEET																						
Current assets																						
Cash		49,086	97,612	145,606	193,094	240,102	91,499	104,023	116,547	129,071	141,595	104,119	116,643	129,167	141,691	154,215	146,739	159,263	171,787	184,311	196,835	159,359
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets		747,486	796,012	844,006	891,494	938,502	789,899	802,423	814,947	827,471	839,995	802,519	815,043	827,567	840,091	852,615	845,139	857,663	870,187	882,711	895,235	857,759
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	722,000	685,900	651,605	619,025	588,074	558,670	530,736	504,200	478,990	455,040	432,288	410,674	390,140	370,633	352,101	334,496	317,771	301,883	286,789	272,449
Equipment/vehicles	750,000	743,000	736,000	729,000	722,000	715,000	695,750	661,975	630,878	600,190	570,671	541,104	511,593	482,127	452,660	423,193	393,726	364,259	334,792	305,325	275,858	246,391
Total fixed assets		1,703,000	1,658,000	1,614,900	1,573,605	1,534,025	1,483,824	1,433,645	1,383,461	1,333,277	1,283,093	1,232,909	1,182,725	1,132,541	1,082,357	1,032,173	981,989	931,805	881,621	831,437	781,253	731,069
Total assets		2,450,486	2,454,012	2,458,906	2,465,099	2,472,527	2,573,723	2,523,068	2,476,561	2,433,860	2,394,655	2,358,663	2,325,624	2,295,305	2,267,489	2,241,980	2,218,599	2,197,182	2,177,579	2,159,652	2,143,276	2,128,336
Liabilities																						
Term loan		735,146	735,146	735,146	735,146	735,146	854,146	849,033	843,614	837,869	831,780	825,326	818,484	811,232	803,544	795,396	786,758	777,602	767,897	757,610	746,705	735,146
Equity		1,715,340	1,715,340	1,718,866	1,723,760	1,729,953	1,737,381	1,719,577	1,674,035	1,632,947	1,595,991	1,562,875	1,533,337	1,507,140	1,484,073	1,463,944	1,446,584	1,431,841	1,419,580	1,409,682	1,402,043	1,396,572

Annex 6B: One week farm model retrofit (2025)

BUDGET ASSUMPTIONS				Overdraft						Lew, health, inspection	\$/pig	8.17
Debt interest			6%	10%	Debt no. of years	15				Classification deduction	\$/kg	0.09
Discount rate			4%		% debt finance	12.5%				Financial assumptions		
Production assumptions				3-week						Price		
No. of sows - opening			350							Pork	\$/pig	195.83
No. of boars			8							Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr			25.8	25.2	-2.4%					Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork			2.0%	2.0%	Replacement rate					Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork			3.5%	3.5%	Sows	175	50%	same as SC		Chopper	\$/kg	1.54
Choppers	30		8.5%		Boars	6	65%					
Pre-weaning			11.7%	13.8%				1-week		Gilt replacement	\$/gilt	539.15
Product mix					Pre-weaning mortality rate					Boar replacement	\$/boar	1600.00
Pork			4%		Total born per litter		13.8	13.8				
Bacon/Trim pork			96%		Born alive per litter	91.3%	12.6	12.6		Feed costs	Adjustment	1.1%
Carcass weight					Farrowing rate of sows		84.6%			Dry Sow	\$/tonne	548.97
Pork			50		Litters farrowed/mated female/yr		2.32	2.32		Lact.Sow	\$/tonne	635.01
Bacon/Trim pork			71.4		Pigs weaned per sow weaned		11.12	10.86		Creep	\$/tonne	1053.46
Choppers			142							Weaner	\$/tonne	789.59
Production volume										Grower	\$/tonne	590.42
Pork	pigs		354	346						Finisher	\$/tonne	565.15
Bacon/Trim pork	pigs		8,365	8,167								
Choppers	sows and boars		151							Feed consumption	kg	
Pork	kg		17,700							Dry Sow	680 per year	
Bacon/Trim pork	kg		597,261		Labour					Lact.Sow	550 per year	550
Choppers	Kg		21,442		Standard	units	2.5			Creep	8.5 per piglet	8.5
