

Nutrition-Environmental Temperature Interactions in Broilers

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Total productivity and(or) production efficiency of broilers declines as the ambient temperature diverges from the zone of thermoneutrality. Decreased productivity due to environmental temperature changes results in substantial economic hardship to poultry producers and consumers. The economic strain during periods of environmental stress is due only in part to increased mortality. Substantial declines in productivity result from altered feed consumption and efficiency of feed utilization. At environmental temperatures below the thermoneutral zone, the maintenance requirement for energy is increased. Broilers eat more feed to maintain normal levels of production, and efficiency of feed energy use declines. At environmental temperatures above the thermoneutral zone, maintenance requirements for energy are also increased, but feed intake is reduced. This lowers productivity and feed efficiency.

Since the nutritional and economic principles that govern poultry feeding practice are based largely upon studies conducted within the zone of thermoneutrality, and both heat and cold stress occur seasonally in Oklahoma, optimal feeding practices under conditions of environmental temperature stress need to be researched. Research is currently being initiated to study interactions between nutrition and environmental temperature.
