
Pig Farming Using EM (a probiotic) in Canterbury, New Zealand Grant Williams, Commercial Pig Farmer

For a pig farmer to start using EM he/she needs to be convinced the advantages are worth the 'risk'. Pig farmers are loath to change anything about a pig production system that appears to be working well. My pitch today is directed at my fellow pig farmers, to assure them that EM works and is well worth the 'risk'.

I will describe the two basic applications of EM on my pig farm, provide the formulas used, give current costings, provide current pig health and performance data and describe other pig farms using EM.

Before I start, there are two important facts that need to be appreciated.

Firstly, prior to EM I was a heavy user of infeed antibiotics as detailed below:

Pigs 4- 9 weeks	Megadox Plus (Carbadox & Morantel Citrate) Tylazol G (Tylosin Phosphate & Sulfamidine)
Pigs 9-11 weeks	Tylazol G
Pigs 11-20 weeks	Tylan 100 (Tylosin Phosphate)

'De-odorase' was used in all age groups.

Secondly, EM has been in full use on my pig farm with the formulas and inclusion rates as described below since January 2002. Full use of EM means no use of infeed antibiotics or 'De-odorase'.

My pig farm is described as:

- a 100 sow breeder/finisher unit
- with a closed breeding herd which is outdoor
- AI mating and batch farrowing is practised
- pig effluent solids are separated
- pig effluent liquid is irrigated daily on to pasture or crop with most irrigation occurring in the early hours of the morning

The initial attraction of EM for me was its reputed odour controlling properties. Effective odour control using EM requires a two pronged approach. The first is the feeding of **bokashi** directly to pigs.

Bokashi is a fermented feed additive derived from EM.

The second is the administration of **extended EM** directly into the pig effluent collection system. Extending EM just means allowing the original microbes in a quantity of stock EM to multiply and produce a greater quantity of EM.

I make **bokashi** by mixing 90 litres of a solution containing:

- 6 litres of EM (stock)
- 6 litres of molasses (which may need to be dissolved to mix properly)
- water

With 360 kg of clean barley hammer milled with a 4mm screen. The 90 litre solution is added slowly to the milled barley mixing in a one tonne ribbon mixer. The slowness is to ensure thorough mixing and avoid clogging the mixer. If I had a choice a tumble or paddle mixer would be used.

The moist EM barley mixture is then transferred to three 120 kg black sealable plastic drums and left to 'brew' for a minimum of fourteen days before use. The drums sit on a wooden pallet to keep them off the possibly cold concrete floor of my feed shed. Once a drum is opened for use there is now need to reseal.

Bokashi is included in pig diets at the following rates:

Pigs 4 - 7 weeks	2.5%
Pigs 7 - 9 weeks	2.0%
Pigs 9 - 13 weeks	1.5%
Pigs 13 plus weeks	1.0%

In response to the recent outbreak of the pig disease PMWS I have started to include Bokashi at 1.5% in the lactating sow diet.

Cost of Bokashi (360 kg) is detailed below:

• 360 kg barley (\$250/tonne delivered)	\$ 90.00
• 6 litres of EM (stock) – (current price \$258/20 litres)	\$ 77.40
• 6 litres of molasses (current price \$140/200 litres)	\$ 4.20
• milling and labour (takes me approx. two hours)	\$ <u>40.00</u>
 Total	 \$ <u>211.60</u>

Using the average inclusion rate of 15 kg per one tonne of pig feed, the cost per tonne of Bokashi is \$8.82.

I make **Extended EM** by mixing up a solution in a 130 litre non sealable* plastic drum that contains:

- 6 litres EM (stock)
- 6 litres molasses (may need to be dissolved)
- 118 litres of clean water

The solution is heated by a fish tank heater which aids the extension process and left to brew for a minimum of seven days before use. EM will extend without the use of a heater, it just takes a little longer.

Cost of Extended EM (130 litres) is detailed below:

• 6 litres EM (stock) – (current price \$258/20 litres)	\$ 77.40
• 6 litres molasses (current price \$140/200 litres)	\$ 4.20
• labour	\$ <u>20.00</u>
 Total	 \$ <u>101.60</u>

I use 6 litres of extended EM per day for 400 pig places (9 weeks and over) Daily cost of Extended EM is \$4.69.

As all pig farmers know the performance of their pigs depends upon many factors including genetics, weaning weights, shed design, stocking density, food formulations, slaughter selection criteria and so on. Whatever advantages a particular pig farm has, they need to be maximised by having healthy pigs.

* I understand a sealable container is preferable.

Health Status of my Pig Farm

As an indication of pig health I always check the Assessment of Pleurisy mod/severe in the weekly pig health report. With heavy antibiotic use, as detailed previously the average percentage of pigs killed showing signs of pleurisy m/s was 1.7% or less. During the transition period to full EM use that percentage rose up to and briefly beyond the district average. By January 2002 with EM in full use the percentage of pigs with pleurisy had fallen to 1.79% compared to a district average of 2.59%.

My current pleurisy m/s average is 1.84% compared to the district average of 3.03%.

Enzootic pneumonia is virtually non existent. For the period 1 November 2005 to 24 April 2006 one pig was assessed with enzootic pneumonia (mild) and one pig was assessed with enzootic pneumonia (average score).

Performance of my Pig Farm

Because pig performance is affected by many factors it is hard to assess the role of EM. I have therefore attached the grading results for 20 pigs sent to slaughter on 24th April 2006 and invite my fellow pig farmers to make their own judgements. Those 20 pigs included the bottom 10% of one batch (age 19.5 weeks) and the top 10% of the next batch (age 16.5 weeks).

Bottom 10% age 19.5 weeks
Average weight 61.7 kg

Top 10% age 16.5 weeks
Average weight 65.5 kg

The health assessments for the 20 pigs had nothing to show.

The other pig farm in Canterbury using EM belongs to Anne & Dave Tocker of Sefton, Rangiora. Their pig farm is totally indoors and uses a pond system to treat pig effluent. Because of water supply problems some recycling of effluent around the collection system is necessary. Again the initial attraction of EM for the Tockers was it's odour controlling reputation.

After visiting my pig farm for a demonstration and armed with the EM formulas I use, Anne & Dave began the transition to full EM use in March 2004.

Dave Tockers comments today are:

- A combination of screening pig solids and using EM has definitely improved odour control.
- Enzootic pneumonia levels (which Dave uses to assess the health status of his pig farm) used to vary with the season. At one point the Enzootic P levels were such that the farm veterinarian advised vaccinating against pleurisy/pneumonia diseases, and so a vaccination programme was commenced. Some time after EM was in full use, the Tockers noticed Enzootic pneumonia had stabilised at 'acceptable' levels. EM gave Dave and Anne the confidence to stop their vaccination programme. For the last 12 months the Tockers pleurisy/pneumonia levels have been 'good'.
- Dave and Anne Tocker welcome any enquiries on their use of EM from their fellow pig farmers.

If we have time I will talk about:

- The use of extended EM on horses as practised by my ex wife.
- My self experimenting with EM – it really works.
- Controlling pig aggression with EM.
- The obvious role EM plays in odour control.
- The parallels in advice for using EM and fighting the PMWS pig disease.

I invite any pig farmer who is interested in a one on one visit to my pig farm to contact me.

The contact details are:

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Thank you for listening. Any questions.