										Weaner	20.4 piglet to grower	
										Grower	86 grower to finish	
										Finisher	95 finishing stage	
Replacement cost	per sow place		\$500		Hours/day	-				Direct costs		
Replacement frequency	years		15		Labour rate/hr	\$20.43				Animal Health	\$/sow	160.00
					Extra requirements/sow	0.00%	7% * 12/16			Semen	\$/dose	15.00
					Dry sow	\$/tonne	548.97			Semen	doses/yr	1,610
										Semen	Doses/sow/yr	4.60
Asset values					Depreciation	DV				Freight	\$/chopper	11.00
					Sow places (new)	10.0%				Freight	\$/pork or TP	5.00
					Buildings	5.0%				Labour unit	\$	42,500
Sows	\$/sow		300		Plant/equipment % sale	2.0%				Base owner wage	\$	42,500
Boars	\$/boar		1,200		R&M as % of sales	2.0%				Inflation rate 2010-15		
Growing stock	\$/pig		150							R&M+vehicles		12.3%
Growing stock	number		3,892		Swing-sided crates					Power		20.3%
					Retrofit capex	282,500				Insurance		18.4%
										Administration		11.2%
										Rates		24.0%
										General		4.0%
										Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512	8,512
Financial																						
Cashflow																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	81,611	81,515	81,414	81,306	81,192	81,071	80,943	80,807	80,662	80,510
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	0	0	0	0	0	0	0	0	0	1,598	1,694	1,795	1,903	2,017	2,138	2,266	2,402	2,546	2,699
Capital expenditure (net of new debt)		47,090	47,090	47,090	47,090	47,090	67,090	47,090	47,090	47,090	47,090	357,403	45,989	45,989	45,989	45,989	65,989	45,989	45,989	45,989	45,989	95,989
Tax		811	1,371	1,903	2,409	2,889	3,345	3,778	4,190	4,581	4,952	0	0	0	0	0	0	0	0	0	0	0
Net cash flow		49,086	48,526	47,994	47,488	47,008	26,552	46,119	45,707	45,316	44,945	(260,416)	20,948	20,948	20,948	20,948	948	20,948	20,948	20,948	20,948	(29,052)
Profit & Loss																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455	2,299,455
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718	1,956,718
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	92,090	90,190	88,385	86,671	85,042	83,494	82,024	80,627	79,300	107,790	102,516	98,701	95,211	92,015	89,088	86,405	83,943	81,684	79,609	77,702
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	81,611	81,515	81,414	81,306	81,192	81,071	80,943	80,807	80,662	80,510
Profit before drawings & tax		45,397	47,397	49,297	51,102	52,817	54,446	55,993	57,463	58,860	60,187	31,697	8,518	12,429	16,021	19,325	22,366	25,170	27,760	30,155	32,374	34,434
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	1,371	1,903	2,409	2,889	3,345	3,778	4,190	4,581	4,952	0	0	0	0	0	0	0	0	0	0	0
Profit after tax		2,086	3,526	4,894	6,193	7,428	8,601	9,715	10,774	11,779	12,735	(10,803)	(33,982)	(30,071)	(26,479)	(23,175)	(20,134)	(17,330)	(14,740)	(12,345)	(10,126)	(8,066)
BALANCE SHEET																						
Current assets																						
Cash		49,086	97,612	145,606	193,094	240,102	266,654	312,773	358,480	403,796	448,741	188,325	209,273	230,221	251,169	272,117	273,065	294,013	314,961	335,909	356,857	327,805
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets		747,486	796,012	844,006	891,494	938,502	965,054	1,011,173	1,056,880	1,102,196	1,147,141	886,725	907,673	928,621	949,569	970,517	971,465	992,413	1,013,361	1,034,309	1,055,257	1,026,205
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	722,000	685,900	651,605	619,025	588,074	558,670	530,736	504,200	478,990	455,040	432,288	410,674	390,140	370,633	352,101	334,496	317,771	301,883	286,789	272,449
