

## Dietary Supplementation of Betaine and Response to Warm Weather in Broiler Chicken: A Review

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**Abstract :** Broiler production has increased rapidly in tropical and subtropical regions in the past and sustained growth is forecast for the future. One of the greatest challenges to efficient production in these regions is reduced performance from warm and hot weather conditions. There are many ways to decrease these detrimental effects of heat on broiler chickens. One way is to supplement broiler diet with betaine added to feed or drinking water. A review of the results of this study suggest that betaine supplement was effective to significantly improve body weight and feed conversion ratio at the initial stages of growth but not in the finisher stages ( $P<0/05$ ). It was also demonstrated that the use of betaine significantly reduced the percentage of abdominal meat and the percentage of breast meat ( $P<0/05$ ), but had no effect on other carcass compositions. Betaine may improve the digestibility of specific nutrients. Betaine, as a methyl donor provides labile methyl groups for the synthesis of several metabolically active substances such as creatine and carnitine. Oil in a broiler diet is known to promote a response to dietary betaine supplements, that is, chicks have a higher demand for betaine with a high fat diet. This study implies that betaine supplement may stimulate protection of intestinal epithelium against osmotic disturbance, improve digestion and absorption conditions of the gastrointestinal tract and promote amended use of nutrients.

**Keywords :** heat stress, betaine, performance, broiler, growth

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