PigGas Report 31 – 520 sow, farrow to finish, conventional piggery, SA.

May 2014

Production details

This is a medium sized conventional farrow to finish piggery located on two sites, two and a half kilometres apart.

The breeding site comprises six flushed sheds with lactating sows and weaner pigs in climate controlled, mechanically ventilated sheds. Dry sows and boars are in naturally ventilated sheds. All sows are group housed. Some are floor fed and some are fed with electronic sow feeding stations during the gestation period.

The grower site houses pigs in four naturally ventilated, pull plug sheds. Pigs are transferred from the breeding site at 9 weeks of age and are grown out to 23 weeks of age with an average live weight of 97 kg at sale.

Feed consumption

All feed is purchased, milled and mixed off-site. All pigs on the grower site are liquid fed. Total feed consumed at both sites is 3,318 t/yr.

Sales/Tranfers

35 gilts and 7 boars per year are purchased. 12,769 pigs per year are sold with a total dressed weight of 954 t/yr.

Waste management systems

On the breeder site, effluent is flushed from each shed in underfloor drains to treatment ponds. On the grower site, all sheds have pull plug underfloor effluent storage which is released regularly to treatment ponds.

The same pond treatment system exists on both sites. They each consist of two primary anaerobic ponds operating in parallel followed by a secondary treatment pond.

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Manure reuse systems

Effluent and sludge is removed from the pond systems at both sites annually by vacuum tanker. Approximately 75% of all the effluent and sludge is spread on-site as fertiliser onto cereal cropping land. Approximately 25% of effluent and sludge is exported to neighbours. The combined area of both piggery sites is approximately 150 hectares..

On-Farm Baseline Emissions

The combined baseline emissions for this piggery total **3,163 t CO_2-e/yr** (1,228 t CO_2-e/yr breeder site and 1,935 t CO_2-e/yr grower site) with an emissions intensity of **3.32 kg CO_2-e/kg HSCW** (4.99 kg CO_2-e/kg HSCW breeder site and 2.73 kg CO_2-e/kg HSCW grower site).

On-Farm Emissions Reduction Scenario

The only scenario considered for this piggery is to cover the anaerobic ponds at the breeder site only and capture and burn the pond methane to replace the LPG used on-site. LPG is currently used to heat water used in floor heating pads for suckling and weaner pigs.

This scenario (see table below) reduced on-farm emissions **from 3,163 t/yr to 2,253 t/yr** and reduced kg CO_2-e/kg HSCW **from 3.32 to 2.36 (29% reduction)**.

The financial viability of this option would need to be checked by the piggery owners. Approximately 789 t CO_2-e/yr would be mitigated from pond methane capture and combustion and may available for generating Australian Carbon Credit Units under a piggery CFI Methodology. In addition, approximately 74,500 L/yr of LPG would be replaced by captured methane.

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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	829,505	829,505
Milling & delivery	159,265	159,265
Pig freight	681	681
Straw & bedding	0	0
Total Pre-farm	***989,451***	***989,451***
On-farm		
Fuels & energy		
Purchased electricity	57,800	57,800
Fuel - stationary	128,642	14,015
Fuel - transport	0	0
Enteric CH_4	124,529	124,529
Manure management		
MMS CH_4	2,550,020	1,761,024
MMS – direct N_2O	29,642	29,642
MMS – Atmos. deposition N_2O	118,569	69,080
Waste applied to soil		
Soil – direct N_2O	133,168	170,285
Soil – leaching & runoff N_2O	20,724	26,501
Offsets	0	0
Total On-farm	***3,163,096***	***2,252,877***
Post-farm		
Pig freight	28,423	28,423
Meat processing	382,927	382,927
Exported manure	51,298	65,595
Total Post-farm	***462,648***	***476,946***
Dressed weight sold - HSCW (kg/yr)		
Carbon footprint	**(kg CO_2-e / kg HSCW)**	**(kg CO_2-e / kg HSCW)**
Pre-farm	1.04	1.04
On-farm	**3.32**	**2.36**
Post-farm	0.48	0.50
Total	**4.84**	**3.90**

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