

# PigGas Report 11 – 4000 pig, conventional grow-finish piggery, Qld.

September 2013

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## Production details

This is a family owned conventional grow-out piggery. Pigs are transported to this site at 7 weeks of age weighing approximately 40 kg. They are housed in 10 sheds on site, with 3 of these sheds currently not in use. Most of the pigs are sold as heavy finishers at an average live weight of 103 kg.

## Feed consumption

Feed is purchased as a total mixed ration from an off-site supplier. The piggery currently uses a feed that predominantly consists of sorghum and wheat, with total feed consumed at 2,896 t/yr.

## Sales/Tranfers

14,040 pigs/yr are sold with a total dressed weight of 1,151 t/yr.

## Waste management systems

The waste management system consists of a mixture of flushing and pull plug, with plugs pulled on a regular basis. Effluent is then channelled directly to a series of three anaerobic treatment ponds. No solid separation is undertaken at present.

## Manure reuse systems

Land application of effluent from the anaerobic ponds occurs with effluent spread to Lucerne cropping and improved pastures. The property consists of 2,200 acres of cultivation land, with Lucerne cropping on 60 acres. The property also consists of 800 acres of pastures for cattle grazing.



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

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### On-Farm Baseline Emissions

The current baseline emissions for this piggery total **3,510 tonnes CO<sub>2</sub>-e/yr** with an emissions intensity of **5.04 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. The piggery owners are currently investigating the feasibility of installing a pond cover and using captured methane to offset electricity usage at the site. The piggery owners are also contemplating installing a screw press solid extraction system. Therefore, the on-farm emissions reduction scenario investigated involved installing a screw press solid extraction system as well as covering the pond to capture methane. Captured methane was assumed to offset all electricity use at the site. Any excess electricity was assumed to be fed into the state grid in this on-farm emissions reduction scenario.

This scenario reduced on-farm emissions **from 3,510 tonnes CO<sub>2</sub>-e/yr to 738 tonnes CO<sub>2</sub>-e/yr** and reduced kg CO<sub>2</sub>-e/kg HSCW **from 5.04 to 1.06**. This represents a **79% reduction** in on-farm emissions of CO<sub>2</sub>-e. The results are shown in the table below.

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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	724,000	724,000
Milling & delivery	139,008	139,008
Pig freight	5,573	5,573
Straw & bedding		
<b>Total Pre-farm</b>	<b>868,581</b>	<b>868,581</b>
<b>On-farm</b>		
<i>Fuels &amp; energy</i>		
Purchased electricity	89,639	0
Fuel - stationary	139,500	139,500
Fuel - transport	12,378	12,378
<i>Enteric CH<sub>4</sub></i>	101,777	101,777
<i>Manure management</i>		
MMS CH <sub>4</sub>	2,887,779	266,317
MMS – direct N <sub>2</sub> O	24,858	60,280
MMS – Atmos. deposition N <sub>2</sub> O	99,432	8,390
<i>Waste applied to soil</i>		
Soil – direct N <sub>2</sub> O	148,899	239,587
Soil – leaching & runoff N <sub>2</sub> O	5,975	9,613
<i>Offsets</i>		
Excess electricity to grid		(100,000)
<b>Total On-farm</b>	<b>3,510,236</b>	<b>737,843</b>
<b>Post-farm</b>		
Pig freight	16,836	16,836
Meat processing	460,512	460,512
Exported manure		
<b>Total Post-farm</b>	<b>477,348</b>	<b>477,348</b>
<b>Dressed weight sold - HSCW (kg/yr)</b>	<b>1,151,280</b>	<b>1,151,280</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	1.25	1.25
<b>On-farm</b>	<b>5.04</b>	<b>1.06</b>
Post-farm	0.69	0.69
<b>Total</b>	<b>6.98</b>	<b>2.99</b>



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