

Research Summaries I & II

"Dairy & General"

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Dairy Producer Opinions and Farm Practices Used to Assure Milk and Dairy Beef Quality: a Five State Survey

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The objective of this study was to assess dairy producer opinions, awareness, and farm practices relative to use of antibiotics on dairy farms and milk quality assurance. A secondary objective was to determine producers' familiarity with and completion of the Ten Point Milk and Dairy Beef Quality Assurance Program.

Approximately 160 dairy farms in each of 5 states (California, New York, Pennsylvania, Virginia, Wisconsin; total n=809) were surveyed by telephone from among all dairy farms selling milk in those states. Nine percent of the farms were randomly selected for a followup farm visit to evaluate validity of the telephone information. Statistical significance of differences in responses among states were tested using Chi-square.

The survey respondent made the decision when to return a treated cow to the milking herd on 52.4% of the farms overall, and this decision was made by themselves or one other person on 82.1% of farms. The survey respondents were the owner (72.9%) or the herdsman,

herd manager or a combination of those positions on 96.3% of farms.

Dairy producers rated antibiotic residue in meat and milk as a serious concern among consumers (90.7% of producers agreed), among dairy farmers (94.5%), and themselves in particular (93.4%). Likelihood of a residue violation within the next year on other farms was considered relatively unlikely by producers (88.9% unlikely), and on their own farm it was considered unlikely by 97.5% of respondents. Producers surveyed knew of dairy industry efforts to reduce antibiotic residues (81.1% were aware). Sources of producers' information on residue avoidance included: dairy magazines (93.0% of aware producers had utilized), milk inspector/receiver (87.8%), extension newsletter (75.6%), veterinarian (69.5%), other producers (53.7%), newspaper (53.6%), extension agent (34.8%), and TV/radio (22.6%).

The Ten Point Milk and Dairy Beef Quality Assurance Plan was known to 52.4% of producers. Information

regarding the Ten Point Plan came from the same main sources: dairy magazines, milk inspector/receiver, and veterinarian. The booklet for the Ten Point Plan had been received by 21.8% of producers, and 6.3% thought it was likely that they would obtain the book within the next year. Most books were obtained through the milk inspector/receiver (71.3% of those obtaining book overall). Producers were most likely to have obtained the Ten Point Plan book through the milk inspector in Pennsylvania or New York, but less likely to in California. The veterinarian was the next most common source of the manual (19.9% overall), but the most common source to producers in California. The Ten Point Plan was completed by 4.2% of producers, with 0.6% having completed it due to a residue violation.

During the 3 months previous to the survey, 73.4% of producers had discussed the use of antibiotics to treat cattle with their veterinarian. 93.2% felt comfortable with use of antibiotics after discussing it with their veterinarian. Written directions on antibiotics included reasons for use for 64.2% of farms.

Most farms (74.5%) had labels indicating milk withdrawal time on all drugs (of any kind) used to treat cows; 88.6% of farms had labelled milk withdrawal on at least 76% of all drugs on the farm. None of the drugs on the farm were reported to have milk withdrawal time on the label by .4% of farms. Similarly, 80.1% of farms reported labelled dosage on all drugs, and 80.3% reported labels indicating active ingredients in all drugs used to treat cows. 91.8% of farms had at least 76% of all drugs labelled for dosage, and 92.4% had at least 76% labelled for active ingredients. None of the drugs on the farm were reported to have dosage labels, and none had active ingredients identified, by 1.0% and .7% of farms, respectively.

Antibiotic residue tests on urine or milk before milk was offered for sale had been performed during the previous year by 70.7% of producers. Antibiotic testing was performed most often by the milk plant laboratory (65.2%); testing by the milk plant was less common in Virginia and more common in Wisconsin. Conversely, antibiotic testing on the farm, which was used by 38.5% of producers, was more common in Virginia and less so in Wisconsin. Testing was sometimes done by another lab or on another dairy farm (6.6%), or by the veterinarian (4.5%).

One person did all of the milking on 15.6% of farms. One milker per month was more common in Wisconsin (30.2%) than in Virginia (7.5%), or California (4.5%). Two, three, or four people milked on 69.4% of farms. More than 12 different people milked cows per month on 7 farms (0.8%), all in California; two farms had 14 milkers, and one farm each had the following numbers of milkers per month: 15, 19, 25, 30, and 60 people. 52.4% of producers said that all milkers would recog-

nize an antibiotic-treated cow, while 1.2% said none of milkers would. Four or less people were said to recognize a treated cow by 94.6% of farms, and no farm where a specific number was given said that more than 14 people would recognize a treated cow.

