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Evaluation of a water applied biopromotor to improve production status and control *Salmonella spp* in commercial broiler chickens

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Abstract: Currently, the world's population is more conscious than ever about diseases associated with animal production especially foodborne pathogens that can directly affect public health. There has long been a need to reduce Salmonella contamination in commercial poultry production while maintaining favorable production parameters. We have developed a water applied additive biopromotor composed of inactivated bacillus strains, selected for their ability to produce molecules which improve mucosal integrity and reduce gram negative bacteria, and yeast cell wall extracts as an alternative strategy for controlling foodborne pathogens and improving production parameters. The biopromotor was evaluated in two separate large scale field trials on commercial broiler farms located in Santa Catarina, Brazil to determine if there was any effect on mortality, feed conversion and Salmonella positive samples (environmental and processing plant). The biopromotor was administered to all chickens (Cobb500) orally through the drinking water (0.2ml/bird) on the 3rd and 17th days of life of all farms in both zones: evaluations were carried out in Zone A for 3 consecutive production cycles (n=9,138,074; May-August) and in Zone B for 4 consecutive production cycles (n=1,381,981; April-September). Following each production cycle productive parameters were calculated for each flock and Salmonella positive samples were recorded, at the conclusion of the evaluation period the results were averaged for the total treatment period (per zone) and compared with results during the same months of the previous year in the same zone. Zone A results indicated: reductions in total mortality (4.33% to 2.89%), improved feed conversion (1.633 to 1.615 a difference of 18g feed/kg bw) and reduction of Salmonella positive samples (18.4% to 4.02%). Zone B results indicated: reductions in total mortality (3.67% to 2.21%) improved feed conversion (1.718 to 1.659 a difference of 59g feed/kg bw) and reductions in Salmonella positive samples (3.04% to 1.07%). These data from two separate commercial field trials indicate that the biopromotor provides a promising alternative for increasing commercial poultry performance parameters and reducing important food safety pathogens.