# PigGas Report 8 – 7,883 pig wean to finish deep litter and conventional grow-out piggery, NSW.

**September 2013**

## Production details

This is a medium sized family owned piggery where weaner pigs are transported to the site and grown to market weight an average 107 kg live weight. Weaner pigs are housed in four deep litter sheds and grower pigs are housed in four deep litter sheds. Deep litter used in these sheds is rice hulls and straw. The finishers are housed in five conventional drained and flushed sheds.

## Feed consumption

Some feed grain is grown on-site with the majority of feed purchased off-site and milled off-site. Normal piggery cereal-based feedstuffs are supplemented with waste by-products from other industries with total feed consumed at 6,303 t/yr.

## Sales/Tranfers

24,941 weaner pigs/yr are transferred to the site for growing out to sale weight. 23,920 finisher pigs/yr are sold with a total dressed weight of 1,869 t/yr.

## Waste management systems

Spent litter is removed by front end loader from the eight weaner and grower sheds at the end of each growing batch and stockpiled for annual land spreading. Manure is automatically flushed from the five finisher sheds from underfloor drains to two Sedimentation and Evaporation Ponds (SEPS). Effluent decomposes anaerobically in the SEPS which are long narrow shallow ponds designed to be dried out each year to collect sludge solids for land spreading. Overflow from the SEPS flows to a holding anaerobic pond. Treated effluent from the holding pond is used for flushing the finisher sheds.

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## Manure reuse systems

Spent litter solids from the weaner and grower sheds and dried sludge removed from the SEPS is mostly spread on site. Approximately 20% of spent litter solids is exported (sold) off-site. Treated effluent from the anaerobic holding pond is regularly irrigated on-site. A land area of approximately 580 hectares is used for both solids spreading and effluent irrigation to grow cereal crops and pastures for grazing.

## On-Farm Baseline Emissions

The current baseline emissions for this piggery total **5,858 tonnes $CO_2$-e/yr** with an emissions intensity of **3.69 kg $CO_2$-e/kg HSCW**.

## On-Farm Emissions Reduction Scenario

The only option considered for this site was to reduce feed wastage of all pigs by 5% by monitoring and adjusting feeders.

This scenario (see table below) reduced on-farm emissions **from 5,858 t/yr to 4,873 t/yr** and reduced kg $CO_2$-e/kg HSCW **from 3.69 to 3.07 (17% 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 | 1,575,707 | 1,488,182 |
| Milling & delivery | 302,536 | 285,731 |
| Pig freight | 0 | 0 |
| Straw & bedding | 39,834 | 39,834 |
| ***Total Pre-farm*** | ***1,918,077*** | ***1,831,747*** |
| **On-farm** | | |
| *Fuels & energy* | | |
| Purchased electricity | 53,060 | 53,060 |
| Fuel - stationary | 0 | 0 |
| Fuel - transport | 26,981 | 26,981 |
| *Enteric $CH_4$* | 224,086 | 224,085 |
| *Manure management* | | |
| MMS $CH_4$ | 4,323,961 | 3,446,516 |
| MMS – direct $N_2O$ | 614,376 | 560,667 |
| MMS – Atmos. deposition $N_2O$ | 259,784 | 237,004 |
| *Waste applied to soil* | | |
| Soil – direct $N_2O$ | 316,291 | 288,534 |
| Soil – leaching & runoff $N_2O$ | 39,734 | 36,247 |
| ***Total On-farm*** | ***5,858,274*** | ***4,873,096*** |
| **Post-farm** | | |
| Pig freight | 157,315 | 157,315 |
| Meat processing | 747,526 | 747,526 |
| Exported manure | 34,732 | 31,696 |
| ***Total Post-farm*** | ***939,573*** | ***936,538*** |
| **Dressed weight sold - HSCW (kg/yr)** | **1,868,815** | **1,868,815** |
| **Carbon footprint** | **(kg $CO_2$-e / kg HSCW)** | **(kg $CO_2$-e / kg HSCW)** |
| Pre-farm | 1.21 | 1.14 |
| **On-farm** | **3.69** | **3.07** |
| Post-farm | 0.59 | 0.59 |
| **Total** | **5.49** | **4.80** |

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