Equipment/vehicles	750,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	1,010,750	976,975	945,878	917,190	890,671	886,104	863,293	842,064	822,258	803,732	836,359
Total fixed assets		1,703,000	1,658,000	1,614,900	1,573,605	1,534,025	1,516,074	1,479,670	1,444,736	1,411,200	1,378,990	1,665,790	1,609,263	1,556,551	1,507,330	1,461,304	1,438,205	1,397,790	1,359,835	1,324,140	1,290,521	1,308,808
Total assets		2,450,486	2,454,012	2,458,906	2,465,099	2,472,527	2,481,128	2,490,843	2,501,616	2,513,396	2,526,131	2,552,515	2,516,936	2,485,172	2,456,899	2,431,821	2,409,670	2,390,203	2,373,196	2,358,449	2,345,778	2,335,013
Liabilities																						
Term loan		735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	772,333	770,736	769,042	767,247	765,344	763,327	761,189	758,923	756,520	753,974	751,275
Equity		1,715,340	1,715,340	1,718,866	1,723,760	1,729,953	1,737,381	1,745,982	1,755,697	1,766,471	1,778,250	1,790,985	1,780,182	1,746,200	1,716,130	1,689,652	1,666,477	1,646,343	1,629,014	1,614,274	1,601,929	1,591,804

Annex 7A: Three week farm model (2020)

BUDGET ASSUMPTIONS										Lewy, health, inspection	\$/pig	8.17
Debt interest		6%		Debt no. of years	15					Classification deduction	\$/kg	0.09
Discount rate		5%		% debt finance	0.0%					Financial assumptions		
Production assumptions			3-week							Price		
No. of sows - opening		350								Pork	\$/pig	195.83
No. of boars		8								Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr		25.8	25.8	0.0%						Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork		2.0%	2.80%	Replacement rate						Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork		3.5%	4.90%	Sows	175	50%				Chopper	\$/kg	1.54
Choppers	30	8.5%		Boars	6	65%						
Pre-weaning		11.7%	11.7%					3-week		Gilt replacement	\$/gilt	539.15
Product mix				Pre-weaning mortality rate						Boar replacement	\$/boar	1600.00
Pork		4%		Total born per litter		13.8	13.5					
Bacon/Trim pork		96%		Born alive per litter	91.3%	12.6	12.3			Feed costs	Adjustment	1.1%
Carcass weight				Farrowing rate of sows		84.6%				Dry Sow	\$/tonne	548.97
Pork		50		Litters farrowed/mated female/yr		2.32	2.37			Lact.Sow	\$/tonne	635.01
Bacon/Trim pork		71.4		Pigs weaned per sow weaned		11.12	10.90			Creep	\$/tonne	1053.46
Choppers		142				2.24	9.94			Weaner	\$/tonne	789.59
Production volume										Grower	\$/tonne	590.42
Pork	pigs	354	351							Finisher	\$/tonne	565.15
Bacon/Trim pork	pigs	8,365	8,248									
Choppers	sows and boars	151								Feed consumption		
Pork	kg	17,700		Labour						Dry Sow	680 per year	
Bacon/Trim pork	kg	597,261		Standard	units	2.5				Lact.Sow	550 per year	470
Choppers	Kg	21,442								Creep	8.5 per piglet	11.5
										Weaner	20.4 piglet to grower	
				Extra labour per 250 sows						Grower	86 grower to finish	
										Finisher	95 finishing stage	
Replacement cost	per sow place	\$500		Hours/day		-				Direct costs		
Replacement frequency	years	15		Labour rate/hr		\$20.43				Animal Health	\$/sow	160.00
				Extra feed per sow						Semen	\$/dose	15.00
				Extra requirements/sow	0.00%	7% * 12/16				Semen	doses/yr	1,610
				Dry sow	\$/tonne	548.97				Semen	Doses/sow/yr	4.60
Asset values				Depreciation	DV					Freight	\$/chopper	11.00
				Sow places (new)	10.0%					Freight	\$/pork or TP	5.00
				Buildings	5.0%					Labour unit	\$	42,500
