

PigGas Report 5 – 200 sow, farrow to finish, conventional piggery, NSW.

September 2013

Production details

This is an old conventional piggery, with breeding and growing pigs on one site in a combination of naturally ventilated and fan ventilated sheds. The majority of the pigs are sold as finishers for the domestic market at 100 kg live weight. A small number of weaner pigs are sold each year for a whole roast suckling pig market.



Feed consumption

All feed grain is purchased off-site and milled on-site. Total feed consumed is 1,125 t/yr.

Sales/Tranfers

4,223 pigs/yr are sold with a total dressed weight of 322.5 t/yr.

Waste management systems

All pigs apart from the porkers, weighing between 26 kg and 44 kg, are housed in concrete pens with effluent drains that are either flushed or hand hosed to remove manure from the sheds. Effluent from the sheds passes over a run-down screen which removes some solids before flowing to a primary anaerobic pond and a secondary facultative treatment pond.



The porkers are housed indoors in straw-based deep litter pens which are cleaned out using a skid steer loader.

Manure reuse systems

Effluent from the secondary treatment pond is irrigated to pastures used for grazing cattle and for growing fodder crops which are cut and baled for cattle feed. Manure solids from the run-down screens are spread directly to pasture. Approximately half of the spent litter solids from the weaner pens are spread on the pasture and half the solids are sold to neighbours as organic fertiliser. Total property area is 650 hectares, of which 450 hectares is under pasture production.





On-Farm Baseline Emissions

The current baseline emissions for this piggery total **1,072 tonnes CO₂-e/yr** with an emissions intensity of **3.32 kg CO₂-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

There are two options to reduce greenhouse gas emissions. The first is to convert conventional flushed grower accommodation, for pigs weighing between 44 kg and 94 kg, to straw-based deep litter. The second is to cover the pond to capture and flare methane. Both options will also reduce odour emissions from the piggery to safeguard neighbours' amenity. These two options were combined in the reduction scenario modelled.

This scenario (see table below) reduced on-farm emissions **from 1,072 t/yr to 369 t/yr** and reduced kg CO₂-e/kg HSCW **from 3.32 to 1.15 (66% reduction)**.

The piggery staff are currently converting existing sheds to house grower pigs in straw-based deep litter pens. This will yield 43% of the modelled greenhouse gas emissions reduction and will reduce site odour emissions as well. Covering the primary anaerobic pond and flaring the biogas will yield the remaining 57% of the modelled scenario reduction. The latter option may be adopted if odour nuisance with neighbours re-emerges in the future or if the cost of pond covering and flaring for small piggeries reduces.



PigGas Report 5 – 200 sow, farrow to finish, conventional piggery, NSW.

September 2013

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	281,334	281,334
Milling & delivery	0	0
Pig freight	0	0
Straw & bedding	6,848	23,970
Total Pre-farm	288,182	305,303
On-farm		
<i>Fuels & energy</i>		
Purchased electricity	116,804	116,804
Fuel - stationary	616	616
Fuel - transport	17,855	17,855
<i>Enteric CH₄</i>	38,533	38,533
<i>Manure management</i>		
MMS CH ₄	793,321	69,997
MMS – direct N ₂ O	31,311	55,008
MMS – Atmos. deposition N ₂ O	29,151	11,340
<i>Waste applied to soil</i>		
Soil – direct N ₂ O	39,266	52,718
Soil – leaching & runoff N ₂ O	4,933	6,623
Total On-farm	1,071,789	369,492
Post-farm		
Pig freight	9,115	9,115
Meat processing	129,012	129,012
Exported manure	2,877	7,517
Total Post-farm	141,004	145,644
Dressed weight sold - HSCW (kg/yr)	322,529	322,529
Carbon footprint		
Pre-farm	0.89	0.95
On-farm	3.32	1.15
Post-farm	0.44	0.45
Total	4.65	2.54



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

Ian Kruger Consulting