During the previous 3 months, 8.3% of producers reported that no cows, lactating or dry, were treated. However, in answer to another question, only 4.0% said zero people administered antibiotic treatment to a cow during the previous month. The number of different people reported to have administered antibiotic therapy to cows during the previous month was one (45.4% of farms - only one person treating cows was more common in Pennsylvania than California), two (36.6%), or three (8.4%) people on 90.4% of farms. One California farm had 20 different people treat cows per month.

Most cows treated during the previous 3 months were visibly marked (81.5% said that all treated cows were marked). No treated cows were marked on 13.2% of farms, and some treated cows were marked on the remaining 5.2% of farms. Written records were kept of all cow treatments during the previous 3 months on 60.0% of farms, no treatment records were kept on 28.4%, and records of some but not all treatments were kept on the other 11.6% of farms. Approximately 49% of farms in Pennsylvania and Wisconsin kept records of all treatments, and approximately 39% of their farms kept no treatment records; these differed from other states. Farms in California were more likely to keep records of all treatments (78.5%) and less likely to keep no treatment records (12.8%).

Producers were divided in their opinion of how many people treating cows on the farm could benefit from additional training on proper drug use - 25.7% responded that all would, 24.9% said that none would. However, 67.9% agreed that one, two, or all people treating cows could benefit from more training. When the specific question was asked whether the survey respondent could benefit from additional training and information on proper drug use, 64.4% agreed that they could. When asked for specific reasons that would most likely cause an antibiotic residue violation, producers' most common answer was general human error (35.5%). This included the milker(s) being too rushed (15.2%), and a new or different milker (10.8%). Another common response was problems with marking treated cows (19.9%), including not noticing a marked cow (7.2%), failure to mark a treated cow (6.9%), or that the cow lost her identifying mark (4.9%). Error or failure in drug residue testing (1.5%), and vandalism or sabotage (.4%) were not considered common reasons by producers. A variety of other reasons, most of which were some type of mistake, were given.

Lactating herd size differed significantly by state. Overall, herd sizes were distributed as follows: small

(<60 cows) 38.3%, medium (60-200 cows) 43.8%, and large (>200 cows) 17.4%. Wisconsin (64.2%) and Pennsylvania (59.8%) had more small herds, Virginia had more medium herds (72.5%), and California had more large herds (73.7%). Within California, 49.4% of herds had more than 400 lactating cows, and 32.7% had more than 800.

Respondents were mostly male (90.5%), and 99.4% had attended school. All 5 who had not attended any school were located in California, significantly different from other states. 78.0% had graduated from high school, 30.2% had education beyond high school, and 12.5% were college graduates. Pennsylvania dairy producers sampled were more likely to have as their highest level of education a high school diploma, but were less likely to have education beyond high school compared with other states.

Validation farm visits were made to 76 of the 809 farms, to compare the answers given to selected questions by telephone to what was observed on the farm. Eleven people (14.5%) contacted on the farm were not the same person interviewed by phone. There were 52/693 (7.5%) answers given "more correctly" by phone than were actually found true on the farm, and 26 responses (3.8%) where farm management practices were more complete or "correct" on the farm than was stated by phone. Farms that did not actually do things they stated by phone included: marking 100% of treated cows - 11 farms (14.5%) marked between 10 % and 95% of treated cows; keeping records of all treatments - 13 farms (17.1%) kept records of between 25% and 95% of all treatments; testing milk before sale - 4 farms (5.3%) did not test; drugs labelled with dosage - 7 farms (9.2%) did not; drugs labelled with active ingredient - same 7 farms (9.2%) did not; drugs labelled with meat or milk withdrawal time - 6 farms (4 of the same farms, 7.9%) did not.

