

PigGas Report 54 – 1,288 sow, farrow to finish, conventional and deep litter piggery, NSW.

May 2015



Production details

This is a large family owned conventional and deep litter piggery. Sows are artificially inseminated in this closed herd. Most of the pigs are housed in conventional naturally ventilated sheds. Weaner pigs and some lactating sows are housed in mechanically ventilated climate controlled sheds. Approximately 25% of the dry sows are housed in a deep litter shed.



Feed consumption

Cereal grains and other feed ingredients are purchased off-site and milled and mixed on-site into a range of feed rations. Total feed consumed by all pigs is 4,991 t/yr.



Sales/Transfers

Finisher pigs are sold into domestic and export markets at a range of weights from 75 to 105 kg live weight. A total of 26,810 pigs are sold with a dressed weight of 1,180 t/yr. This includes 12,078 weaners which are transferred off-site at 16 kg live weight for growing out at a remote piggery.

Waste management systems

The conventional sheds have either drains that are flushed with fresh water or underfloor pit storage drains. Effluent from 55% of the herd is drained from sheds to a run-down screen prior to entering an anaerobic pond followed by a facultative storage pond. Effluent from the remaining 45% of the herd drains from sheds directly to the pond system. Spent litter from the deep litter shed is stockpiled together with separated solids from the run-down screen and composted carcasses.



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Manure reuse systems

Effluent from the storage pond is irrigated to approximately 160 hectares of pastures used for grazing cattle. Stockpiled screened solids, spent litter and composted carcasses are spread to dryland pasture used for cattle grazing. The total farm area is approximately 600 hectares, some of which is used for cropping soybeans and wheat.



On-Farm Baseline Emissions

The current baseline emissions for this piggery total **5,370 tonnes CO₂-e/yr** with an emissions intensity of **4.55 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

To reduce emissions, the scenario modelled was to construct a new covered primary anaerobic pond to capture biogas and burn it in a genset to generate electricity, offsetting all electricity currently used on-site.

This scenario (see table below) will reduce on-farm emissions **from the current 5,370 t/yr to 1,395 t/yr** and reduce emissions intensity from **4.55 to 1.18 kg CO₂-e/kg HSCW (74%)**.

The owners have already undertaken a commercial feasibility study on this option and are currently considering implementing a biogas project.

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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	1,247,871	1,247,871
Milling & delivery	0	0
Pig freight	0	0
Straw & bedding	325	325
Total Pre-farm	1,248,196	1,248,196
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	441,948	0
Fuel - stationary	25,801	25,801
Fuel - transport	0	0
<i>Enteric CH₄</i>	182,162	182,162
<i>Manure management</i>		
MMS CH ₄	3,978,520	473,014
MMS – direct N ₂ O	140,698	85,339
MMS – Atmos. deposition N ₂ O	226,436	6,936
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	332,678	552,731
Soil – leaching & runoff N ₂ O	41,793	69,437
<i>Offsets</i>	0	0
Total On-farm	5,370,036	1,395,421
Post-farm		
Pig freight	25,576	25,576
Meat processing	471,885	471,885
Exported manure	0	0
Total Post-farm	497,461	497,461
Dressed weight sold - HSCW (kg/yr)	1,179,711	1,179,711
Carbon footprint	(kg CO₂-e / kg HSCW)	(kg CO₂-e / kg HSCW)
Pre-farm	1.06	1.06
On-farm	4.55	1.18
Post-farm	0.42	0.42
Total	6.03	2.66