

Producer 4

Producer 4 runs a 13,000 standard pig unit (SPU) conventional piggery, with on-farm feedmill in Queensland. The producer has never had a product carbon footprint (kg CO₂-e/kg liveweight) or carbon account (t CO₂-e/year) determined for the farm.

Process:

Integrity Ag held a workshop with Producer 4 to discuss their plans for the farm over the short- to medium-term to model how they might affect the farm's carbon account.

The producer indicated a desire to expand production at the site to roughly triple the current capacity. Integrity Ag then assessed their greenhouse gas emissions for the following scenarios:

1. Current operations (13,000 SPU piggery with uncovered ponds, consuming 750,000 kWh electricity and 15,000 L of LPG at the piggery and mill per year).
2. Expansion to 40,000 SPU piggery with all effluent to a covered anaerobic pond (CAP) and combined heat and power (CHP) unit.

Results:

The farm carbon account (Scope 1 and 2 emissions per year) were determined using PigBal 5:

Carbon account	Current operations			Tripled capacity with CAP & CHP		
	Scope 1 (t CO ₂ -e)	Scope 2 (t CO ₂ -e)	Total (t CO ₂ -e)	Scope 1 (t CO ₂ -e)	Scope 2 (t CO ₂ -e)	Total (t CO ₂ -e)
Enteric methane	441		441	1,310		1,310
Manure methane	8,794		8,794	5,086		5,086
Manure nitrous oxide	49		49	407		407
Farm services	677	1,130	1,807	0	0	0
Total	9,962	1,130	11,091	6,803	0	6,803

The analysis showed that even if the piggery tripled production, by installing a CAP and CHP unit, total emissions for the site would be ~39% lower. This was driven by lower methane emissions from effluent and the fact that all energy use (gas and grid electricity) could be offset from the biogas.

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