

GUIDANCE FOR THE USE OF ANTIBIOTIC TESTS ON DAIRY FARMS



Dairy
UK



MilkSure✓

Guidance for the use of Antibiotic Tests on Dairy Farms

Purpose and Scope

The use of rapid antibiotic and inhibitor tests on farm for individual cows and where appropriate bulk vat to promote best practice and avoid milk residue violations.

Intended Audience

Primary Audience: Dairy Farmers.

Useful reference document for veterinary practitioners and dairy industry raw milk supply chain managers.

References

FSA – Information and Guidance on the Testing of Milk for Antibiotics – 2009 (rev 2014)

BCVA Best Practice antibiotic laminated poster for farmers – 2014

AHDB Dairy – Best practice guideline to avoiding antibiotic bulk tank failures

Contributions and Consultations

Prepared under the direction of the Dairy UK Antibiotic Working Group (BCVA, RUMA, Industry, NFU) under consultation with test kit suppliers, veterinary practices and industry stakeholders.

Introduction

Commercial kits for antibiotic residue detection have been available to test milk on farm for a number of years and are generally promoted by the industry. Although there has been support available to help farmers use the kits effectively and interpret the results correctly this has not been co-ordinated across the sector to ensure consistent communication.

The purpose of this industry guidance is to advise on the benefits of the use of test kits, when they should be used, and how the results should be interpreted.

Test Kits Available

There are broadly speaking two types of commercially available test kits on the market:

- **Microbial inhibitor tests:** These are broad spectrum, detecting multiple groups of antibiotics and other inhibitory substances used on UK dairy farms, with varying degrees of sensitivity. Kits are supplied with heater blocks and require incubating for circa three hours. This type of test is recommended where a broad detection spectrum is required or the substance is unknown;
- **Immuno-receptor tests:** these are generally narrow spectrum. Different kits can be used to detect different specific antibody groups, for example beta-lactam antibiotics. These tests are rapid – typically results are available in 10 minutes.

It is important to note that test kits vary in their sensitivity to detect different antibiotics.

Sensitivity charts are available from manufacturers which show the sensitivity of their test to a range of antibiotics likely to be encountered and also in relation to EU Maximum Residue Limits (MRLs) against which withdrawal times are set. Test sensitivity relative to EU MRLs along with some other licensing rules needs to be taken into account when considering: when to use a test kit, which test kit is most appropriate, how to interpret the results and what actions to take.

General Practices

There are a number of practices that should be followed when using a test kit on farm and actions taken after interpreting the results:

1. Keep a list of all antibiotic products in use on the farm and note ingredients. These products may contain one or more antibiotic ingredient. Select a test that is sensitive to those ingredients;
2. Always follow the test kit manufacturer's instructions for the storage, test procedure and reading of the result;
3. Consult the test supplier if you have concerns regarding the performance of the test kit;



4. Always record the result. This should include date/time, test type, test batch code, the animal(s) involved and the reason for the test. A good place for this would be in the medicine book alongside the relevant medicine usage record which is a legal requirement;

5. The official withdrawal period for any treatment must be fully observed. As such there is no benefit to testing a cow prior to the end of the withdrawal period because even if tested negative earlier, legally the milk must not be sold for human consumption;

6. It is not advisable to carry out any tests during the milking procedure, instead do so at the end to avoid distractions;

7. Any milk which has tested positive with an industry approved antibiotic test should not be used for human consumption unless the test result is subsequently found to be invalid;

8. Deliberate dilution of known contaminated milk to obtain a negative test result with the intention of selling for human consumption is illegal and will result in a consignment being rejected;

9. If in doubt consult with your veterinary surgeon, test kit supplier, or milk buyer as appropriate;

10. Test kits should NEVER be used in an attempt to reduce the minimum official withdrawal period which is on the product data sheet, or which has been advised by your vet. All on-farm test kits have their limitations for testing so a pass, for any type of test kit, should NEVER be interpreted that the milk is necessarily fit for consumption. THE MINIMUM WITHDRAWAL PERIOD SHOULD ALWAYS BE OBSERVED - consult the label/instructions on the product

or your veterinary surgeon if there is any doubt. Other laboratory tests which can detect a range of medicines and antibiotics at levels closer to the Maximum Residue Limits will catch out farmers using on-farm kits in this way.

(Note: Organic production standards legally require extended milk withdrawal periods to those of non-organic production. Withdrawal periods may extend further to this dependant on the individual organic Certification Body requirements.)

