Dairy Cow-Based Measures of Welfare on Organic and Conventional Dairy Farms in Southern Ontario.

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Background:
Assessing animal welfare can provide the first stage of detection for shortcomings in herd health and management and it provides consumers with quality assurance in humane animal treatment. By further identifying those specific management practices that have been shown to affect animal welfare both within and across different systems, more targeted and refined tools and practices can be developed to improve animal welfare.

Project Overview:
An Organic Science Cluster (OSC) project is currently underway in Southern Ontario to benchmark dairy farms using various housing and management practices. Key objectives are to assess both the health and welfare of the lactating cows and examine associations with housing and management practices.

A total of 59 farms were visited between March and May of 2011. Of the farms enrolled, 41 were conventional (12 providing pasture to their lactating cows, 29 having no pasture access) and 18 were organic. The housing systems included tie-stalls (N=35), free-stall (N=18) and pack barns (N=6). Fifteen cows were examined on each farm (5 most recently fresh cows, 10 random cows) for a physical examination of body condition (score 1-5, 1=thin, 5=fat), hock lesions (5 areas assessed, total score range: 0-20, 0=no lesion, 2=broken skin/scab>10 cm^2) and cleanliness (3 areas assessed, total score range:1-12, 1=clean/no manure, 4=filthy, plaques of manure) (N=885).

A mixed model analysis of variance (SAS Proc Mixed) was used to examine how farm level factors (pasture access, organic status, housing system, etc.) and cow level factors (DIM, lactation number, breed) influenced each outcome variable. Body condition scores were lower in organic versus conventional herds (2.27 ± 0.11 vs 2.53 ± 0.11, $P<0.001$) and also for cows in mid lactation ($P<0.001$). Hock lesion scores were higher in conventional herds (3.20 ± 0.14 vs 2.03 ± 0.28, $P<0.001$) and in tie-stall versus free-stall barns (3.00 ± 0.19 vs 2.23 ± 0.21, $P<0.01$). Lesions were also more predominant in cows of higher lactation ($P<0.0001$). Cleanliness scores were higher (i.e. poorer hygiene) in organic versus conventional herds (7.56 ± 0.27 vs 6.18 ± 0.15, $P<0.0001$) and in free-stall versus tie-stall barns (7.49 ± 0.22 vs 6.25 ± 0.18, $P<0.0001$). Associations between the above welfare indicators and amount and duration of pasture use, bedding management and stall design are forthcoming.

Conclusions:
This research will help the dairy industry to identify key practices influencing cow welfare across a variety of management systems and aid in the development of improved on-farm practices.

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