Discussion

Avoiding antibiotic residues in milk was rated as a serious concern among dairy producers, and was perceived by them as a major concern of the general public. Awareness of dairy industry efforts to reduce residues was high. Dairy magazines, milk plant personnel, extension newsletters, and veterinarians were the principal sources of information to producers. Over 90% of survey respondents were male, and were generally well educated. Nearly 80% had graduated from high school, and 30% had education beyond high school. Most were decision makers regarding when antibiotic-treated cows were withheld from meat or milk sale. Over 95% had a major management role on the farm. Validation visits

revealed that most were doing all or part of the management practices that they said they were when asked by phone.

Many milk quality assurance practices were used on most farms, but familiarity with and especially completion of the Ten Point Milk and Dairy Beef Quality Assurance Plan was low, with only approximately 4% having completed the plan. However, most of those producers (86%) completed the plan voluntarily, not due to residue violations.

Testing of milk for antibiotics before offering it for sale had been used by most farms. Nearly three-fourths of farms reported having milk or urine antibiotic residue tests performed at least once per year, usually at the milk plant laboratory or at their farm. The most convenient and timely results were probably obtained this way; few tests were performed by veterinarians.

Most producers discussed treatment of cattle with antibiotics with their veterinarian. Over 93% felt comfortable with use of antibiotics after discussing it with their veterinarian. Nevertheless, specific questions about drug labels on farms revealed that approximately 20% of labels did not have milk withdrawal time, dosage, or active ingredient information, and approximately one-third of labels on antibiotics did not include reasons for use. Approximately .5% of farms reported that none of the drugs on the farm were labelled for milk withdrawal time, dosage, or active ingredients. With the passage of the Animal Medicinal Drug Use Clarification Act (AMDUCA), proper drug labelling (particularly with extra-label use), including reasons for use in food animals, may be of increased importance.

Fifteen percent of farms had more than 4 people milking cows during one month, but only 5% of farms reported that more than 4 people would recognize an antibiotic-treated cow. Just under 1% of farms had more than 12 people milking cows during one month, all in California, with the largest number being 60 people. Almost half of all farms reported that not all milkers would recognize a treated cow; just over 1% answered that none of the milkers would. All treated cows were marked on most farms, but more than 10% of farms did not mark any treated cows. Written treatment records were kept on approximately three-fourths of farms, but even though California had the lowest percentage of farms reporting no treatment records, 12% of California farms had no treatment records. Apparently some farms rely heavily upon dilution of the concentration of antibiotics in milk due to a small percentage of the herd being treated at any given time, and do not use any cow identification, milker recognition, or written records to avoid antibiotic residues in milk.

Maintaining some form of written records for determining which cows are being withheld from sale of milk or beef still appears to be an area of opportunity

for improvement nationally. Operators keeping written records are also viewed more favorably by regulatory agencies in the event of an antibiotic residue violation. Under provisions of AMDUCA, which are still being clarified at press time, it may be of regulatory importance that all food animal producers keep on-farm records of all treatments resulting in meat or milk withholding. Approximately two-thirds of producers felt that more training and information on proper drug use would be beneficial. However, in the experience of the authors, many dairy producers are not enthusiastic about

group meetings or other opportunities to discuss milk quality assurance. **The herd health veterinarian is a major source of information, can improve drug labelling, and can promote use of on-farm treatment records.**

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Abstract

Effects on calves less than one month old of feeding or not feeding them during road transport of up to 24 hours

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Two trials, each involving 56 calves less than one month old, demonstrated that the responses of calves to food and water deprivation during 24 hours of transport were similar to those observed in older cattle and lambs. There was increasing utilisation of body reserves and a measurable increase in dehydration, coupled with an increased loss of liveweight. Feeding 1 litre of glucose/electrolyte solution at eight-hour intervals did reduce the effects of food and water deprivation, but it is suggested that the minor benefits of mid-transport feeding during a 24 hour journey would not justify the disruption that would be caused by unloading and feeding. It would be better to complete the journey in as short a time as possible, providing the calves were carried under suitable conditions. Liveweight and the levels

of plasma beta-hydroxybutyrate, non-esterified fatty acids, total protein and albumin had all returned to approximately pre-transport values after 24 hours of recovery. However, the calves had not started to gain in liveweight until some time after 24 but before 72 hours of recovery. The calves did not show the same marked responses in heart rate, plasma cortisol and plasma glucose that are observed in older cattle in other species. They also appeared to be unable to regulate their body temperature closely, when they were transported during the winter. It is suggested that their lack of response to transport was not because they were unaffected but because they were physiologically unadapted to coping with transport.