

Can Hemp Products be Used in Broiler Diets?

Jennifer Timmons, Associate Professor, University of Maryland Eastern Shore



As directed by the 2018 Farm Bill, the United States Department of Agriculture issued regulations and guidelines for the commercial production of industrial hemp in the United States. In Canada, the commercial production of industrial hemp was permitted in 1998. Hemp is an annual herbaceous plant traditionally grown for fiber and seed production. As a result of this increased production, the availability of hemp seed and hemp seed products has created opportunities to use these products in poultry and livestock rations. However, the Food and Drug Administration has not approved industrial hemp for use in animal feeds.

Hemp products such as whole hemp seed, hemp seed oil and hemp seed meal/cake may be a potential feed ingredient for livestock and poultry if approved in the future. It has been reported that hemp seed contains about 25% protein, 33-35% oil, and 34% carbohydrates. Hemp seed oil contains 75-80% polyunsaturated fatty acids which include omega-3 and omega-6 fatty acids. These fatty acids have health-promoting effects in humans. Some of these include reducing the risk of cardiovascular disease, diabetes inflammation and autoimmune diseases. When the oil is extracted from the seed, hemp seed cake/meal is what remains and may be used as a protein feed ingredient. One study reported that hemp seed protein is highly digestible, and has an amino acid profile similar to soy protein isolate. Therefore, the nutrient composition of hemp products suggests that these products may be a valuable animal feed ingredient.

There are few published studies on the supplementation of hemp products to broiler chicken diets. A study in 2017, fed diets containing 0%, 3% and 6% hemp seed oil to broiler chickens from 0-21 days of age. The performance of the broilers fed the 3% and 6% hemp seed oil diets was similar to the performance of broilers fed the 0% hemp seed oil diets. In addition, the birds fed the 3% and 6% hemp seed oil diets had greater total omega-3 polyunsaturated fatty acids in their breast meat compared to the fatty acid content of breast meat from broilers fed 0% hemp seed oil.

Another study fed diets containing 5% and 15% hemp seed cakes to broiler chickens from 12-37 days of age. This trial reported that the hemp seed diets had a negative effect on broiler performance compared to the performance of the broilers fed the control diet.

The different results in these two studies may be due to the level and type of hemp product included in the diet. Three and 6% hemp seed oil did not have an adverse effect of broiler performance. Additionally the hemp seed oil diet modified the fatty acid profile of broiler breast meat.

The inclusion of hempseed products in broiler chicken diets may be a viable alternative ingredient if approval for their use is granted in the future. However, additional research is needed in this area to evaluate different levels and different kinds of hemp seed productions. As industrial hemp production increases in the U.S., studies evaluating hemp products and by-products as an animal feed ingredient would provide beneficial information needed to determine efficacy and safety of these products in animal food production systems.