

## SURVEYS OF PERSISTENT HEALTH & PRODUCTION PROBLEMS IN MINNESOTA & WISCONSIN DAIRY COWS

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*En novembre et décembre 1996, un échantillon aléatoire d'élevages bovins laitiers du Minnesota et du Wisconsin ont été enquêtés par courrier. De manière à s'assurer que les élevages ayant répondu étaient véritablement représentatifs des élevages laitiers de ces deux Etats, l'échantillon aléatoire a été stratifié sur la taille du troupeau en lactation. L'objectif principal de l'enquête était de collecter des données plus détaillées que ce qui est généralement disponible sur l'état de santé et la production laitière des troupeaux laitiers du Minnesota et du Wisconsin. Le questionnaire était spécialement conçu pour appréhender de manière approfondie les expériences et les perceptions des éleveurs sur les questions de santé et de production. Les éleveurs ayant répondu au courrier ont fait l'objet d'une enquête téléphonique complémentaire destinée à fournir des informations sur les expériences et les perceptions des éleveurs concernant l'importance des fuites de tension et autres phénomènes électriques comme facteurs de risque de problèmes de santé et de production sur les vaches laitières adultes. Nos résultats incluent des informations sur les aménagements physiques, le recours à des consultants et des systèmes de gestion d'élevage, la production laitière, les comptages des cellules somatiques du lait, les taux de réforme et de mortalité, les changements dans la taille du troupeau, la fréquence d'observation des signes cliniques de pathologie et des problèmes de production, et la perception des éleveurs sur l'importance relative de 26 facteurs de risque en relation avec les problèmes de santé et/ou de production rencontrés dans leur élevage.*

*Un peu plus de 10% des éleveurs, soit 3600 sur les 36 000 éleveurs du Minnesota et du Wisconsin, pensent que leurs vaches subissent actuellement des problèmes persistants de santé et/ou de production. Ces élevages laitiers tendent à avoir un niveau moyen de production inférieur, des comptages des cellules somatiques plus élevés, et ils présentent plus fréquemment des signes cliniques que les autres élevages.*

### OBJECTIVES

The main purpose of this study was to collect more comprehensive information than had previously been available on the general health and milk production status of Minnesota & Wisconsin dairy herds. Some of the agencies and organizations that collaborated in the in the development of the Dairy Herd Health and Production Survey were particularly interested in dairy farmers' experiences with stray voltage and related electrical phenomena. Thus, a follow-up telephone survey was conducted in which all dairy farmers who completed and returned written surveys were called and asked some additional questions.

### SAMPLING FRAME

A stratified random sample with respect to herd size of 1,250 Minnesota and 1,250 Wisconsin dairy herds was drawn from sampling frames maintained by the Minnesota and Wisconsin Agricultural Statistics Services.

### INITIAL POSTAL SURVEY OF DAIRY HERD HEALTH & PRODUCTION INFORMATION

In late November, 1996, survey forms and cover letters were mailed to the addresses of each premise. Ten days later, reminder postcards were mailed to non-respondents. A total of 887 (35.5%) survey forms were returned by the cut-off date of February 20, 1997. Of these, 135 (5.0%) were returned blank, most with a notation that the farm no longer kept dairy cows. Thus, data from a total of 752 (30.1%) completed survey forms were entered into the computer system.

### FOLLOW-UP TELEPHONE SURVEY OF FARMER EXPERIENCES WITH STRAY VOLTAGE & RELATED ELECTRICAL PHENOMENA

Beginning December 28, 1996, attempts were made to contact each survey respondent by telephone to administer a 10-question survey specifically designed to gather information concerning respondents' experiences and perceptions regarding stray voltage and other electrical phenomena on their farms. Of the 752 respondents to the mailed survey, 678 (90.2%) were contacted and provided answers to the telephone survey questions. Due to the large number of usable survey responses, we consider this data set to be representative of all dairy herds in Minnesota (10,600) and Wisconsin (24,000) .

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### GENERAL INFORMATION

Responses were split evenly between Minnesota (377) and Wisconsin (373). In most cases (97%), survey forms were completed by individuals who regarded themselves as herd owners as opposed to employees (2%) or managers (1%). Numbers of dairy cows (milking and dry) ranged between 10 and 385, with a median of 47 and a mean of 56.1. December average milk production is estimated at 52.5 lb (23.9 kg) / cow / d for cows in milk, (or 42.4 lb (19.3 kg) / cow / d when dry cows are included). Estimates of annual average mortality and culling rates are 4.3 and 20.6%, respectively. Just over one-half (52%) of respondent herds are enrolled as members of a Dairy Herd Improvement Association (DHIA).

The predominate cow housing systems include tie stalls and stanchions which are in use in 58% and 54% of herds, respectively. Milking parlors, either flat or elevated, are used in only 10% of herds, while free stalls and loose housing are used to some extent in 18 and 14% of herds, respectively. More than one-half of respondents employ the services of feed or dairy consultant (59%), test the nutritional value of their forages (66%), or have regularly-scheduled veterinary herd health visits (59%). Manual farm business systems are the predominate record-keeping systems in use (58%), while 25% of herd owners own a computer that is used for business management purposes. However, only 8% of Minnesota and Wisconsin dairy herd owners maintain their dairy production records using on-farm computers.

