

## EUTHANASIA IN DANISH DAIRY HERDS

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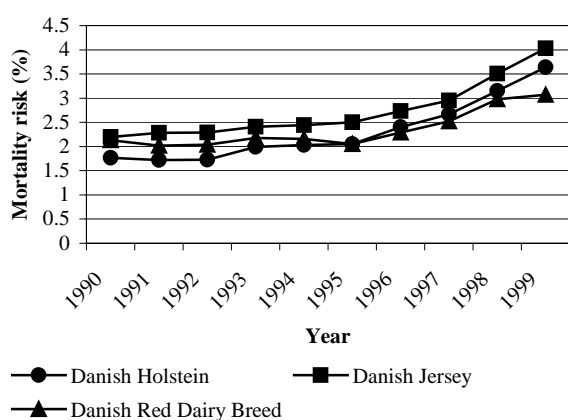
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### Introduction

Mortality among dairy cows constitutes a problem both in terms of financial losses (value of dead cows, decreased production and cost of replacement cows) and compromised animal welfare (suffering before unassisted death or euthanasia).

Mortality risk (unassisted death or euthanasia) among Danish dairy cows has increased from 2 % in 1990 to 3.5 % in 1999 (Figure 1).

Figure 1. Breed-specific mortality risk among Danish dairy cows 1990 – 1999 (7).



The proportion of euthanised cows among dead cows has been examined in a questionnaire survey among 196 Danish dairy farmers in 2002. Replies from the survey showed that 58 % of the dead dairy cows were euthanised. Furthermore, the replies indicated that the proportion of euthanised cows has increased in the past five years. More than half of the farmers stated, that they euthanise relatively more cows now than five years ago (7).

Decreasing average profits per cow, decreasing value of the individual cow, increasing labour costs and increasing veterinary expenses (4) might have affected the farmer's decision-making concerning treatment versus euthanasia. Thus, the farmer's interest in intensive treatment of seriously ill cows might have decreased, resulting in more euthanasia and a decrease in expensive treatments. The increase in mortality risk seen during the last decade may therefore predominantly be due to an increasing number of euthanised cows.

Results from the questionnaire survey indicated that 77 % of the euthanised cows was shot by the farmer or a veterinarian. 23 % were euthanised by an overdose of an anaesthetic. According to Danish legislation exsanguination of shot cattle is mandatory (2). Our objective was to study whether this exsanguination was conducted properly.

### Materials and Methods

Cows and calves shot (penetrating captive bolt) were examined at an incineration plant, where the majority of dead Danish cattle (including all adult cattle) are processed. The animals were sampled by systematic random sampling. It was noted whether the animals were both shot and exsanguinated or shot without subsequent exsanguination.

### Results

The study at the incineration plant showed that out of the examined cows that were shot only 24 % were also exsanguinated (95 % confidence interval: 8 – 40 %). Among calves shot only 4 % were exsanguinated (95 % confidence interval: 0 – 12 %).

### Discussion

An increase in the number of cows dying unassisted constitutes an animal welfare problem (suffering before death). The situation concerning euthanasia is more complex. An increase in the number of euthanised cows might be due to an increase in the number of seriously ill cows. This situation also has negative impacts on animal welfare. If, on the other hand, the increase in the number of euthanised cows is not a consequence of increased morbidity, but caused by an altered threshold for euthanasia among farmers, it might have a positive impact on animal welfare. More seriously ill cows might be euthanised and thus not put through a (perhaps long) period of suffering associated with disease and treatment. Euthanasia has been defined as rapid, painless death (1,5,8). Euthanasia in itself is not an animal welfare problem, if it is performed quickly and without suffering for the cow. This might be accomplished by an overdose of an anaesthetic (e.g. a barbiturate) or by shooting (penetrating captive bolt) followed by exsanguination (1,3,8). Exsanguination subsequent to shooting is needed to ensure the death of the animal. Some authors do not emphasize this fact (e.g. (3)) whereas others do (e.g. (1,8)). However, Grandin (6) has shown that 1.2 % of shot cows and bulls returned to sensibility after shooting. Thus, shooting without subsequent exsanguinations is not an acceptable method of euthanasia. Failure to exsanguinate shot cows or calves constitutes a problem both legally and in relation to animal welfare (1,2,6,8).

### Conclusion

We find euthanasia acceptable in relation to animal welfare if it is performed properly. However, in our study the proportion of shot cows and calves that were also exsanguinated were very low. Both veterinarians and farmers need to pay further attention to this problem in the future. An information campaign emphasizing the need for exsanguination might reduce the proportion of shot cattle, which are not exsanguinated.

**References**

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