PigGas Report 38 – 460 sow, farrow to finish, multisite, conventional and deep litter piggery, Qld.

September 2014

Production details

This is a medium sized family owned conventional and deep litter piggery on four sites. The Breeder Site 1, which comprises a closed herd using artificial insemination, is housed mainly in conventional flushed sheds. One deep litter shed houses growing gilts and weaned sows. Weaned piglets from Breeder Site 1 are transferred to Weaner Site 2 approximately four kilometres away where they are grown to 30 kg live weight in straw-based deep litter sheds. These pigs are then transferred in batches to contract Grower Sites 3 and 4 approximately 300 km away. The pigs are then sold as heavy finishers for local and export markets at 113 kg live weight.

Feed consumption

All feed grain for the Breeder Site 1 and Weaner Site 2 is grown and milled and mixed into rations on-site. All feed rations for Grower Sites 3 and 4 are purchased and delivered as complete rations by a feed company. Total feed consumed at all sites is 2,956 t/yr.

Sales/Tranfers

9,646 weaner pigs/yr are transferred from Site 1 to Site 2 and a total of 9,260 grower pigs/yr are transferred from Site 2 to Sites 3 and 4. A total of 9,273 pigs/yr, including culled sows, are sold with a total dressed weight of 820 t/yr.

Waste management systems

On the Breeder Site 1 and Grower Sites 2 and 3, manure is flushed from each shed in underfloor drains to anaerobic treatment pond system consisting of primary and secondary ponds. On the Weaner Site 2, the pig's manure is absorbed into straw bedding and, at the end of each batch of weaners, the shed is cleaned out using a front-end loader and the spent litter is stockpiled.

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Manure reuse systems

Effluent from the secondary ponds on Sites 1, 3 and 4 is regularly irrigated and spread by vacuum tanker to pastures used for cattle grazing. On Sites 1 and 2, effluent and spent litter is also spread onto summer and winter cropping areas. A range of crops including wheat, barley, sorghum, mung beans, adzuki beans, chickpeas, field peas and lucerne are grown. Total property area of Sites 1 and 2 combined is about 1,200 ha with about 400 hectares cropped.

On-Farm Baseline Emissions

The current baseline emissions for this piggery total **3,058 tonnes CO_2-e/yr** with an emissions intensity of **3.73 kg CO_2-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

A range of emissions mitigation options were discussed and/or modelled with the piggery owner. These included improving feed efficiency, covering anaerobic ponds and flaring biogas, separating solids prior to pond digestion, daily spreading some effluent with the vacuum tanker and exporting effluent or spent litter solids off-site.

However, due to the restricted size of operations on any one of the four sites and the fact that the owner of the pigs cannot make changes on two separately owned contract grower sites, no economically viable options to reduce greenhouse gas emissions for this piggery could be identified. Therefore, the reduction scenario in the following table is the same as the baseline emissions.

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Annual Greenhouse Gas Emissions Profile (calculated using PigGas)

Emissions	Current Emissions Baseline	Reduction Scenario (kg CO_2-e/yr)
Pre-farm		
Grain	739,124	739,124
Milling & delivery	141,912	141,912
Pig freight	0	0
Straw & bedding	4,375	4,375
Total Pre-farm	***885, 410***	***885, 410***
On-farm		
Fuels & energy		
Purchased electricity	133,571	133,571
Fuel - stationary	38,611	38,611
Fuel - transport	0	0
Enteric CH_4		
Manure management	97,097	97,097
MMS CH_4	2,395,567	2,395,567
MMS – direct N_2O	79,670	79,670
MMS – Atmos. deposition N_2O	124,070	124,070
Waste applied to soil		
Soil – direct N_2O	182,087	182,087
Soil – leaching & runoff N_2O	7,306	7,306
Offsets	0	0
Total On-farm	***3,057,980***	***3,057,980***
Post-farm		
Pig freight	1,701	1,701
Meat processing	328,188	328,188
Exported manure	0	0
Total Post-farm	***329,890***	***329,890***
Dressed weight sold - HSCW (kg/yr)	**820,470**	**820,470**
Carbon footprint	**(kg CO_2-e / kg HSCW)**	**(kg CO_2-e / kg HSCW)**
Pre-farm	1.08	1.08
On-farm	**3.73**	**3.73**
Post-farm	0.40	0.40
Total	**5.21**	**5.21**

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