

Director's Digest



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AVOID SUMMER SLUMP IN BROILERS BY INCREASING DIETARY FAT

"Summer Slump" is a hot weather phenomenon known to broiler raisers as a time of lowered weight gain rates and significantly reduced levels of feed intake. Investigations by Prof. Henry L. Fuller of the University of Georgia, with grant support from the Fats and Proteins Research Foundation, have shown that energy and nutrient intakes of chickens can be increased during periods of hot weather by modifying the rations to reduce their heat increment and that growth rates are improved.

The heat increment, which is also known as the specific dynamic effect (SDE), is the heat generated by the animal as a result of its metabolic activity. Heat increment was reduced by replacing carbohydrate calories by fat calories. At the same time the energy level was increased and protein intake was reduced although the necessary amino acid levels were maintained. Prof. Fuller and his graduate student G. Mora suggest that chickens may not be able to consume sufficient usable energy during periods of hot weather for optimal growth when fed diets having excessive heat increments.

The phenomenon of reduced food intake by man and other animals under high temperature stresses has been discussed for many years. Andrews and his co-workers at Purdue University reported reduced feed ingestion in Swine when the environmental temperature rose above a critical level because the animals sought to reduce the strain of heat dissipation. Earlier studies by Forbes at Pennsylvania

State University showed that of the three major classes of nutrients fats possessed the lowest heat increment, carbohydrates were intermediate and proteins highest. It was also noted that whenever fats, carbohydrates and proteins were fed together, as in a finished feed, the resulting heat increment was invariably lower than the sum of the calculated values of the ingredients.

Prof. Fuller increased energy and nutrient density of the basal ration by replacing glucose with poultry fat and reported that under simulated hot weather conditions feed intake fell by about 10%, intake of energy and nutrients remained essentially the same as with the basal diet but weight gains increased by about 6%. When the protein level of the basal ration was then reduced while maintaining the increased energy density, the energy intake of the birds increased by about 6% but weight gains improved by 9%. The increased energy intake in part appears to overcome the effects of heat stress and permits improved growth rates.