PigGas Report 9 – 18,925 pig wean to finish conventional grow-out piggery, NSW.

September 2013

Production details

This is a large family owned conventional grow-out piggery. All weaner, grower/finisher and presale pigs are housed in 15 conventional flushed sheds with automated natural ventilation. Pigs are marketed at an average of 96 kg live weight.

Feed consumption

Cereal based feed ingredients are purchased and milled off-site. Normal piggery cereal-based feedstuffs are supplemented with waste human and pet food by-products and mixed on-site into a liquid feeding system. Total feed consumed is 9,492 t/yr.

Sales/Tranfers

40,183 pigs/yr are sold with a total dressed weight of 2,934 t/yr.

Waste management systems

Manure is automatically flushed from each shed in underfloor drains to a 15 ML covered anaerobic pond. Methane from this pond is captured and burnt in two gensets to generate electricity for the site and to feed electricity into the grid. Excess biogas is piped to a separate breeder piggery on another property for use there. A hot water system collects waste heat from the genset engines and hot water is piped to radiant water–tube heaters to heat the weaner pigs.

Treated effluent and pond sludge is pumped to Sedimentation and Evaporation Ponds (SEPS) which are dried out and desludged annually. The overflow from the SEPS goes to a holding pond.

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Manure reuse systems

Sludge from the SEPS is dried and solids are spread on crops and pastures. Treated effluent from the holding pond is recycled for shed flushing and excess is irrigated to crops and grazed pastures.

On-Farm Baseline Emissions

The baseline on-farm greenhouse gas emissions for this piggery total **764 tonnes CO_2-e/yr** with an emission intensity of **0.28 kg CO_2-e/kg HSCW**. This calculation includes the destruction of pond methane and replacement electricity generated for the site, excess electricity sales to the grid (an offset of 725 t/yr) and heat recovery from the engine.

On-Farm Emissions Reduction Scenario

There is only one scenario possible on this site given the existing pond cover and combined heat and power generation, i.e., to reduce feed wastage of all pigs by 5% (10% to 5%) through better adjustment and management of individual feeders.

This scenario (see table below) reduced on-farm emissions **from 764 t/yr to 512 t/yr** and reduced kg CO_2-e/kg HSCW **from 0.28 to 0.19 (33% reduction)**.

Piggery staff have taken action to reduce feed wastage through improved monitoring and management of the liquid feeders.

This piggery is part of a CFI project which has generated Australian Carbon Credit Units using the CFI Methodology "Destruction of methane from manure in piggeries".

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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	2,372,984	2,248,412
Milling & delivery	455,613	431,695
Pig freight	0	0
Straw & bedding	0	0
Total Pre-farm	***2,828,596***	***2,680,107***
On-farm		
Fuels & energy		
Purchased electricity	2,631	2,613
Fuel - stationary	13,832	13,832
Fuel - transport	5,126	5,126
Enteric CH_4	184,425	184,425
Manure management		
MMS CH_4	802,573	613,285
MMS – direct N_2O	39,231	34,077
MMS – Atmos. deposition N_2O	0	0
Waste applied to soil		
Soil – direct N_2O	391,917	340,426
Soil – leaching & runoff N_2O	49,235	42,766
Offset(Electricity to grid)	-724,795	-724,795
Total On-farm	***764,176***	***511,774***
Post-farm		
Pig freight	254,921	254,921
Meat processing	1,173,526	1,173,526
Exported manure		
Total Post-farm	***1,428,447***	***1,428,447***
Dressed weight sold - HSCW (kg/yr)	**2,933,816**	**2,933,816**
Carbon footprint	**(kg CO_2-e / kg HSCW)**	**(kg CO_2-e / kg HSCW)**
Pre-farm	1.05	0.99
On-farm	**0.28**	**0.19**
Post-farm	0.53	0.53
Total	**1.86**	**1.71**

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