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The effect of management system on mortality and other welfare indicators in Pennsylvania dairy herds

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Abstract

*The objective of this study was to identify farm characteristics that were associated with cow (*Bos taurus*) welfare outcomes, including mortality rate, culling by 60 days of lactation, survival to ≥ 6 years of age and ≥ 5th parity (aged cows), somatic cell score, milk yield, and milk composition. Data were collected on housing systems, feeding systems, pasture strategies, bedding type, labour management practices and other farm characteristics in face-to-face interviews with 314 Pennsylvania dairy herd owners where performance records were available. Five herd management systems were identified in the sample: free-stalls with complete confinement (n = 37); free-stalls that allowed outdoor access (n = 76); tie-stalls with complete confinement (n = 52); tie-stalls with outdoor access and that fed a total mixed ration (n = 72); and tie-stalls with outdoor access and that did not feed a total mixed ration (n = 77). Welfare outcomes were evaluated with multivariable linear regression models and marginal means were estimated for herd management system. Tie-stalls that allowed outdoor access and that did not feed total mixed rations had the lowest mortality rate (2.0%), culling in the first 60 days of lactation (5.1%), and the highest proportion of aged cows (13.8%). Those herds also had high lifetime-to-date milk yield, a low proportion of fat-protein inversions, and low somatic cell scores. Free-stalls with complete confinement had significantly higher levels of mortality (8.3%), culling in the first 60 days of lactation (9.7%), and fewer aged cows (6.4%). It was concluded that shifts toward more efficient herd management systems have not benefited cow health and welfare. This suggests that cow welfare has been compromised to facilitate the economic survival of dairy farms.*

Keywords: *animal welfare, culling, dairy cattle, housing, management, mortality*