

PigGas Report 39 – 675 sow, farrow to weaner, conventional piggery, Qld

September 2014



Production details

This is a corporately owned medium sized conventional piggery which is operated primarily as a multiplier herd to produce gilts at 115 kg live weight for this piggery and others. A large number of weaner pigs at 22 kg live weight are also produced for growing out at other piggeries. Some grower and finisher pigs are also grown on-site and sold at a range of weights averaging 65 kg live weight for sale into domestic retail markets. Pigs are grown in combination of naturally and mechanically ventilated sheds.

Feed consumption

All feed supplied to the piggery is purchased off-site as milled and mixed rations from a commercial feed company. The total feed consumed is 1,734 t/yr.

Sales/Tranfers

Approximately 180 gilts are purchased from a remote piggery each year and brought onto the piggery. Approximately, 13,488 pigs/yr, comprising weaners, growers, gilts and culled sows are sold with a total net dressed weight of 369 t/yr.

Waste management systems

Manure is flushed from each shed in underfloor drains to three separate primary anaerobic ponds. Pond effluent is recycled for shed flushing.



Manure reuse systems

Effluent from the three primary anaerobic ponds is regularly irrigated to approximately 140 ha of grassed pasture used for cattle grazing.



On-Farm Baseline Emissions

The current baseline emissions for this piggery total **2,211 tonnes CO₂-e/yr** with an emissions intensity of **5.99 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

On this piggery, there were no real options to reduce greenhouse gas emissions through improved feed efficiency or wastage or through changes to manure management systems or land application. The majority of emissions on this piggery come from pond methane. The piggery management considered capturing and combusting pond methane to generate electricity. However, on this relatively small piggery, the cost is likely to be prohibitive and payback period possibly greater than 10 years.

The most viable alternative being considered by the piggery management is to offset all the electricity used at the site by installing a 100 kW solar panel array. Given the current and possible future cost of electricity, this alternative is likely to pay back installation cost in 3-5 years.

This scenario (see table below) reduced on-farm emissions **from 2,211 t/yr to 2,006 t/yr** and reduced kg CO₂-e/kg HSCW **from 5.99 to 5.44 (9% reduction)**.

The piggery owners intend to investigate more closely, the technical and financial feasibility of installing a solar panel array at the piggery to match site electricity usage.

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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	433,444	433,444
Milling & delivery	83,221	83,221
Pig freight	2,914	2,914
Straw & bedding		
Total Pre-farm	519,580	519,580
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	204,789	204,789
Fuel - stationary	3,102	3,102
Fuel - transport	0	0
<i>Enteric CH₄</i>	61,759	61,759
<i>Manure management</i>		
MMS CH ₄	1,729,364	1,729,364
MMS – direct N ₂ O	18,895	18,895
MMS – Atmos. deposition N ₂ O	75,578	75,578
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	113,179	113,179
Soil – leaching & runoff N ₂ O	4,541	4,541
<i>Offsets (100 kW Solar panels- all site elec)</i>	0	-204,789
Total On-farm	2,211,206	2,006,417
Post-farm		
Pig freight	3,930	3,930
Meat processing	153,032	153,032
Exported manure		
Total Post-farm	156,963	156,963
Dressed weight sold - HSCW (kg/yr)	368,937	368,937
Carbon footprint	(kg CO₂-e / kg HSCW)	(kg CO₂-e / kg HSCW)
Pre-farm	1.41	1.41
On-farm	5.99	5.44
Post-farm	0.43	0.43
Total	7.83	7.27



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Ian Kruger Consulting