Livestock transport regulations in many countries require that cattle be unloaded for feed, water and rest when they are being transported long distances, but there are few evidence-based guidelines about how to most effectively manage and provide these requirements at rest stops. The aim of this study was to assess whether available feeding space at a commercial rest facility affected eating behaviour and general activity. Twenty-four trailer loads of cattle were selected for study, and each load was divided into two groups. The control group was provided ad libitum access to a single, round, hay-bale feeder. The treatment group had two round, hay-bale feeders and thus twice as much feeding space per animal. Cattle behaviour was recorded during a 5-h rest period using instantaneous scan sampling every 5 min. This was performed at the group level by counting the number of animals engaged in pre-defined activities, as well as individually by tracking a subset of focal animals from each group. Behaviour was categorised as one of the following: eating, drinking, lying, or ‘other’. Interruptions to eating were also quantified. Eating was counted as interrupted when, instead of being followed by a consecutive eating observation, it was interspersed by another behaviour. Doubling feeding space increased the mean proportion of cattle eating by 30%, decreased interruption of eating bouts and had no effect on drinking and lying behaviour. Increased access to feed has potential welfare and health benefits. These data can be used to inform standards for feeding beef cattle at rest stops during long-distance travel.

Abstract

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Keywords: animal welfare, beef cattle, behaviour, feed competition, rest stop, transport

Introduction

Livestock transport regulations in many countries require that cattle transported long distances be unloaded for rest, feed and water (e.g., Department of Justice Canada 1990; Council Regulation EC No 1/2005 2005). Despite this, specific standards for resource provision at rest stops do not exist. Long-distance transportation exposes cattle to numerous stressors, including extended periods of feed, water and lying deprivation (Schwartzkopf-Genswein et al. 2012). This may result in hunger, thirst and discomfort and negatively impact health and welfare, especially in Canada where maximum allowable transport times are longer than in Europe (52 vs 30 h) (Doonan & Appelt 2008). Previous studies have reported weight loss in the range of 5 to 8% for cattle transported 12 to 31 h (Knowles et al. 1999; Gonzalez et al. 2012a) in addition to increased morbidity (Gaylean et al. 1999) and reduced growth rate for newly received feedlot cattle (Loerch & Fluharty 1999).

As little as 24 h of feed deprivation results in tissue catabolism (Marques et al. 2012), increased plasma cortisol (Marques et al. 2012) and the death of rumen microbes (Hogan et al. 2007), impairing immune defences at a time when cattle may be exposed to a variety of pathogens (Warriss 2004). Previous studies have focused on the influence that transport conditions and cattle characteristics have on weight loss and morbidity (Cernicchiaro et al. 2012a; Gonzalez et al. 2012a,b), but little emphasis has been placed on the potential role of feed and water rest stops in alleviating long-distance transport’s negative effects on welfare, health and performance. Flint (2013) found that the main influences on cattle behaviour at a commercial rest facility were the characteristics of the rest facility itself; particularly the number of cattle in relation to the available feeding space. Decreased feeding competition has been shown to increase eating duration and decrease aggressive displacements (DeVries et al. 2004).

Social stress during feeding may be particularly important for transported cattle, which are prone to appetite loss (Gaylean et al. 1999) and for which specific resource requirements may differ from beef cattle under normal husbandry conditions. The aim of our experiment was to determine if feed access can be improved to promote the well-being of beef cattle, by assessing whether the feeding space available at a commercial rest facility affected their eating behaviour and general activity.