

PigGas Report 47 – 600 sow, farrow to finish, conventional and deep litter piggery, Vic.

December 2014



Production details

This is a medium sized family owned conventional and deep litter piggery. All pigs apart from the weaners are housed in conventional naturally ventilated sheds. The weaner pigs are housed in straw-based deep litter sheds. Finisher pigs are sold into domestic market to private butchers at an average of 96 kg live weight.



Feed consumption

All cereal grains used in feed rations are grown, milled and mixed on-site into dry feed rations for the different classes of pigs.

Total feed consumed by all pigs is 2,897 t/yr. Saline bore water used in the piggery is treated in an on-site desalination plant.



Sales/Tranfers

8,904 pigs/yr are sold with a total dressed weight of 657 t/yr.

Waste management systems

The conventional sheds have a combination of flushed and underfloor pit storage (pull plug) systems. Effluent is regularly flushed and drained from the conventional sheds to a primary anaerobic treatment pond which is followed by a secondary treatment pond and a large tertiary evaporation/storage pond. The deep litter weaner sheds are filled to about 300 mm depth with cereal straw which absorbs manure.



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Manure reuse systems

The effluent from the pond system is evaporated each year. No effluent is irrigated. Every few years, the anaerobic and secondary ponds are mechanically stirred and emptied of sludge solids by vacuum tanker. The tanker spreads the sludge onto land used for cereal cropping. The spent litter solids are removed from the weaner sheds at the end of each batch, stockpiled and spread on cropping land each year. The total area of land used for cropping wheat, barley and peas is approximately 2,600 hectares.



On-Farm Baseline Emissions

The current baseline emissions for this piggery total **3,230 tonnes CO₂-e/yr** with an emissions intensity of **4.92 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

The owners are currently considering the feasibility of either constructing a covered anaerobic pond to capture and use biogas (methane) in a genset, or to install solar panels, to generate electricity to replace all site electricity used in the piggery.

The scenario modelled was:

- (a) to install covered anaerobic pond and burn methane in a genset to replace all piggery electricity, and;
- (b) to reduce feed wastage in the dry sows, growers and finishers (10% to 5%) and in the weaners (15% to 10%).

This scenario (see table below) reduced on-farm emissions **from 3,230 t/yr to 1,009 t/yr** and reduced kg CO₂-e/kg HSCW **from 4.92 to 1.54 (69% reduction)**.



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Annual Greenhouse Gas Emissions Profile (calculated using PigGas)

Emissions	Current Emissions Baseline	Reduction Scenario (kg CO ₂ -e/yr)
Pre-farm		
Grain	724,349	689,169
Milling & delivery	0	0
Pig freight	231	231
Straw & bedding	4,109	4,109
Total Pre-farm	728,689	693,509
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	244,421	0
Fuel - stationary	170,320	170,320
Fuel - transport	70,152	70,152
<i>Enteric CH₄</i>	99,039	99,039
<i>Manure management</i>		
MMS CH ₄	2,160,711	201,264
MMS – direct N ₂ O	190,500	177,013
MMS – Atmos. deposition N ₂ O	106,274	36,342
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	146,650	197,587
Soil – leaching & runoff N ₂ O	42,235	56,905
<i>Offsets</i>	0	0
Total On-farm	3,230,301	1,008,620
Post-farm		
Pig freight	0	0
Meat processing	264,079	264,079
Exported manure	0	0
Total Post-farm	264,079	264,079
Dressed weight sold - HSCW (kg/yr)	657,015	657,015
Carbon footprint	(kg CO₂-e / kg HSCW)	(kg CO₂-e / kg HSCW)
Pre-farm	1.11	1.06
On-farm	4.92	1.54
Post-farm	0.40	0.40
Total	6.43	2.99



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