Effectiveness of animal health and welfare planning in dairy herds: a review

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Abstract

Maintaining and promoting animal health and welfare are important but challenging goals in livestock farming. Animal health and welfare planning aims to contribute to improvements in the herd through interventions in a structured way. This review provides an overview of current scientific approaches to and improvements achieved by health and welfare planning in dairy herds regarding the health and welfare state of the cows, economic effects, and non-monetary benefits to farmers. Implementation of changes in management and housing is based on an assessment of the health and welfare state and relies on the participation of all involved persons. Farm-specific measures of management and housing, high levels of compliance with those measures, continuous review, and prompt adaptation are decisive. Improvements in health and welfare following the use of planning have been shown by several on-farm studies, especially in the context of mastitis and lameness. Studies on health and welfare planning that consider a more comprehensive view of welfare are scarce and the limited evidence available indicates that improvements may be less likely to be achieved. Apart from health and welfare benefits for the animals, economic and non-monetary benefits for the farmers are equally important. Costs of diseases and impaired health are available, while costs and benefits of interventions have been estimated with regard to mastitis and lameness only. Non-monetary factors (e.g., job satisfaction) have been reported as motivating factors for farmers but have attracted little scientific interest. Further research should focus on welfare aspects that go beyond the most important production diseases and the economic and non-monetary benefits of improving health and welfare in dairy cattle.

Keywords: animal welfare, costs, dairy cows, improvement strategies, non-monetary benefits, on-farm welfare assessment

Introduction

Animal welfare has received increased attention among European consumers (European Commission 2007), and during the last two decades farm animal welfare science has evolved into a well-recognised scientific discipline (Millman et al. 2004). While welfare-friendly housing systems and management procedures (e.g., studies on cow comfort; Cook & Nordlund 2009) have been developed, surveys indicate that health problems, such as lameness, mastitis or skin lesions, are still highly prevalent and often exceed expert-derived intervention thresholds (e.g., Whay et al. 2003; Green et al. 2007; Leach et al. 2010a; von Keyserlingk et al. 2012). Beyond this focus on animal health (biological functioning), a more comprehensive approach in defining animal welfare also includes the animals' feelings (affective state) and their ability to express natural behaviour (natural living) (Fraser et al. 1997). However, surveys on the latter two areas are rare and cover only parts of it (e.g., von Keyserlingk et al. 2012) on lying times in dairy cattle). Although it may seem tautological to use the term 'animal health and welfare planning', as health is one of the three aspects of animal welfare, we keep this term throughout this paper to make explicit that we are discussing all aspects of animal welfare. Moreover, most health and welfare planning activities that will be discussed in the present review had a strong focus on promoting animal health or on increasing welfare through enhancing health parameters. Substantial progress in developing valid, reliable and feasible assessment systems has been made (Main et al. 2007; Knierim & Winckler 2009), but more effort is needed to actually improve animal welfare (Whay 2007). Assessing the health and welfare state and identifying and implementing appropriate interventions on-farm have received increased attention during recent years.

In dairy cattle, farmers, veterinary and agricultural advisors, and scientists have focused particularly on lameness (e.g., Whay et al. 2003) and mastitis (e.g., Green et al. 2007). However, despite a vast body of scientific evidence on (potential) risk factors, the implementation in terms of changes in housing conditions and management on-farm appears still inadequate (Valeeva et al. 2007; Whay & Main 2010). Hence, improving health and welfare of dairy cows seems to rely on getting information across to farmers in a more suitable way and in encouraging decisions in favour of the animals (Jansen et al. 2009; Garforth 2011).