

PigGas Report 26 – 12,000 pig finisher unit, conventional piggery, Qld.

February 2014



Production details

This is a large family owned grow-out piggery. Weaner pigs, transferred from a breeder piggery are grown to sale weights on this site in conventional naturally ventilated sheds.

Feed consumption

Pigs are fed a pelleted diet sourced from a local commercial supplier. The diet is based on locally grown cereals. The annual feed consumption on this site is 7,069 tonnes.

Sales/Tranfers

28,679 weaners/yr are transferred to this site from a separate breeding facility. Pigs are grown and marketed from 75kg live weight with the majority of the pigs sold as heavy finishers for domestic consumption at 113 kg live weight. 26,998 pigs/yr are sold with a total dressed weight of 2,034 t/yr.

Waste management systems

Manure is washed and manually flushed from each shed in underfloor drains into a two stage in-series anaerobic pond system. After moving through the primary pond effluent moves to a secondary pond which allows reuse and wet weather storage.



The National PigGas Extension Project is funded by Ian Kruger Consulting, the Australian Government and Australian Pork Limited.

Ian Kruger Consulting

Manure reuse systems

Treated effluent from the second stage anaerobic holding pond is reused for flushing in the piggery and can be irrigated on surrounding cropland using a fixed sprinkler irrigation system.



On-Farm Baseline Emissions

The current baseline emissions for this piggery total **7,976 tonnes CO₂-e/yr** with an emissions intensity of **3.92 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

Like most conventional piggeries with anaerobic ponds, the majority of emissions on this piggery come from pond methane.

The impact of covering the primary anaerobic pond and flaring the gas was considered. This scenario (see table below) reduced on-farm emissions **from 7,976 t/yr to 1,993 t/yr** and reduced kg CO₂-e/kg HSCW **from 3.92 to 0.98 (75 % reduction)**.

Covering the primary anaerobic pond and flaring the biogas will reduce emissions by approximately 6,000 t/yr. However, the economic viability of this option needs to be checked by experts as it will depend on the ability of future carbon prices to offset the capital cost in a reasonable pay-back period of approximately 10 years or less.

As the piggery is a grower unit only, it has a relatively low energy demand compared with a breeder or farrow to finish piggery. Investment in electricity generation from captured methane on this site is therefore unlikely to be economical because most of the power generated would have to be fed back into the grid at very low financial returns compared with replacing on-site electricity use. This additional option was therefore not modelled.

PigGas Report 26 – 12,000 pig finisher unit, conventional piggery, Qld.

February 2014

Annual Greenhouse Gas Emissions Profile (calculated using PigGas)

Emissions	Current Emissions Baseline	Reduction Scenario (kg CO ₂ -e/yr)
Pre-farm		
Grain	1,767,353	1,767,353
Milling & delivery	339,332	339,332
Pig freight	5,159	5,159
Straw & bedding		
Total Pre-farm	2,111,844	2,111,844
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	132,000	132,000
Fuel - stationary	24,784	24,784
Fuel - transport	4,285	4,285
<i>Enteric CH₄</i>	257,450	257,450
<i>Manure management</i>		
MMS CH ₄	6,744,089	749,343
MMS – direct N ₂ O	72,450	72,450
MMS – Atmos. deposition N ₂ O	289,800	0
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	433,976	723,776
Soil – leaching & runoff N ₂ O	17,413	29,042
<i>Offsets</i>		
Total On-farm	7,976,247	1,993,129
Post-farm		
Pig freight	76,232	76,232
Meat processing	870,210	870,210
Exported manure		
Total Post-farm	946,443	946,443
Dressed weight sold - HSCW (kg/yr)	2,034,227	2,034,227
Carbon footprint	(kg CO₂-e / kg HSCW)	(kg CO₂-e / kg HSCW)
Pre-farm	1.04	1.04
On-farm	3.92	0.98
Post-farm	0.47	0.47
Total	5.42	2.48



The National PigGas Extension Project is funded by Ian Kruger Consulting, the Australian Government and Australian Pork Limited.

Ian Kruger Consulting