

PigGas Report 12 – 540 sow, farrow to finish, conventional piggery, Qld.

December 2013



Production details

This is a family owned conventional piggery, with breeding and growing pigs on one site in five naturally ventilated sheds. Pigs are sold for the domestic pork market at 95 kg live weight.

Feed consumption

Some of the cereals used in the pig diets, particularly grain sorghum, are grown on-site with other cereals purchased off-site. All feeds are milled and mixed on-site. Total feed consumed by pigs is 2,697 t/yr.

Sales/Tranfers

7,863 pigs/yr are sold with a total dressed weight of 603 t/yr. The owners deliver the pigs to the abattoir using their own truck. Being a closed herd, for biosecurity reasons, no stock are transferred in to this piggery.

Waste management systems

Manure is flushed from each shed in underfloor drains using treated and recycled effluent. Three treatment ponds in series treat the flushed piggery effluent. Effluent from the 1.7 ML primary anaerobic pond flows to a secondary 3.5 ML facultative pond and then to a third 3.5 ML holding pond from which effluent is recycled and irrigated. Two trenches constructed beside the treatment ponds are used to collect and dry excavated pond sludge as required.

Manure reuse systems

Effluent from the holding pond is irrigated to pasture which is used for grazing cattle. Excavated pond sludge is used as fertilizer and spread on cereal cropping land. Total property area is 480 ha which is used to crop summer and winter cereals.



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On-Farm Baseline Emissions

The current baseline emissions for this piggery total **3,510 tonnes CO₂-e/yr** with an emissions intensity of **5.82 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

Like most conventional piggeries with anaerobic ponds, the majority of emissions on this piggery (2,941 t CO₂-e/y or 84%) come from pond methane.

The owners are considering covering the primary anaerobic pond to capture and reuse methane to generate electricity to replace that used on-site. As well as the electricity used to mill and mix feeds, electric bar heaters are used to heat suckers and weaner pigs. Total annual use of electricity on site is currently 200,750 kWh per year.

This scenario (see table below) reduced on-farm emissions **from 3,510 t/yr to 723 t/yr** and reduced kg CO₂-e/kg HSCW **from 5.82 to 1.20 (79% reduction)**.

The piggery owners are currently investigating costs and feasibility of carrying out the project.



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Annual Greenhouse Gas Emissions Profile (calculated using PigGas)

Emissions	Current Emissions Baseline (kg CO ₂ -e/yr)	Reduction Scenario (kg CO ₂ -e/yr)
Pre-farm		
Grain	674,133	674,133
Milling & delivery		
Pig freight		
Straw & bedding		
Total Pre-farm	674,133	674,133
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	176,659	
Fuel - stationary		
Fuel - transport	12,886	12,886
<i>Enteric CH₄</i>	95,436	95,436
<i>Manure management</i>		
MMS CH ₄	2,941,222	326,802
MMS – direct N ₂ O	25,315	25,315
MMS – Atmos. deposition N ₂ O	101,260	
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	151,636	252,896
Soil – leaching & runoff N ₂ O	6,084	10,147
<i>Offsets</i>		
Total On-farm	3,510,498	723,483
Post-farm		
Pig freight		
Meat processing	241,249	241,249
Exported manure		
Total Post-farm		
Dressed weight sold - HSCW (kg/yr)	603,123	603,123
Carbon footprint	(kg CO₂-e / kg HSCW)	(kg CO₂-e / kg HSCW)
Pre-farm	1.12	1.12
On-farm	5.82	1.20
Post-farm	0.40	0.40
Total	7.34	2.72



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