Sows	\$/sow	300		Plant/equipment % sale	2.0%					Base owner wage	\$	42,500
Boars	\$/boar	1,200		R&M as % of sales	2.0%					Inflation rate 2010-15		
Growing stock	\$/pig	150		Extra weaner accomodation						R&M+vehicles		12.3%
Growing stock	number	3,892		Building	sqm	60				Power		20.3%
				Capex	Most likely	60,000				Insurance		18.4%
					Low	40,000				Administration		11.2%
					High	80,000				Rates		24.0%
										General		4.0%
										Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,719	8,719	8,719	8,719	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599
Finacial																						
Cashflow																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure		47,090	47,090	47,090	47,090	47,090	67,090	46,451	46,451	46,451	46,451	96,451	46,451	46,451	46,451	46,451	66,451	46,451	46,451	46,451	46,451	96,451
Tax		811	1,371	1,903	2,409	2,889	2,295	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Net cash flow		49,086	48,526	47,994	47,488	47,008	27,602	32,637	32,637	32,637	32,637	(17,363)	32,637	32,637	32,637	32,637	12,637	32,637	32,637	32,637	32,637	(17,363)
Profit & Loss																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	92,090	90,190	88,385	86,671	88,792	86,417	84,769	83,203	81,715	80,302	78,959	77,684	76,472	75,321	74,228	73,189	72,202	71,264	70,374	69,527
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380
Profit before drawings & tax		45,397	47,397	49,297	51,102	52,817	50,696	35,171	36,819	38,385	39,873	41,286	42,629	43,904	45,116	46,267	47,360	48,399	49,386	50,324	51,214	52,060
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	1,371	1,903	2,409	2,889	2,295	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profit after tax		2,086	3,526	4,894	6,193	7,428	5,901	(7,329)	(5,681)	(4,115)	(2,627)	(1,214)	129	1,404	2,616	3,767	4,860	5,899	6,886	7,824	8,714	9,560
BALANCE SHEET																						
Current assets																						
Cash		49,086	97,612	145,606	193,094	240,102	192,704	225,341	257,978	290,615	323,252	305,889	338,526	371,163	403,800	436,437	449,074	481,711	514,348	546,985	579,622	562,259
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets		747,486	796,012	844,006	891,494	938,502	891,104	923,741	956,378	989,015	1,021,652	1,004,289	1,036,926	1,069,563	1,102,200	1,134,837	1,147,474	1,180,111	1,212,748	1,245,385	1,278,022	1,260,659
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	722,000	685,900	651,605	619,025	659,324	626,357	595,039	565,287	537,023	510,172	484,663	460,430	437,409	415,538	394,761	375,023	356,272	338,459	321,536	305,459
Equipment/vehicles	750,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000
Total fixed assets		1,703,000	1,658,000	1,614,900	1,573,605	1,534,025	1,587,324	1,547,357	1,509,039	1,472,287	1,437,023	1,453,172	1,420,663	1,389,430	1,359,409	1,330,538	1,322,761	1,296,023	1,270,272	1,245,459	1,221,536	1,248,459
Total assets		2,450,486	2,454,012	2,458,906	2,465,099	2,472,527	2,478,428	2,471,098	2,465,417	2,461,302	2,458,675	2,457,461	2,457,589	2,458,993	2,461,609	2,465,375	2,470,235	2,476,134	2,483,020	2,490,844	2,499,558	2,509,118
Liabilities																						
Term loan		735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146
Equity		1,715,340	1,718,866	1,723,760	1,729,953	1,737,381	1,743,282	1,735,953	1,730,272	1,726,157	1,723,529	1,722,315	1,722,444	1,723,847	1,726,463	1,730,229	1,735,090	1,740,988	1,747,874	1,755,698	1,764,412	1,773,972

