PigGas Report 35 – 2,200 sow farrow to finish, conventional piggery, NSW.

July 2014

Production details

This is a large company owned conventional piggery, with breeding and growing pigs on one site in twenty three naturally ventilated and evaporative cooled sheds. Most of the pigs are sold as heavy finishers for domestic markets at 105 kg live weight.

Feed consumption

Feed is purchased off-site from a commercial feed mill. Normal piggery cereal-based feedstuffs are fed in a pelleted form. Total feed consumed is 12,352 t/yr.

Sales/Tranfers

40,928 pigs/yr are sold with a total dressed weight of 3,261 t/yr.

Waste management systems

Manure is flushed from each shed in underfloor drains to collection sumps. From there, effluent is pumped to an anaerobic lagoon. After primary treatment the effluent moves to a secondary storage pond for reuse as flushing water for the piggery. Surplus effluent is pumped to third storage pond.

Manure reuse systems

Effluent from the storage ponds is blended with fresh irrigation water and is used as fertiliser to irrigate cultivation which is used to grow a range of winter cereal crops. Sediment from the ponds is dried and spread as fertiliser on dryland cropping areas.

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

On-Farm Baseline Emissions

The current baseline emissions for this piggery total **13,405 tonnes CO_2-e/yr** with an emissions intensity of **4.11 kg CO_2-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. This piggery is highly efficient with excellent feed conversions and relatively low feed wastage resulting in comparatively low baseline emissions.

The piggery owners are currently obtaining quotes to build and operate a covered anaerobic pond or an engineered digester. The captured methane will be used to generate electricity and capture waste heat from the engines will be used to heat farrowing and weaner rooms. It is anticipated that this will replace all electricity and LPG used on-site. Any excess electricity will be fed into the state grid, however this excess is unknown at this stage and was not included as an emissions offset in the modelling.

This scenario (see table below) reduced on-farm emissions **from 13,405 t/yr to 3,150 t/yr** and reduced kg CO_2-e/kg HSCW **from 4.11 to 0.97 (76% reduction)**.

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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	3,088,111	3,088,111
Milling & delivery	592,917	592,917
Pig freight	0	0
Straw & bedding	0	0
Total Pre-farm	***3,681,028***	***3,681,028***
On-farm		
Fuels & energy		
Purchased electricity	77,170	0
Fuel - stationary	40,441	7830
Fuel - transport	0	0
Enteric CH_4	449,510	449,510
Manure management		
MMS CH_4	11,598,515	1,400,911
MMS – direct N_2O	105,566	105,566
MMS – Atmos. deposition N_2O	422,263	9,232
Waste applied to soil		
Soil – direct N_2O	632,339	1,045,371
Soil – leaching & runoff N_2O	79,438	131,325
Offsets	0	0
Total On-farm	***13,405,242***	***3,149,743***
Post-farm		
Pig freight	254,189	254,189
Meat processing	1,304,330	1,304,330
Exported manure	0	0
Total Post-farm	***1,558,519***	***1,558,519***
Dressed weight sold - HSCW (kg/yr)	**3,260,825**	**3,260,825**
Carbon footprint	**(kg CO_2-e / kg HSCW)**	**(kg CO_2-e / kg HSCW)**
Pre-farm	1.13	1.13
On-farm	**4.11**	**0.97**
Post-farm	0.48	0.48
Total	**5.72**	**2.57**

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