

Effects of Localized Air Flowing System in Free Stalls on Behavior of Lactating Cows in a Hot Environment

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Abstract

The influence of continuous localized air flows from a pipe mounted 110 cm above the front edge of stall floors on cow behavior in a hot environment was studied by using seven lactating Holstein cows kept in free stall (FS) housing. The localized air flowing system is characterized as a mechanism which sends air over a cow's body in a stall, from blast holes in a vinyl chloride tube set on the neck rail bar of the stalls.

Three behavioral observations were made during each three-day period between July 18 and August 3, '99: Period 1 with localized air flows in the rainy season; Period 2 with localized air flows after the rainy season; and Period 3 with no localized air flows after the rainy season. Air temperature in Periods 1, 2, and 3 averaged 22.6°C, 26.3°C, and 26.8°C, respectively. Period 3 with no air flow resulted in significantly ($P < .05$) lower milk yields and body weights, but with a non-significant trend toward lower dry matter intake. The daily lying time, total use time of the stalls, and eating time were significantly ($P < .05$) longer in the order of Period 1, Period 2, Period 3, whereas daily standing and migrating time in the alleys was significantly ($P < .05$) longer in the reverse order. Based on these observations, we concluded that localized air flows results in a higher stall use and longer eating time.

Key words: Localized air flow, Free stall, Lying behavior, Lactating cows, Hot environment