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# Kingshay put Epizym Cattle slurry additive to the test

## Background

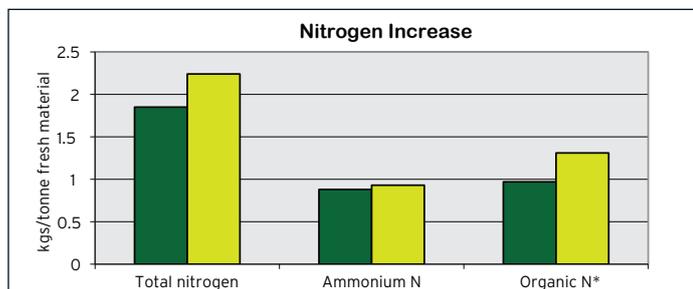
In recent years, independent dairy specialist Kingshay has received a large number of member enquiries about slurry additives. It was decided that a review into the general efficacy of this product type was needed. As a result, in Spring of 2010 a preliminary trial was set up with the aim of establishing the protocols for testing the claims made by the producers of slurry additives on the market.

Epizym Cattle, marketed by Epizym Ltd, was used for the purposes of the trial.

## Results summary

### 1) Nitrogen increase

Epizym Cattle has produced statistically significant increases in total nitrogen (total N) and ammonium nitrogen (ammonium N) compared with the control cell after just 6 weeks.



Kgs/tonne fresh material	Control	With Epizym	% difference
Total nitrogen	1.85	2.24	+20.9%
Ammonium N	0.88	0.93	+6.08%
Organic N*	0.97	1.31	+35.0%

\*Organic N is the difference between total N and ammonium N, as the levels of nitrate and nitrite are very low indeed in slurry. Much of the increase in organic N is expected to be in the bacteria that have multiplied from the initial Epizym culture. Once this slurry has been spread, organic N will become quickly available to the plants as the bacteria die. This will then supplement the ammonium N.

### Future trials

One of the main changes to the protocols for the next round of trials will be to lengthen the trial time to 12 weeks, as the higher

level of total N suggests that the conversion to available N has not finished and stabilised. The 12 week period would also bring the trial more into line with typical farm practice. Other independent trials on Epizym Cattle of a longer duration have shown an increase of between 20% and 25% of ammonium N over the control. This result is supported by other on farm investigations. A three year independent trial in Holland showed an increase of 23% in ammonium N.

### 2) Crust reduction

These results support Epizym's claim to substantially reduce the size of the crust on a slurry storage facility, as Epizym ensures slurry organic matter remains in suspension rather than naturally settling as solids at the bottom of a tank or as part of a crust. Again, Epizym would expect the slurry element of the crust to be even further reduced with a longer trial.

	Control	With Epizym	% difference
Crust weight kgs	4.6kg	3.5kg	-19.0%

### 3) Bacteria count

The figures here show that Epizym increases the beneficial bacteria, which then go on to multiply quickly and perform the tasks that farmers want from a good slurry additive. As this is slurry from a commercial farm, it contained parlour washings and yard runoff, thus reflecting the environment in which additives have to work.

	Control (Cfu/g)	With Epizym (Cfu/g)	% increase
*Total Viable Count (TVC)	7,933,333	33,210,000	319%

\*Total Viable Count (TVC) bacteria, after 5 days, in colony forming units per gram of slurry(Cfu/g).

## Conclusion

In this trial Epizym Cattle

- statistically increased total N and ammonium N
- reduced crust weight by almost a fifth
- increased bacteria three fold

A future trial will see the product tested for 12 weeks instead of 6 with the expectation of increased ammonium N results and a much further reduced crust.

See [www.epizym.com](http://www.epizym.com) for more information

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## Epizym Cattle slurry additive: Saving time and money for farmers nationwide

### John Pidsley, Thornton Hey Farm, Cheshire

*"The fertiliser saving is the key. I was able to drastically reduce the amount I put onto the land, buying only a couple of bags as an 'insurance policy' almost. I now save over £8,000 a year on fertiliser. The fact that I have lower contractor costs is another substantial saving. Also, with greatly reduced mixing time, diesel savings come into the picture."*

John has been saving time and money using Epizym Cattle for 13 years.



### The Brown brothers, WG Brown and Sons, Staffordshire

*"My trial showed an improvement of 21% in ammonium N, which will hopefully deliver good savings on bagged fertiliser. Of the products on the market, Epizym's slurry additive is worth giving a go".* Martin Brown

Martin saves:

1. £1,021 on increased ammonium nitrogen content
2. £180 per mixing because of reduced crust. He mixes three times a year so saves £540 annually
3. £453 due to the liquefaction process making more phosphate available in the year of application, thus further reducing the amount of fertiliser applied

**A total saving of £2,014 per winter** at a cost of £480 for the product.

This does, however, ignore the higher potential volume of slurry produced through the liquefaction process, where the bacteria turn some of the dry matter into water through the respiration process. This is difficult to assess

accurately, but it's likely to be in the order of 7%, giving **an extra £381 worth of ammonia N** for the herd.

*"You can see the product working, with the bubbles rising to the surface of the lagoon. The smell was vastly reduced and stirring time has been halved, as we're now dispersing only a very thin crust."* Neil Brown



Neil freely admits he used to treat slurry as a waste product but now sees it as a valuable asset.

### Neil Willis, The Willey Farm, Shropshire

*"Using Epizym Cattle has significantly reduced odour which presumably means a higher level of captured nitrogen and less nitrogen waste. In addition, time and money spent stirring has also been reduced due to minimal crust formation which has made physical spreading faster and more efficient."*



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