

Measuring Milk Quality Losses Using a Modified Goal Form

Nigel B. Cook and Kenneth V. Nordlund
University of Wisconsin
School of Veterinary Medicine
Madison, Wisconsin.

Published in Proceedings of National Mastitis Council, Charlotte, North Carolina. February 2004

Introduction

In order to achieve change on a dairy farm and for the herd owner to invest in improvements in milk quality, an assessment of her loss is required, which can be used to indicate the level of opportunity available and the potential rewards that may arise from implementing a milk quality action plan.

Materials and Methods

A modification of the original Goal Form described by Nordlund (1991) has been used to assess milk quality losses on herds requesting milk quality investigations by the Production Medicine group at the University of Wisconsin-Madison. Losses related to milk quality compared to achievable targets are assessed in four main categories. These include:

1. Sub-clinical Production Losses

Mean annual linear scores for first lactation heifers and mature cows for the herd are compared with targets of linear score 2.0 for first lactation heifers and 2.5 for mature cows.

2. Losses from Somatic Cell Count (SCC) Premiums

The premium paid or loss attributed to the herd annual mean of the monthly bulk tank average SCC is compared with the premium that would be obtained at an annual mean SCC of 150,000/ml, using formulas obtained from the milk plant.

3. Losses from treatment of clinical mastitis

Rate of clinical mastitis is calculated from herd records at the quarter level. This rate is compared to a target of 20 quarter cases per 100 cows per year for the herd using a default cost per case of \$90.

4. Culling due to milk quality reasons

Turnover rate for cows removed from the herd due to reasons related to mastitis, SCC or teat lesions is calculated for the rolling annual average number of cows in the herd. Target turnover rate for milk quality is 5%.

Losses for each of the four areas are combined and presented as a loss per cow in the herd by dividing by the rolling annual average of cows in the herd. Completed goal form calculations for 34 DHIA recorded herds, ranging in mean annual bulk tank SCC from 112,000/ml to 711,000/ml, are presented.

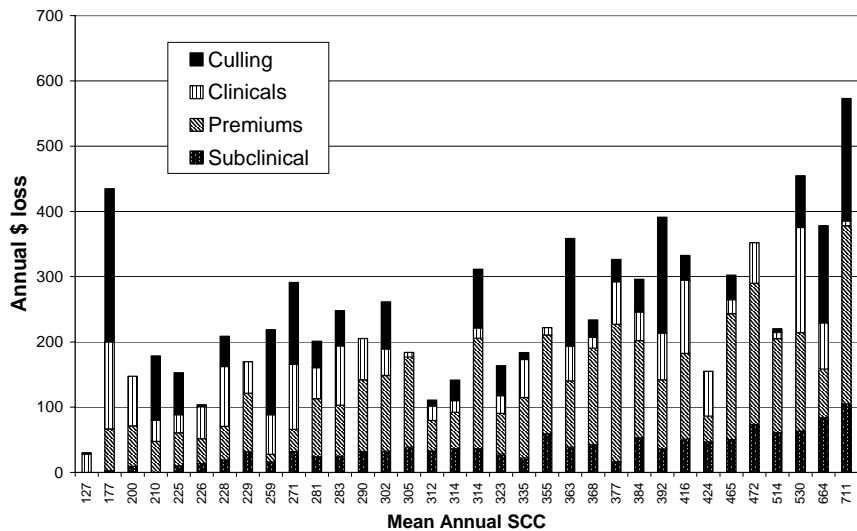
Results and Conclusions

Mean herd size was 421 with a range from 31 to 1640 cows and mean (SE) annual bulk tank SCC was 343,000/ml (21.8). Mean (SE) milk quality loss per cow for this group of herds was \$251 (19.3), with a range from \$30 to \$573 per cow. Production losses from high linear score were on average the smallest component of the overall milk quality losses accounting for only 14% of the total. For the majority of

herds, SCC premium losses represented the largest component – on average accounting for 41% of total loss per cow. Clinical mastitis treatments accounted for 21% of the total loss. Mean (SE) clinical case rate was 75.5 (7.8) quarter cases per 100 cows per year with a range from 28 to 196. Mean (SE) proportion of the herd affected by at least one clinical quarter case was 37.4% (3.8). Culling represented 24% of total losses.

Figure 1 shows the relative contribution of the four main categories of herd milk quality losses for each herd ordered by mean annual bulk tank SCC. Although losses generally increase with mean annual bulk tank SCC, low SCC by no means equates to low milk quality losses. Unbalanced approaches to milk quality control are not uncommon. For example, lack of identification and treatment of clinical cases and low rates of milk quality culling lead to increased production losses due to high linear score and high SCC premium losses. At the other extreme, maintaining a low bulk tank SCC with associated minimal losses from SCC premiums can be costly if it is associated with excessive treatment and culling of clinical and chronically infected cows.

Figure 1. Relative contribution of the four main categories of milk quality loss to overall loss per cow, ordered by herd mean annual bulk tank somatic cell count.



References

Nordlund, K.V. 1991. A form to develop goals for dairy production medicine programs. *The Bovine Practitioner*, No. 26, pp 21-28.