Annex 7B: Three week farm model (2025)

BUDGET ASSUMPTIONS										Levy, health, inspection	\$/pig	8.17
Debt interest			6%		Debt no. of years	15				Classification deduction	\$/kg	0.09
Discount rate			5%		% debt finance	0.0%				Financial assumptions		
Production assumptions				3-week						Price		
No. of sows - opening			350							Pork	\$/pig	195.83
No. of boars			8							Bacon/Trim pork	\$/pig	269.58
Weaners/sow/yr			25.8	25.8	0.0%					Chopper	\$/pig	197.73
Mortality										Pork	\$/kg	4.17
Pork			2.0%	2.80%	Replacement rate					Bacon/Trim pork	\$/kg	3.98
Bacon/Trim pork			3.5%	4.90%	Sows	175	50%			Chopper	\$/kg	1.54
Choppers	30		8.5%		Boars	6	65%					
Pre-weaning			11.7%	11.7%				3-week		Gilt replacement	\$/gilt	539.15
Product mix					Pre-weaning mortality rate					Boar replacement	\$/boar	1600.00
Pork			4%		Total born per litter	13.8	13.5					
Bacon/Trim pork			96%		Born alive per litter	91.3%	12.6	12.3		Feed costs	Adjustment	1.1%
Carcass weight					Farrowing rate of sows	84.6%				Dry Sow	\$/tonne	548.97
Pork			50		Litters farrowed/mated female/yr	2.32	2.37			Lact.Sow	\$/tonne	635.01
Bacon/Trim pork			71.4		Pigs weaned per sow weaned	11.12	10.90			Creep	\$/tonne	1053.46
Choppers			142			2.24	9.94			Weaner	\$/tonne	789.59
Production volume										Grower	\$/tonne	590.42
Pork	pigs		354	351						Finisher	\$/tonne	565.15
Bacon/Trim pork	pigs		8,365	8,248								
Choppers	sows and boars		151							Feed consumption	kg	
Pork	kg		17,700		Labour					Dry Sow	680 per year	
Bacon/Trim pork	kg		597,261		Standard	units	2.5			Lact.Sow	550 per year	470
Choppers	Kg		21,442							Creep	8.5 per piglet	11.5
										Weaner	20.4 piglet to grower	
					Extra labour per 250 sows					Grower	86 grower to finish	
										Finisher	95 finishing stage	
Replacement cost	per sow place		\$500		Hours/day	-				Direct costs		
Replacement frequency	years		15		Labour rate/hr	\$20.43						
					Extra feed per sow					Animal Health	\$/sow	160.00
					Extra requirements/sow	0.00%	7% * 12/16			Semen	\$/dose	15.00
					Dry sow	\$/tonne	548.97			Semen	doses/yr	1,610
										Semen	Doses/sow/yr	4.60
Asset values					Depreciation	DV				Freight	\$/chopper	11.00
					Sow places (new)	10.0%				Freight	\$/pork or TP	5.00
					Buildings	5.0%				Labour unit	\$	42,500
Sows	\$/sow		300		Plant/equipment % sale	2.0%				Base owner wage	\$	42,500
Boars	\$/boar		1,200		R&M as % of sales	2.0%				Inflation rate 2010-15		
Growing stock	\$/pig		150							R&M+vehicles		12.3%
Growing stock	number		3,892		Extra weaner accomodation					Power		20.3%
					Building	sqm	60			Insurance		18.4%
					Capex	Most likely	60,000			Administration		11.2%
						Low	40,000			Rates		24.0%
						High	80,000			General		4.0%
										Interest		-5.5%

Final report: Economic analysis of farrowing systems

Summary - 350 sow		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Physical																						
Sows		350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Pigs sold		8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,719	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599	8,599
Financial																						
Cashflow																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Principal on loan		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Capital expenditure		47,090	47,090	47,090	47,090	47,090	67,090	47,090	47,090	47,090	47,090	97,090	46,451	46,451	46,451	46,451	66,451	46,451	46,451	46,451	46,451	96,451
