Feed is the most expensive cost in livestock production, being around 70% of the total cost, and corn is the main energy ingredient in poultry and swine industry. Aflatoxins are toxic secondary metabolites produced by Aspergillus flavus and A. parasiticus. The main substrate of aflatoxin production is corn. Aflatoxin B1 (AFB1) is a carcinogenic toxin and the main target organ is the liver (hepatotoxic). High-level aflatoxin exposure produces an acute hepatic necrosis, resulting in cirrhosis, and/or carcinoma of the liver. Acute hepatic failure is made manifest by hemorrhage, edema, alteration in digestion, changes in the absorption and/or metabolism of nutrients, and mental changes and/or coma. Chronic, subclinical exposure does not lead to symptoms as dramatic as acute aflatoxicosis, however it leads to a high risk of developing liver cancer, as aflatoxin metabolites can intercalate into DNA and alkylate the bases through its epoxide moiety. The medicinal plant turmeric (Curcuma longa), contains curcumin which has been proved in several studies to reduce the negative effects of AFB1. We conducted two experiments to determine antioxidant effects of curcumin against AFB1 in turkeys and swine. In both experiments, the addition of curcumin in diets contaminated with AFB1 was not able to ameliorate the negative effects of pigs and turkeys fed AFB1 on performance. However, curcumin was able to reduce the number of genes differentially expressed in several pathways including proteasome, apoptosis, pathways in cancer, glutathione metabolism, and metabolism of xenobiotics by cytochrome P450.