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UPDATE ON ANTIBIOTIC TESTS AND RESIDUES

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On January 1, 1991, the Milk and Dairy Beef Quality Assurance Program, specifically for preventing the occurrence of antibiotics in bulk tank milk, was established. Although a voluntary program, it is mandatory if a Grade "A" producer has shipped milk testing positive for drug residues and they will have their Grade "A" permit suspended until the completion of the 10 point Quality Assurance Program. Those Grade "A" producers who have voluntarily completed the 10 point Program within 12 months of their first violation will not be degraded. The certification of manufacture grade producers will not be affected. For all producers the penalty for the first violation is the loss of value of 2 days milk and the completion of the 10 point program within 30 days. The penalty for the second and third violations in 12 months is the loss of value of four days milk and the completion of the 10 point Program within 30 days. Three violations in 12 months will result in a hearing to evaluate the Grade "A" permit status for the violative milk producer.

Although it is recommended in the producer manual that milk from individual animals, as well as bulk milk, be tested to ensure antibiotic-free milk is leaving the farm, it is less clear whether we have any tests that can be reliably used on individual animals let alone on bulk tank milk. If a determination is made for cow-side application, it is advised that an antimicrobial test kit that utilizes antibody or immunologic factors to detect specific drugs be chosen. At the request of FDA, the AOAC certification process for the currently approved tests started in 1991. FDA, in an attempt to certify a battery of tests that could be used to screen bulk milk for antibiotics, developed performance guidelines for tests. They also entered into an agreement with AOAC to administer the certification process.

All of the experiments were conducted by the manufacturer and data submitted to AOAC for evaluation. In addition to manufacturer results, another component of the AOAC test protocol, was evaluation of the screening tests by a contracted, independent laboratory. The results of the evaluations submitted by the kit manufacturers were verified by the contract laboratory using the FDA-AOAC protocols. If a screening test met all aspects of the AOAC evaluation, it could be certified as "Performance Tested", the stamp of approval from AOAC and FDA-Center for Veterinary Medicine. Screening tests that did not meet all the evaluation criteria could still be recognized as valid and certified as "Performance Tested" but must acknowledge their limitations on the package label. By August, 1994, 15 tests had been certified as "Performance Tested" and states had begun programs to train personnel in the use of these official tests. Also in August, AOAC announced a certification program for screening tests to evaluate raw commingled, bovine milk for tetracyclines and sulfa antibiotics. FDA-CVM also began a limited evaluation of beta-lactam screening tests for use on-farm.

The 15 "Performance Tested" screening tests are:

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|---|-----------------------|
| 1) Charm II Tablet Competitive Assay | 9) Delvo Test P |
| 2) Charm Farm | 10) Delvo-X-Press |
| 3) Charm II Tablet Sequential Assay | 11) Lactek B-L |
| 4) Charm II Tablet Transit Test | 12) Lactek CEF |
| 5) Charm II Rapid Inhibition Test | 13) Penyme III Test |
| 6) Charm I - Cowside Two Tablet | 14) Penzyme Milk Test |
| 7) Charm II Tablet Quantitative Assay | 15) SNAP Test |
| 8) Charm <u>B. Stearothermophilis</u> Tablet Disc Assay | |

In the absence of certified antibiotic milk residue tests for farm use, there are three recommendations that you, as a practicing veterinarian, can make to your client:

- 1) Become familiar with the tests and be aware there may be between-farm variability in how the tests perform.
- 2) The tests are generally biased towards protecting the consumer, but some of the tests have limits of detection above the FDA action levels. Therefore, match tests used on-farm with tests being used by the milk receiver and the beta lactam antibiotics being used by the producer and yourself.
- 3) The tests are not perfect and should be used in situations where they will provide additional useful information to you and the producer. Never use the tests to evaluate an animal before the labelled withholding times.

Finally, reviewing the drug residue reports (1992-94) provided by the Dairy Inspection Division, Minnesota Department of Agriculture provides some interesting information.

Drug Residue Reports by Year (1992-94)

<u>Year</u>	<u>Loads</u>	<u>Load Pounds Dumped</u>
1992	182	5,072,946
1993	181	4,994,910
1994	301	6,500,954

For every pound of producer milk found with violatiye antibiotic residues at least 3 pounds of additional milk are discarded. The number of loads violative has increased from 182 loads in 1992 to 301 loads in 1994. However the first three months of 1995 compared with those from 1992-94 provide an even more startling change.

Drug Residue Report First 3 Months (1991-1995)

	1992		1993		1994		1995	
	<u>Loads</u>	<u>Dumped</u>	<u>Loads</u>	<u>Dumped</u>	<u>Loads</u>	<u>Dumped</u>	<u>Loads</u>	<u>Dumped</u>
January	19	559,843	14	421,657	19	252,536	40	1,131,103
February	20	559,734	11	339,031	23	394,127	20	547,882
March	<u>16</u>	<u>456,887</u>	<u>14</u>	<u>387,489</u>	<u>29</u>	<u>418,785</u>	<u>27</u>	<u>686,723</u>
TOTAL	55	1,576,464	39	1,148,177	71	1,065,448	87	2,365,708

Despite the fact that Minnesota has the largest number of MDBQAP certified dairy farms in the U.S. the number of violators is increasing along with the amount of milk being dumped.

Because the breadth of the milk testing program will be increasing (the present official test, the Bacillus stearothermophilus disk assay detected only a portion of the six beta lactams targeted in the new program) there will be an increase in the number of violations with no other explanation than the increased ability to detect antibiotics that may have gone undetected.

References

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