

Could typing of mastitis be the way forward in reducing antibiotic usage in dairy cows?

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Take home messages

- *On farm testing kit now available to farmers to identify mastitis pathogen strains*
- *Gram negative bacterial mastitis cases have a high self-cure rate without the need for treatment*
- *Identifying the strain and only treating cases that will respond can reduce antibiotic use by 24%*
- *Farmers can save up to £10.50 for every mastitis case cured without antibiotics*

Mastitis

Mastitis can be defined as inflammation of mammary gland is considered to be the most persistent disease in dairy cows and is of great economic importance worldwide. Treatment of the disease is normally with antibiotics which can lead to antibiotic residues in the milk and subsequent economic loss because of the need to discard milk during and post-treatment. Furthermore, milk from cows on treatment can accidentally be mixed into bulk milk and thus enter the food chain, posing a threat to human health. The cost of mastitis varies widely where it has been estimated to cost up to £70 - £250 per cow per year.

At a dairy cow antibiotic reduction workshop organised by Innovation for Agriculture which was held in Cheshire, Vet Peter Plate from the Royal Veterinary College and Endell Veterinary Group talked through the work he has been doing with Innovative Farmers on typing mastitis in dairy cows. The project has employed the use of the farm kit referred to as 'Vetorapid', which checks individual cases of mastitis on-farm by rapidly identifying the causative mastitis pathogens and enabling a decision to treat or not to be made by the farmer.

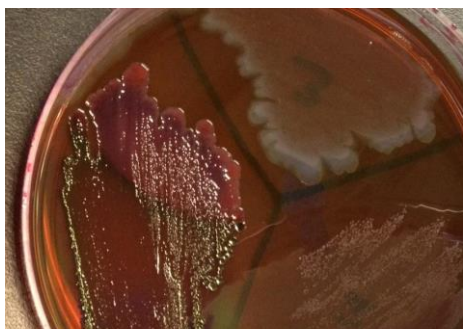
Most researchers are in agreement that gram negative bacteria such as *Escherichia coli*, *Klebsiella*, and *Enterobacter* (coliform mastitis pathogens) have a high spontaneous cure rate. On the other hand, gram positive bacteria such as streptococci and staphylococci, usually require early and effective antibiotic treatment.



Vet Peter Plate with Joshua Onyango IfA's Livestock Health Consultant

The trial

A sample of 78 mastitis cases were tested using the Vetorapid kits. 19 results indicated the type of bacteria would not respond to antibiotics. The 19 cases were left untreated with 17 cases self-curing without further treatment within 5 days as also seen in the treated cows. The method has the advantage of reducing the work required in sending samples away for laboratory analysis. Instead the kit identifies the strain of mastitis in each case, giving a result in just 24 hours. Peter explained to farmers about the promising results from the on-farm trial.



The farm kit ‘Vetorapid’ works by taking a milk sample and dabbing some into each part of a three-sided agar plate. Farmer can see which section of the plate has seen growth and decide whether or not to treat with antibiotics within 24 hrs.



On-farm mastitis test kit ‘Vetorapid’

By only treating the cases which were likely to respond, there was a 24% reduction in antibiotic use. It was also evident that that milk from the untreated cows could be returned to the bulk tank in just 4 days, an average 8.6 days less than those which were treated which will ultimately help with saving time and money. Though this project involved only 8 farms it found that the farmer could save up to £10.50 for every mastitis case cured without antibiotics compared to a loss of up to £250 per case when treating with antibiotics. It is worth noting that the reoccurrence rates were higher in untreated cows which is an area worth investigating for future studies.

Peter said: *“The on farm mastitis test has so far provided promising results though more research with larger number of cases is needed to further evaluate this approach.”*

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References

Viora *et al.* (2014). Evaluation of a culture-based pathogen identification kit for bacterial causes of bovine mastitis. *Vet Record* doi: 10.1136/vr.102499.

