J. Dairy Sci. 97:1–12
http://dx.doi.org/10.3168/jds.2013-7766

Comparison of selected animal observations and management practices used to assess welfare of calves and adult dairy cows on organic and conventional dairy farms

M. A. Bergman,* R. M. Richert,* K. M. Cicconi-Hogan,† M. J. Gamroth,‡ Y. H. Schukken,† K. E. Stiglbauer,‡ and P. L. Ruegg*[1]
*Department of Dairy Science, University of Wisconsin, Madison 53706
†Quality Milk Production Services, Cornell University, Ithaca, NY 14850
‡Department of Animal Sciences, Oregon State University, Corvallis 97331

ABSTRACT

Differences in adoption of selected practices used in welfare assessment and audit programs were contrasted among organic (ORG; n = 192) herds and similarly sized conventional grazing herds (CON-GR; n = 36), and conventional nongrazing herds (CON-NG; n = 64). Criteria from 3 programs were assessed: American Humane Association Animal Welfare Standards for Dairy Cattle, Farmers Assuring Responsible Management (FARM), and the Canadian Codes of Practice (CCP). Data were collected by trained study personnel during a herd visit and included information about neonatal care, dehorning, pain relief, calf nutrition, weaning, record keeping, use of veterinarians, and animal observations. Associations of management type (ORG, CON-GR, or CON-NG) with adoption of selected practice were assessed. Almost all farms (97%) met criteria suggested for age at weaning but fewer CON-NG farmers weaned calves at ≥5 wk of age compared with ORG and CON-GR farmers. Only 23% of farms met program requirements for use of pain relief during dehorning, and fewer CON-NG farmers used pain relief for calves after dehorning compared with ORG and CON-GR farmers. Calves on ORG farms were fed a greater volume of milk and were weaned at an older age than calves on CON-GR and CON-NG farms. Calves on CON-GR farms were dehorned at a younger age compared with calves on ORG and CON-NG farms. The calving area was shared with lactating cows for a larger proportion of ORG herds compared with conventional herds. About 30% of herds met welfare program criteria for body condition score but only about 20% met criteria for animal hygiene scores. The least proportion of cows with hock lesions was observed on ORG farms. Regular use of veterinarians was infrequent for ORG herds. Results of this study indicate that most of the organic and conventional farms enrolled in this study would have been unlikely to achieve many criteria of audit and assessment programs currently used in the US dairy industry.

Key words: organic, management, dairy, welfare

INTRODUCTION

Dairy cattle welfare audits and assessments have been developed to reassure consumers that farmers are using acceptable husbandry practices that result in well-cared-for animals (Reynolds, 2006). Several nongovernmental advocacy groups have encouraged the creation of audits and assessments for animal agriculture (Eicher, 2006). In recent years, restaurant and supermarket chains have begun to require suppliers to provide evidence of acceptable animal management practices on the farms from which they procure products. As a result, several audit and assessment programs for farm animal welfare have been developed. Most programs collect information, such as animal measurements (body condition, lameness, hygiene, and hock lesions), assess farm recordkeeping, and evaluate animal housing and general husbandry. Among auditing and assessment programs, similar information and measurements are commonly assessed but differences in the adoption of management practices and animal measurements among organic and conventional farms have not been previously described.

Auditing and assessment programs typically evaluate management practices that are thought to directly affect animal welfare. Specific areas of concern include the calving environment (Vasseur et al., 2010), management of colostrum (Wells et al., 1996; Weaver et al., 2000; Godden, 2008), mitigation of pain (Faulkner and Weary, 2000), the weaning process (Jasper et al., 2008; Weary et al., 2008), housing environments (Rushen, 2001; Regula et al., 2004; National Farm Animal Care Council, 2009), nutritional management (Burkholder, 2000; Roche et al., 2009), culling, mortality (Thomsen

Received November 25, 2013.
Accepted March 26, 2014.
[1]Corresponding author: plruegg@wisc.edu

and Houe, 2006; Ahlman et al., 2011), and livestock handling practices (Hemsworth et al., 1989, 1995). These practices vary among farms and there are currently no national guidelines for how to assess dairy animal welfare in the United States. The aim of this study was to describe selected animal measurements and adoption of common management practices used to assess and audit animal welfare among organic and conventional dairies in the United States.

