

# PigGas Report 21 – 2,976 sow, farrow to finish and weaner production, conventional piggery, Qld.

December 2013

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## Production details

This is a large family owned conventional piggery, with breeding and growing pigs on this site in naturally ventilated sheds. Approximately 45% of the weaners from this site are transferred to a separate grower facility. Pigs are marketed from 73kg live weight with the majority of the pigs sold as heavy finishers for domestic consumption at 108 kg live weight.

## 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 10,922 tonnes.

## Sales/Tranfers

59,921 pigs/yr are sold with a total dressed weight of 2,406 t/yr.

## Waste management systems

Manure is automatically flushed from each shed in underfloor drains to two large collection sumps.

Effluent from the breeders and weaners pass over a run-down screen before entering a two stage lagoon system. Solids are extracted from the effluent stream from the grower herd using a screw press before then entering the two stage lagoon system. Solids extracted by the screw press and run-down screens are sold off site.



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

Treated effluent from the anaerobic holding ponds is reused for flushing in the piggery and can be irrigated on surrounding pastures if required.



## On-Farm Baseline Emissions

The current baseline emissions for this piggery total **12,086 tonnes CO<sub>2</sub>-e/yr** with an emissions intensity of **5.02 kg CO<sub>2</sub>-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.

As this piggery has gas fired under-floor water heating the reduction scenario modelled covering a primary lagoon and generating electricity from the methane collected. It was also anticipated a heat exchange unit would be install to collect surplus heat from the generator motor and this could be utilized in the under floor heating system. It was anticipated that the piggery would be self-sufficient for electricity and reduce gas consumption by approximately 60%.

This scenario (see table below) reduced on-farm emissions **from 12,086 t/yr to 2,388 t/yr** and reduced kg CO<sub>2</sub>-e/kg HSCW **from 5.02 to 0.99 (80% reduction)**.



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## Annual Greenhouse Gas Emissions Profile (calculated using PigGas)

Emissions	Current Emissions Baseline (kg CO <sub>2</sub> -e/yr)	Reduction Scenario (kg CO <sub>2</sub> -e/yr)
<b>Pre-farm</b>		
Grain	2,730,603	2,730,603
Milling & delivery	524,276	524,276
Pig freight		
Straw & bedding	3,196	3,196
<b>Total Pre-farm</b>	<b>3,258,075</b>	<b>3,258,075</b>
<b>On-farm</b>		
<i>Fuels &amp; energy</i>		
Purchased electricity	1,170,360	0
Fuel - stationary	107,390	52,157
Fuel - transport		0
<i>Enteric CH<sub>4</sub></i>	383,634	383,634
<i>Manure management</i>		
MMS CH <sub>4</sub>	9,545,182	1,060,576
MMS – direct N <sub>2</sub> O	78,275	78,275
MMS – Atmos. deposition N <sub>2</sub> O	313,100	0
<i>Waste applied to soil</i>		
Soil – direct N <sub>2</sub> O	468,868	781,968
Soil – leaching & runoff N <sub>2</sub> O	18,813	31,376
<i>Offsets</i>		
<b>Total On-farm</b>	<b>12,085,622</b>	<b>2,387,986</b>
<b>Post-farm</b>		
Pig freight	169,194	169,194
Meat processing	962,328	962,328
Exported manure	192,976	192,976
<b>Total Post-farm</b>	<b>1,324,498</b>	<b>1,324,498</b>
<b>Dressed weight sold - HSCW (kg/yr)</b>	<b>2,405,819</b>	<b>2,405,819</b>
<b>Carbon footprint</b>	<b>(kg CO<sub>2</sub>-e / kg HSCW)</b>	<b>(kg CO<sub>2</sub>-e / kg HSCW)</b>
Pre-farm	1.35	1.35
<b>On-farm</b>	<b>5.02</b>	<b>0.99</b>
Post-farm	0.55	0.55
<b>Total</b>	<b>6.93</b>	<b>2.90</b>



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