

PigGas Report 41 – 2,000 sow, breeder only, conventional piggery, Qld

September 2014



Production details

This is a large corporately owned, conventional breeder only, piggery which produces weaned piglets at 22 days of age and 6.5 kg live weight. The piglets are sold and transported off-site to another piggery where they are grown out for retail markets. All pigs on-site are bred in naturally 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 2,365 t/yr.

Sales/Tranfers

Approximately 1,000 gilts/yr are purchased from a remote piggery each year and brought onto the piggery. Approximately, 45,500 pigs/yr, comprising mainly weaned piglets and some culled sows and boars are sold with a total net dressed weight of 303 t/yr.

Waste management systems

Manure is flushed from each shed in underfloor drains to two separate primary anaerobic ponds. Effluent from these primary ponds flow to a secondary treatment pond followed by a tertiary storage pond.



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

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Manure reuse systems

Effluent is recycled from the storage pond for shed flushing as well as being irrigated to pasture used for cattle grazing. Approximately 30% of total pond effluent, including sludge, is exported off-site to a neighbouring property to replace conventional fertiliser in cropping operations.

On-Farm Baseline Emissions

The current baseline emissions for this piggery total **2,580 tonnes CO₂-e/yr** with an emissions intensity of **8.53 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

The piggery owners are considering installing either solar panels or a covered pond digester to generate up to 50% of the piggery's electricity consumption.

To yield maximum greenhouse gas mitigation, the scenario modelled was to install a new covered anaerobic pond at the site to replace the existing two anaerobic ponds. Since it may be possible to replace about 50% of the current electricity consumption with a biogas fuelled genset, this option was also modelled.

This scenario (see table below) reduced on-farm emissions **from 2,580 t/yr to 700 t/yr** and reduced kg CO₂-e/kg HSCW **from 8.53 to 2.31 (73% reduction)**.

The piggery owners need to obtain specialist assessment of the technical and financial feasibility of this biogas electricity generation option versus the solar power option.

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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	591,130	591,130
Milling & delivery	113,497	113,497
Pig freight	744	744
Straw & bedding		
Total Pre-farm	705,371	705,371
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	432,960	216,480
Fuel - stationary	10,453	10,453
Fuel - transport	0	0
<i>Enteric CH₄</i>	79,226	79,226
<i>Manure management</i>		
MMS CH ₄	1,844,011	204,890
MMS – direct N ₂ O	22,798	22,798
MMS – Atmos. deposition N ₂ O	91,193	0
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	95,593	159,429
Soil – leaching & runoff N ₂ O	3,836	6,397
<i>Offsets</i>	0	0
Total On-farm	2,580,070	699,673
Post-farm		
Pig freight	2,946	2,946
Meat processing	163,453	163,453
Exported manure	42,612	71,068
Total Post-farm	209,012	237,467
Dressed weight sold - HSCW (kg/yr)	302,512	302,512
Carbon footprint	(kg CO₂-e / kg HSCW)	(kg CO₂-e / kg HSCW)
Pre-farm	2.33	2.33
On-farm	8.53	2.31
Post-farm	0.69	0.78
Total	11.55	5.43



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