MATERIALS AND METHODS

Data Collection

Variables included in this study were selected based on requirements found in 3 common welfare programs. The American Humane Association (**AHA**) Animal Welfare Standards for Dairy Cattle (AHA, 2012) was chosen to represent an audit program. The National Dairy Farm Program (2012) Farmers Assuring Responsible Management (**FARM**) program was chosen to represent an assessment program, and the Canadian National Farm Animal Care Council (2009) Code of Practice (**CCP**) was chosen to represent a uniform industry consensus for ensuring acceptable animal husbandry. Depending on the goal of these programs, they each have individual objectives and collect data including office records, information on employee management and housing, compliance with state and federal milk hygiene regulations, and animal observations. We did not assess all of the items, but among the data collected in these programs, we selected animal-based variables and management practices based on their potential to directly influence dairy animal wellbeing and based on the ability of study personnel to collect these data on farms during scheduled herd visits.

Herd recruitment and data collection have previously been described (Cicconi-Hogan et al., 2013a,b; Richert et al., 2013a,b,c; Stiglbauer et al., 2013). In brief, organic (**ORG**) and similarly sized conventional (**CON**) herds in New York State (n = 72 ORG, 25 CON), Oregon (n = 24 ORG, 24 CON), and Wisconsin (n = 96 ORG, 51 CON) were enrolled between April 2009 and April 2011. Herd eligibility criteria required a minimum of 20 cows and shipping milk to suppliers for at least 2 yr. Organic herds had to be shipping certified organic milk for a minimum of 2 yr. The requirement for a minimum of 2 yr of organic certification was based on recommendations from ORG farmers who wanted to ensure that herd owners had sufficient experience with organic herd management. Herds were categorized into 3 graze categories that combined management system (ORG and CON) and grazing routine. Organic requirements in the United States require lactating cows to obtain ≥30% of DMI from pasture during appropriate seasons. Conventional grazing (**CON-GR**) herds were defined as conventional herds that met this criterion. Conventional nongrazing (**CON-NG**) herds did not meet this definition but still could have allowed cattle to go on pasture. A single farm visit was made by 1 of 3 trained assessors, and a 54-page questionnaire was administered (available at http://milkquality.wisc.edu/organic-dairies/project-c-o-w/). The questionnaire contained information about usage of veterinarians, milk quality protocols, and calf management practices. Information was collected about occurrence of disease, lameness, culling, and veterinary usage during the 60 d before and after the farm visit. In each state, a single member of the study team conducted all interviews and performed all scoring. In addition to the questionnaire, study personnel assessed BCS (Ferguson et al., 1994), udder hygiene score (**UHS**; Schreiner and Ruegg, 2003), hock lesions (Fulwider et al., 2007), and lameness (Sprecher et al., 1997). Animal measurement scores were obtained from all lactating and dry cows for herds up to 50; for larger herds, a randomly selected, representative sample of 20% of lactating and dry cows were scored. Cows were considered lame when lameness score was ≥3, udders were considered dirty when UHS were ≥3. Lameness was scored by adapting the 5-point scale of Sprecher et al. (1997) into dichotomous categories of "lame" or "not lame." Cows that stood with a level-back or slight arch posture and had a normal gait were scored as not lame (scores 1 or 2 according to Sprecher et al. (1997), whereas cows that had an arched-back posture both while standing and walking and had an abnormal gait were scored as lame (scores 3, 4, or 5 according to Sprecher et al., 1997). Before herd visits began, all study personnel met and were trained on administration of the survey instrument and scoring systems used in the study. Throughout the data collection period, monthly conference calls were held to discuss questions and ensure standardization of data collection among states. Study approval was obtained from the Institutional Review Board and Animal Care and Use Committee at Oregon State University.

Statistical Procedures

The herd was the unit of analysis; animal-level measurements were collapsed at the herd level. Descriptive statistics were run using PROC FREQ and PROC UNIVARIATE for categorical and continuous variables, respectively (SAS Institute, 2011). Frequencies were analyzed for associations among graze categories using χ^2 test (PROC FREQ) or Fisher's exact test (when frequencies were <5). Nonparametric means among categories were tested for significant differences using