### CLINICAL SIGNS

Herd owners were asked to score 22 clinical signs of health or production problems according to their observations of cows in their herds during the previous 12 months. The frequency of observation of distinct clinical signs were scored between 1 (very rarely or not observed) and 5 (very frequently observed). Clinical signs with the highest mean scores across all herds were: poor heat (estrus) expression (2.83); poor conception rate (2.73); mastitis (2.60); retained placenta / vaginal discharge (2.33); and lameness (2.22). Clinical signs with the lowest mean scores (less frequently observed) were: coughing or rapid breathing (1.42); excessive kicking (1.41); nose pressing (1.38); unhealed sores on legs and body (1.37); unwillingness to enter barn or milking area (1.36); unusual behavior at water cup or feed source (1.35); reduced water consumption (1.33); and excessive mooing or bellowing (1.29).

In response to the question "Do you think cows in your herd now have or previously had persistent health and/or production problems?", 76 (10.2%) responded "Yes, now"; 149 (19.9%) "Yes, previously"; 422 (56.6%) "No"; and 100 (13.4%) "Don't know." Respondents currently experiencing persistent health and/or production problems observed clinical signs a higher overall rate (2.16) than "Yes previously" (1.80) and "No" (1.67.) Comparison of the frequencies of observation of individual clinical signs between the 76 "Yes, now" and 422 "No" herds were compared. The biggest differences were observed for dancing and foot paddling (2.24 vs 1.42); poor response to veterinary treatments (2.20 vs. 1.46); and unwillingness to enter the barn or milking area (1.86 vs. 1.27). The only clinical sign in our list that did not show at least a 10% difference in frequency of observation between these two groups of herds was "twisted stomachs" (1.72 vs 1.65).

### PERCEIVED RISK FACTORS

Respondents were asked to indicate how significant they thought each of 26 risk factors were in causing animal health and/or production problems in their herds. Again a 1..5 scale was used where 1 indicated "very insignificant or not at all", and 5 was "very significant." Factors rated as being of the greatest risk to animal health and/or production were: forage quality (3.79); fresh cow performance (3.77); cow comfort (3.73); heat detection (3.69); animal housing or environment (3.63). Factors considered by dairy farmers to be of the lowest risk were: stray voltage or other electrical phenomena (2.93); infectious disease from either (a) adding new animals (2.72) or (b) all other sources (2.86); availability of technical information (2.76); quality of outside experts' advice (2.75); soil type (2.72); chemical contamination of feed or water (2.57); and poor communication among workers (2.54.) In general, perceptions of the relative importance of these risk factors did not change among farmers with and without persistent problems.

### STRAY VOLTAGE & RELATED ELECTRICAL PHENOMENA

Of 678 respondents, 201 (68%) thought that they had at some time, experienced an animal health and/or production problem that was caused mainly by stray voltage or other electrical phenomena. At some time in the past, many of their farm sites had been tested for either stray voltage (61%) or for other electrical phenomena (15%). Most of these sites had been tested within the past ten years, most commonly by an employee of a utility company (42%) or by an electrician (19%). Approximately one half (49%) of the tests resulted in the farm owner being informed that there were stray voltage or other electrical conditions that should be corrected. Eight-seven percent of people receiving such advice report that they followed through and took steps to correct the problems. Also, one-quarter (25%) of herd owners who were told that inspections showed no problems took some form of corrective action anyway. Overall, there appears to be a high degree (87%) of satisfaction among dairy herd owners following attempts to correct stray voltage or other electrical conditions on their farms. At the current time, findings of this survey indicate that 11% of Minnesota and Wisconsin dairy herd owners believe that uncorrected stray voltage or related electrical conditions are having negative effects on the health and/or production of their dairy cows.

## MAIN FINDINGS

- Just over 10% of all herd owners, or 3,600 of the approximately 36,000 in Minnesota & Wisconsin, think that cows in their herds are currently experiencing persistent health and/or production problems. These dairy herds tend to have lower rolling average milk production, higher somatic cell counts, and more frequently display certain clinical signs than herds for which no such problems were reported.
- Poor heat (estrus) expression, poor conception rate, and mastitis are the most frequently observed clinical signs.
- Herd owners' consider forage quality, fresh cow performance, cow comfort, heat detection efficiency and animal housing and environment to be the most significant causes of persistent health and/or production problems in dairy cows.
- In the opinion of herd owners, the least significant factors contributing to persistent health and/or production problems in dairy cows include: infectious diseases; soil type; quality of outside experts' advice; stray voltage or other electrical phenomena; and chemical contamination of feed or water.
- There were minor changes in perceived significance among herd owners currently experiencing persistent problems compared with those not. The significance of seasonal weather conditions, cash flow, and insufficient manpower or time was increased; while the significance of cow 's access to feed or water, ventilation, and human interaction with cows was decreased.
- Approximately 30% of Minnesota % Wisconsin dairy herd owners reported that at some time they had a herd health and/or production problem that they thought was caused mainly by stray voltage or other electrical phenomena.
- Approximately 60% of dairy herd owners reported that their farms had been tested at least once for stray voltage and 15% for other electrical phenomena such as magnetic fields, electric fields, electro-motive force (EMF), ground currents, or earth currents.
- Nearly 50% of dairy herd owners whose farms had been tested reported that the persons who conducted tests on their farms informed them of stray voltage or other electrical conditions that should be corrected. Herd owners have been responsive to recommendations, with 87% reporting that some action was subsequently taken to correct the conditions.
- Overall, 87% of herd owners are satisfied with investigations and attempts to correct stray voltage or other electrical conditions on their farms.

The results of these surveys will be used by participating service providers and organizations representing farmers to improve services, education, and outreach activities. Participating universities and government agencies intend to use the results to gain a better understanding of health and production issues so that future research can be more effectively focused on such concerns and serve greater numbers of dairy farmers.