

عنوان مقاله:

Effect of Heat Stress on Milk Production in Dairy Cows

محل انتشار:

کنفرانس بین المللی توسعه پایدار، راهکارها و چالش ها با محوریت کشاورزی، منابع طبیعی، محیط زیست و گردشگری (سال: 1393)

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خلاصه مقاله:

Heat stress at the initiation of lactation negatively impacts the total milk production. Climatic conditions appeared to have maximum influence during the first 60 days of lactation when high-producing cows are in negative energy balance and make up for the deficit by mobilizing body reserves. High yielding cows are affected more than low yielding ones because the upper critical temperature shifts downwards as milk production, feed intake and heat production increase. Heat stress causes the rostral cooling centre of the hypothalamus to stimulate the medial satiety centre which inhibits the lateral appetite centre and consequently lowers milk production. The heat-stressed cows depend on glucose for body energy needs; therefore, less glucose is directed towards the mammary gland, and there is a decline in milk production. Negative energy balance is associated with various metabolic changes that are implemented to support the dominant physiological condition of lactation. Marked alterations in both carbohydrate and lipid metabolism ensure partitioning of dietary-derived and tissue originating nutrients towards the mammary gland, and many of these changes are mediated by endogenous somatotropin which is naturally increased during periods of negative energy balance. Milk constituents are greatly affected by hyperthermia. The ability to use powerful new tools in genomics, proteomics and metabolomics to evaluate genetic differences between animals in their response to thermal stress will yield important new information in the next quarter-century and will permit the selection of cattle for resistance to thermal stress.

کلمات کلیدی:

Heat stress, milk, production, dairy cows

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