

Summary:

APHA conducted a comparison of the effectiveness of commercial treatments at controlling Salmonella in feed. Finio applied at 0.5kg/MT was at least as efficacious as commercial blends of organic acids used at 6kg/MT. With an application rate of 1.5kg/MT, Finio was superior to all other treatments.

Independent comparison of the efficacy of commercial organic acid blends versus Finio to control Salmonella in feed

Introduction:

Food safety is a key concern of many animal producers and necessitates a comprehensive biosecurity program. Controlling microorganisms, such as Salmonella, in feed is considered an integral part of that program. Feed manufacturers often utilize chemical treatment to reduce the level of Salmonella and other pathogens in feed, with varying success. An independent study comparing the efficacy of four commercial products on reducing the level of Salmonella in feed was conducted at APHA in Weybridge, UK.

Materials and Methods:

Samples of commercial Salmonella-controlling products were obtained from local feed mills. The efficacy of three leading organic acid products and Finio at reducing Salmonella in feed were compared. The composition of the organic acid products as listed on the label were:

- Product A - Synergistic blend of organic acids
- Product B - Formic acid, lactic acid and their salts and a surfactant
- Product C - Contained propionic acid, formic acid, ammonium formate and dipropionate.

Organic products were applied to a poultry mash feed at the manufacturers recommended levels (6 kg/ton) in a lab-scale double ribbon mixer equipped with an air atomizing liquid application system. Finio was applied from 0.5 to 2.5 kg/ton using the same system to determine the level required to be as effective as the organic acid products. After treatment, feed was inoculated with Salmonella typhimurium DT 104 at a 102 cfu/g challenge level. Feed was held at 25°C for 24 hrs prior to sampling (10 replicate samples/treatment). Sample of feed (10 g) were suspended in 90 ml of buffered peptone water, plated on agar and the plates incubated at 37°C prior to enumeration.

Results and Discussion:

The level of Salmonella in the ten replicate samples/treatment was averaged and the percent reduction calculated for each treatment. Finio was observed to reduce the level of Salmonella in feed by ~90% at the 1.5kg/MT treatment rate. The commercial organic acid products failed to obtain this level of control at application rates of 6kg/MT (Fig. 1). Finio at 1kg/MT provided comparable efficacy to two of the organic acid products (Fig. 2).

Figure 1. Efficacy of Commercial Products on Salmonella in Feed

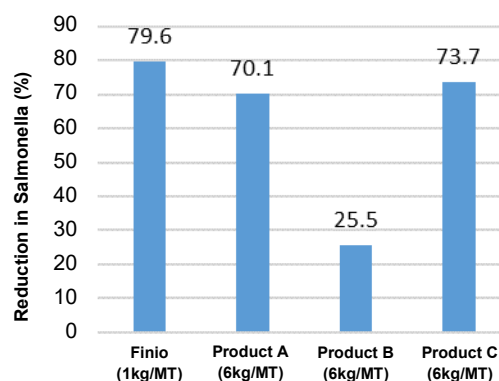


Figure 2. Efficacy of Finio in Reducing Salmonella in Feed

