Risk factors for unassisted on-farm death in Swedish dairy cows

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Abstract

Increased on-farm cow mortality (ie unassisted death and euthanasia) has been demonstrated in Swedish dairy herds during the last decade. Identifying risk factors associated with type of death is needed for future work in reducing cow mortality rates. The objectives of this case-control study were to quantify the relative proportion of unassisted dead cows among cows that die on-farm, and to identify risk factors associated with unassisted death (as opposed to euthanasia). In Sweden, cadavers and animal waste products are being processed into biofuel at destruction plants. Two destruction plants were visited three times in 2011–2012. All dairy cows (n = 556) entering the plants were examined. Farmers that had sent the cows were contacted by telephone to verify type of death. Of the 433 dairy cows included in the analysis, 30% had died unassisted. A stillbirth rate above or equal to the median in the study material (7%) increased the risk for unassisted death. The proportion of unassisted dead cows was lower than that found in other countries. The results indicate that it might be possible to study euthanasia and unassisted death as one group in Swedish dairy cows, because only one factor differentiating between the two types of death was identified. However, unidentified risk factors may still differ and, possibly more importantly, welfare implications may also differ between the two types of death which implies the need to separate them in future studies.

Keywords: animal welfare, dairy cattle, destruction plant, interview, mortality, stillbirth

Introduction

A high rate of on-farm mortality (ie euthanasia and unassisted death) may be an animal welfare problem and is associated with high financial losses for the farmers. Increasing mortality rates have been reported in Denmark, Sweden, and the USA in the last decade (Thomsen et al 2004; Miller et al 2008; Alvåsen et al 2012). In Sweden, dairy cow mortality rates increased from 5.1 to 6.6 deaths per 100 cow-years between 2002 and 2010 (Alvåsen et al 2012). The underlying cause of the increase is unknown and unassisted death and euthanasia may well have different implications. Thus, a high proportion of unassisted death is likely an animal welfare problem as the animal often will suffer from fear or pain before death. A high proportion of euthanised cows may be an indication of a high number of seriously ill cows, which of course is problematic, but it may also be a consequence of a reduced threshold for euthanasia (ie euthanasia instead of treatment). A reduced threshold for euthanasia may be better from a welfare perspective if cows are euthanised at an early stage of disease and will therefore not have to go through a period of suffering from disease and treatment attempts. With the possible difference in implications it is also conceivable that factors increasing the risk for on-farm mortality may differ between unassisted death and euthanasia. Still, there are only a few studies of on-farm mortality that distinguish between euthanasia and unassisted death (Thomsen et al 2004; Thomsen & Sørensen 2008, 2009; McConnel et al 2009, 2010; Thomsen et al 2012).

To have a possibility of reversing the trend in increasing mortality rates, knowledge about the relative proportions of unassisted death and euthanasia is needed. Swedish dairy farmers are required by law to report births, movements between herds, death and culling of cattle to the central register of bovine animals. The proportion of euthanised cows and cows that die unassisted is not known in Sweden. The reason being that both types of death are reported with the same code, ie they are not distinguishable in the recording scheme. More than 95% of all dairy cows that die on-farm in Sweden are processed at destruction plants (except cows