PigGas Report 25 – 450 sow, farrow to finish, deep litter piggery, Tas.

February 2014

Production details

This is a family owned, predominantly straw-based deep litter piggery with all stock on one site in 21 sheds. All sheds except one are naturally ventilated deep litter sheds. A presale shed holding 7% of the total pigs is a conventional fan ventilated shed.

Sows due to farrow are moved from deep litter housing to open paddocks with individual huts. They remain outdoors for a total of 5 weeks before moving back indoors onto deep litter for mating and the gestation period. Suckers are weaned from the outdoor sows at about 4 weeks of age and are moved into deep litter sheds for growing and finishing until sale. Most pigs are sold directly from the deep litter sheds but about one third of the finishers are moved from deep litter to the conventional presale shed for finishing at heavier weights.

Feed consumption

No grain is grown on-site. All of the feedstuffs used in the piggery are purchased off-site and milled and mixed on-site. Computer controlled phase feeding delivers a range of rations to pigs depending on age. Total feed consumed is 2,571 t/yr.

Sales/Tranfers

The pigs are sold at a range of pork and bacon weights from approximately 55 kg to 110 kg live weight. Eighty percent of the pigs sold are niche marketed as a branded, welfare-friendly product to local butchers. The remaining twenty percent are sold to a supermarket chain. Approximately 9,980 pigs/yr are sold with a total dressed weight of 643 t/yr.

Waste management systems

In all deep litter sheds, spent litter (straw plus manure) is removed regularly using a front-end loader. This operation is performed both during the pig batches and at the end of the batches when pigs are removed from shelters.

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Paddocks for the outdoor sows and litters occupy about 5 hectares each year. Manure and urine is absorbed by the soil in these paddocks for one year.

The presale shed has underfloor drains which direct effluent to a sump which stores effluent for a few weeks before effluent is removed by vacuum tanker.

Manure reuse systems

Total property area is 40 hectares. The outdoor farrowing sow area of approximately 5 hectares is rotated around the property each year. The resulting nutrient build up in the soil is removed by potato cropping in the following year. The remainder of the property grows pasture which is both grazed by cattle and cut for hay.

All spent litter from deep litter sheds is windrowed and composted. The majority (80%) of the effluent collected from the presale shed is added directly to the spent litter windrows. A PTO-driven compost turner turns the windrows up to eight times to fully compost the litter for sale off-site.

Approximately 20% of the effluent from the presale shed sump is spread by tanker to pasture.

On-Farm Baseline Emissions

The current on-farm baseline emissions for this piggery total **1,064 tonnes CO_2-e/yr** with an emissions intensity of **1.65 kg CO_2-e/kg HSCW**.

On-Farm Emissions Reduction Scenario

This piggery has very low baseline emissions (less than one-third of conventional piggeries). This is because deep litter and outdoor production avoids the large quantities of methane normally generated from effluent ponds in conventional piggeries, and because the manure is value-added and sold off-site.

After discussion with the owner, there are no viable options available to further reduce emissions on this piggery. The scenario shown (see table below) is therefore identical to the baseline emissions i.e., on-farm emissions **remain at 1,064 t/yr with an emissions intensity of 1.65 kg CO_2-e/kg HSCW (0% 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	642,671	642,671
Milling & delivery	0	0
Pig freight	0	0
Straw & bedding	12,038	12,038
Total Pre-farm	***654,709***	***654,709***
On-farm		
Fuels & energy		
Purchased electricity	168	168
Fuel – stationary	32,192	32,192
Fuel – transport		
Enteric CH_4	91,945	91,945
Manure management		
MMS CH_4	119,277	119,277
MMS – direct N_2O	529,816	529,816
MMS – Atmos. deposition N_2O	137,622	137,622
Waste applied to soil		
Soil – direct N_2O	111,591	111,591
Soil – leaching & runoff N_2O	41,637	41,637
Offsets	0	0
Total On-farm	***1,064,247***	***1,064,247***
Post-farm		
Pig freight	30,159	30,159
Meat processing	257,398	257,398
Exported manure	194,779	194,779
Total Post-farm	***482,335***	***482,335***
Dressed weight sold - HSCW (kg/yr)	**643,494**	**643,494**
Carbon footprint	**(kg CO_2-e / kg HSCW)**	**(kg CO_2-e / kg HSCW)**
Pre-farm	1.02	1.02
On-farm	**1.65**	**1.65**
Post-farm	0.75	0.75
Total	**3.42**	**3.42**

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