Tax		811	1,371	1,903	2,409	2,889	3,345	3,778	4,190	4,581	4,952	4,255	0	0	0	861	1,177	1,477	1,762	2,033	2,290	2,535
Net cash flow		49,086	48,526	47,994	47,488	47,008	26,552	46,119	45,707	45,316	44,945	(4,358)	32,637	32,637	32,637	31,776	11,460	31,160	30,875	30,604	30,347	(19,898)
Profit & Loss																						
Income		2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,354,525	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535	2,322,535
Farm expenses		1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,985,565	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475	1,971,475
Overhead		150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092	150,092
Depreciation		94,090	92,090	90,190	88,385	86,671	85,042	83,494	82,024	80,627	79,300	81,790	79,765	78,449	77,200	76,012	74,884	73,812	72,794	71,827	70,908	70,035
Interest		79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380	79,380
Profit before drawings & tax		45,397	47,397	49,297	51,102	52,817	54,446	55,993	57,463	58,860	60,187	57,697	41,823	43,138	44,388	45,576	46,704	47,776	48,794	49,761	50,680	51,552
Drawings		42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500	42,500
Income tax		811	1,371	1,903	2,409	2,889	3,345	3,778	4,190	4,581	4,952	4,255	0	0	0	861	1,177	1,477	1,762	2,033	2,290	2,535
Profit after tax		2,086	3,526	4,894	6,193	7,428	8,601	9,715	10,774	11,779	12,735	10,942	(677)	638	1,888	2,215	3,027	3,798	4,531	5,228	5,889	6,518
BALANCE SHEET																						
Current assets																						
Cash		49,086	97,612	145,606	193,094	240,102	266,654	312,773	358,480	403,796	448,741	369,383	402,020	434,657	467,294	499,070	510,530	541,690	572,565	603,169	633,516	613,618
Breeding stock		114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600	114,600
Growing stock		583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800	583,800
Total current assets		747,486	796,012	844,006	891,494	938,502	965,054	1,011,173	1,056,880	1,102,196	1,147,141	1,067,783	1,100,420	1,133,057	1,165,694	1,197,470	1,208,930	1,240,090	1,270,965	1,301,569	1,331,916	1,312,018
Fixed assets																						
Land, less house and curtilagehouse		200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
Farm and buildings																						
Buildings	800,000	760,000	722,000	685,900	651,605	619,025	588,074	558,670	530,736	504,200	478,990	526,290	499,976	474,977	451,228	428,667	407,233	386,872	367,528	349,152	331,694	315,109
Equipment/vehicles	750,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000	736,000	729,000	722,000	715,000	728,000	721,000	714,000	707,000	700,000	743,000
Total fixed assets		1,703,000	1,658,000	1,614,900	1,573,605	1,534,025	1,516,074	1,479,670	1,444,736	1,411,200	1,378,990	1,469,290	1,435,976	1,403,977	1,373,228	1,343,667	1,335,233	1,307,872	1,281,528	1,256,152	1,231,694	1,258,109
Total assets		2,450,486	2,454,012	2,458,906	2,465,099	2,472,527	2,481,128	2,490,843	2,501,616	2,513,396	2,526,131	2,537,073	2,536,396	2,537,034	2,538,922	2,541,137	2,544,163	2,547,962	2,552,493	2,557,721	2,563,610	2,570,127
Liabilities																						
Term loan		735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146	735,146
Equity		1,715,340	1,718,866	1,723,760	1,729,953	1,737,381	1,745,982	1,755,697	1,766,471	1,778,250	1,790,985	1,801,927	1,801,250	1,801,888	1,803,776	1,805,991	1,809,017	1,812,816	1,817,347	1,822,575	1,828,464	1,834,982