The welfare of culled dairy cattle sent to market and its impact on economic return

K Rosen†, P Llonch*‡ and FM Langford†§

† The Royal (Dick) School of Veterinary Studies, University of Edinburgh, Easter Bush Campus, Midlothian EH25 9RG, UK
‡ School of Veterinary Science, Universitat Autònoma de Barcelona, 08193, Cerdanyola del Vallès, Barcelona, Spain
§ Animal and Veterinary Sciences, Scotland’s Rural College, West Mains Road, Edinburgh EH9 3JG, UK
* Contact for correspondence: pol.llonch@uab.cat

Abstract

The aim of this study was to assess the welfare of culled dairy cattle sent to an auction in the UK and identify associations between animal-based measurement and economic gain. The population of culled dairy cows sold at a Scottish livestock market were assessed on ten occasions for measures including body condition, mobility, hair loss and lesions, swelling, body cleanliness, claw conformation and total time in pre-sale pens. Details on breed, age, breeding status, farm, weight and price were gathered from market reports and cattle passports. Questionnaires sent to farms gathered information on reason for culling, retirement period (a finishing period to improve body condition), and number of lactations, among other variables. Measures such as bodyweight, breeding status, and breed type influenced price paid, with heifers and larger animals receiving higher prices. A negative effect over price paid was due to reduced mobility and hair loss scores, suggesting that some animal-based indicators of compromised welfare may be associated with a lower economic return from the cows sent to market. No influence of retirement length on price paid was noted. Reason for culling also did not influence price paid, but considering the association found between welfare and price paid, this suggests that the farmers’ reason for culling may not be necessarily revealed by the visual appearance of the cow. This study reveals reasons for culling and quantifies the welfare of dairy cows at market and demonstrates how measures of breeding status and body size, as well as measures of welfare, influence the buyers’ decisions and prices paid at auction.

Keywords: animal welfare, auction, culling, dairy cow, economic return, market

Introduction

The culling of dairy cows — or the removal of cows from the herd for sale or slaughter or due to on-farm mortality — has traditionally been divided into two categories (Fetrow et al 2006). The removal of cows for yield, age or conformation would fall under the category of voluntary culling (VC), whereas infertility, disease, trauma, and other potential conditions that necessitate removal before a farmer would wish to do so, are considered involuntary culling (IC).

Previous research in the welfare of culled cows has largely focused on IC rates. For instance, studies conducted in the UK estimate a culling rate of 25% (Bell et al 2010; Orpin & Esslemont 2010), with IC consisting of up to 70% of this figure. Most studies identify infertility as the leading cause of IC (Beaudeau et al 1993), followed by mastitis (Bell et al 2010) and typically lameness (Orpin & Esslemont 2010). Other factors that influence culling decision are the condition of the cow for transport (ie condition of cow and ability to remain standing) and drug withdrawal times (Roche et al 2020).

Significant attention has been given to the financial benefits of reducing IC. Orpin and Esslemont (2010) stated that a cow sold at the end of lactation would cost a farmer an estimated £1,238, compared to £2,182 for an emergency removal 200 days prior to the end of lactation. Stott (1994) evidenced how reducing IC would result in a higher average herd age and equate to an additional £20 per lactation. Conversely, the effects of IC for the welfare of cows sent to slaughter (and some to markets) has received little attention. Research on animal-based indicators of the welfare of culled dairy cows is minimal, with most research focusing on body condition scoring (BCS), likely for its association with the economic return. Minchin et al (2009) reported a mean BCS of 3.0 at an Irish slaughterhouse. Similarly, a survey conducted by Nicholson et al (2013) at an American slaughterhouse revealed an average BCS of 2.5 out of 5. They also determined the incidence of dirtiness and lameness at the slaughterhouse, but the impact of these measures on welfare was not discussed. Indicators of the health and welfare of cattle are increasingly routinely assessed in markets and slaughterhouses (Velarde & Dalmuu 2012). The association of different animal-based variables, initially thought to be independent, such as lameness and BCS, is gaining more attention as they can be taken as proxy measures of productivity and economic return.