Welfare assessment in traditional mountain dairy farms: above and beyond resource-based measures

A Zuliani*, A Romanzin‡, M Corazzin‡, S Salvador‡, JC Abrahantes§ and S Bovolenta‡

Abstract

The Welfare Quality® project was one of the largest research undertakings into animal welfare. Despite animal-based measures (ABMs) being increasingly preferred over resource-based measures (non-ABMs), the Welfare Quality® protocol (WQ) for dairy cattle has a non-ABM, Ease of Movement that classifies housing systems using a threshold of 100 days of access to pasture or, inversely, of 265 days tethered. Since traditional transhumance to alpine pastures lasts for approximately 90 days most farms tend to be classified as having a year-round tie-stall system by the WQ. The aim of this study was two-fold: to discuss the appropriateness of using non-ABMs and related thresholds in welfare scoring and to classify mountain dairy farms using ABM records. Initially, a comparison was made with scores obtained using the WQ protocol in farms where cows were: i) tethered all year; and ii) tethered but having regular exercise or reared in loose-housing systems. No difference in terms of welfare was detected between groups of farms regarding their housing systems, thus we investigated welfare focusing on ABMs. Therefore, farms were grouped into four clusters, according to their ABMs. The results indicated that good ABM scores can be obtained in most traditional mountain farms where cows are tethered for around 275 days a year and have access to highland pasture for the remaining 90 days. In this study, ABMs were effective tools for classifying mountain farms according to their welfare status and for informing targeted action to improve dairy cow welfare.

Keywords: alpine farming, animal-based measure, animal welfare, dairy cattle, small-scale farm, tie-stall system

Introduction

Mountain farms are small-scale, family businesses that contribute greatly to high-value food chains in terms of the quality and diversity of their products (Kohler & Romeo 2013). In addition, due to their size and low/local inputs, mountain farms deliver ecosystem services, such as maintenance of cultural heritage, preservation of agro-biodiversity, disaster risk reduction and space for recreation and tourism that are vital for sustainable development far beyond mountain areas (Battaglini et al 2014).

In Italy, 78% of mountain dairy farms are micro-scale enterprises with less than 20 cows and most can be considered small-scale as they do not exceed 75 lactating animals (EFSA 2015). Despite a fairly pronounced farm abandonment rate of 64% in the Italian Alps between 1980 and 2010, mountain farms still account for 44% of national dairy farms in Italy (ISTAT 2012). In the Italian Alps, dairy cattle are traditionally kept indoors and tethered during winter in lowland farms and moved to highland pastures during summer (so-called transhumance). A study carried out by Sturaro et al (2013) in the autonomous province of Trento — a mountain area in the north-eastern Italian Alps — estimated that more than 70% of farms in the province were using tie-stall systems. At the same time, the majority of farms (55%) were practicing the traditional summer transhumance of lactating cows to highland pastures.

Animal welfare assessment is an ongoing challenge and several methods have been identified to assess it at herd level. The largest research project on animal welfare funded by the European Commission was the Welfare Quality® project (Blokhuis et al 2010) involving 44 research institutes and universities from all over the world. The Welfare Quality® Assessment Protocol (WQ; Welfare Quality® 2009) combined animal-, resource- and management-based measures in order to determine an overall level of welfare. The measures that affect animal welfare through the physical environment or available resources (eg housing system) are referred to as resource-based measures while the management practices (eg disbudding/dehorning) that could affect animal welfare are called management-based measures (EFSA 2012). The response of an animal to resources and management practices is assessed through animal-based measures (ABMs) which are increasingly preferred over resource- and management-based measures (non-ABM) among animal welfare experts since they reflect the actual response of animals to the environment and the management practices to which they are exposed to (Whay et al 2003; EFSA 2012; OIE 2015). Nevertheless, for most citizens and consumers, animal welfare is linked mainly to housing systems (Te Velde et al 2002; Vanhonacker et al 2008) and the WQ for dairy cattle, within the principle of good