Sampling

A representative milk sample must be obtained as a test result is only as good as the sample it originated from. Unrepresentative samples can cause unnecessary milk disposal or milk placed on the market that is unfit for purpose.

Ensure your hands are clean or wear new gloves when collecting a sample to avoid contamination. Take particular care when testing samples after handling antibiotics, always wash your hands or preferably wear new gloves. These tests are extremely sensitive.

A sample needs to be a cow sample and representative of all four quarters and not just the quarter that may have been treated. Always use sample containers that are clean, dry and preservative free. Therefore, sample pots prepared for cell count testing, which can contain sprayed on preservative or a tablet, are not suitable even if rinsed.

Individual cow sampling options:

- Via dump bucket: wash carefully before use to avoid cross contamination;
- Strip and discard fore-milk before taking a representative combined sample of equal volume from all four quarters;

- Via milk meters where fitted;
- From a jar if/where fitted: ideally the cow should be milked last and the total milk from that cow isolated within the jar before sampling.

Note – For samples from a bulk vat: five minute agitation prior to sampling is required.

For bulk tank tests it is recommended to keep a labelled sample refrigerated for three days for future reference/ investigation.

For individual cow tests milk samples from failed cows must be frozen and stored for future investigation as required. Samples should be frozen and clearly marked and recorded to ensure full traceability and future investigation.

Samples in all cases should be at least 50ml in case further analysis is required.

When to use a Test Kit (individual cow)

If medicines are used as prescribed (on label) and the milk withdrawn for the correct time there is no reason to suspect residues will be present above the MRL. However, test kits can be used to check certain cows that have been treated with antibiotics before their milk goes back into the bulk tank.

The use of test kits is recommended in the following scenarios:

1. Purchased animals – The treatment history of these animals can either be unknown or uncertain and so their milk poses a potential risk of contaminating the bulk tank;
2. Where treatment records are incomplete or inaccurate and there is uncertainty or confusion about the identity of the medicine, date of administration of medicine or animal identity. (Note: it is a legal requirement to maintain proper records. Incomplete or inaccurate records should be brought up to date immediately);
3. Any treatment which does not comply with either the Manufacturer’s label guidance or as indicated by your veterinary surgeon and uses a different dose regime (frequency of treatment, dose rate or duration of treatment for example) is considered ‘off label’. This means that a minimum of seven days withhold period from the last treatment should be observed before this milk is suitable for human consumption. Only your veterinary surgeon can legally give indications on ‘off label’ treatments. It is recommended to test such cows to check that the milk is suitable for human consumption;
4. If directed or advised by the veterinary surgeon to test before letting milk into the bulk tank due to product contra-indications identified health challenges on individual animals, for example milk fever;
5. If in doubt – unusual, unpredictable circumstances or conditions, for example all four quarters have been treated

with an intramammary product but on label;

6. If stipulated by your milk purchaser as part of a contractual agreement;

7. On farm follow up investigation of an unexplained bulk vat failure or for batch testing cows to try to identify the source of the tank failure (where batch testing involves identifying which unknown cow was the source of the failure by collecting milk from batches of cows and testing them to whittle down and isolate the source);

8. If indicated by the product data sheet.

When to use a Test Kit (bulk tank)

There may be circumstances where the bulk vat may be tested by the farmer. This guidance is not intended to interfere with any quality procedures or arrangements with the milk buyer.

The use of an antibiotic test kit on the bulk vat may be needed:

1. When suspect milk from a treated cow that is still being withheld has entered the bulk vat (note need to ensure the test is sensitive to the suspected substance used);
2. As part of an on-going investigation following a bulk vat failure;
3. If part of milk supply contract or requested/directed by

the purchaser;

4. Reason to believe risk of malicious contamination has occurred (break in, threat, etc.).

Note: it is recommended that producers should consult with their milk buyer when testing a bulk vat where contamination is suspected. Your milk must pass the screening tests that they are using, so producers should ideally use the same test as their milk purchaser to avoid discrepancies.

MilkSure Training

It is recommended that farmers, or at least the member of staff responsible for the administration of medicines, should undertake the MilkSure training course for safeguarding residue free milk. The training course covers both the technicalities and practicalities of using medicines on farms.

Farmers attending the course will benefit by:

- Reducing the risk of costly milk residue failures;
- Improving the efficiency of medicine use;
- Demonstrating to customers a clear commitment to producing pure, safe milk.

Further details can be found at milksure.co.uk



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