

Comparison of Aureomycin® Granular Premix and Generic Chlortetracycline Meal Premix on Mixer Carryover, Consistency of Meeting Label Guarantee and Stability in Pelleted Feed

Abstract

A study was conducted at Kansas State University to compare the following characteristics of Aureomycin chlortetracycline Granular Premix and a generic chlortetracycline meal premix: mixer carryover, consistency of meeting label guarantee and stability in pelleted feed.

Prior to feed manufacturing, the entire feed flow system, including the dust collection system, was cleaned. The cleaning process was repeated between each feed additive.

With an intended chlortetracycline concentration of 400 g/ton, five 800-lb batches of feed were mixed sequentially for each feed additive without flushing or cleaning out mixing equipment between batches. For each feed additive, five 5-lb samples were randomly taken from the mixer. Each sample was identified by medication, batch and sample number. Five 100-g (3.5 oz.) sub-samples of the complete ration were then taken for laboratory analysis; the rest of the samples were pooled for a composite sample, which was retained for a stability study.

Once mixing was complete, the mixer, boot and surge bins above the pelleting area were cleaned and sampled. Records were kept for the amount of feed found at each location. Dust was collected and sampled. All residual samples were analyzed for concentration of chlortetracycline.

To determine active ingredient stability in pellets, composite samples were held over the pellet mill in a mash holding bin, and 15 samples were randomly collected as the

feed entered the surge bin. Pelleting tests were conducted using a Master Model HD C.P.M. pellet mill equipped with a 3/16" x 2" die. The mash was conditioned to 167°-176°F (75°-80°C) and cooled on a doublepass horizontal cooler with ambient air. Cooled pellet samples for each treatment were collected at the sack-off.

Summary

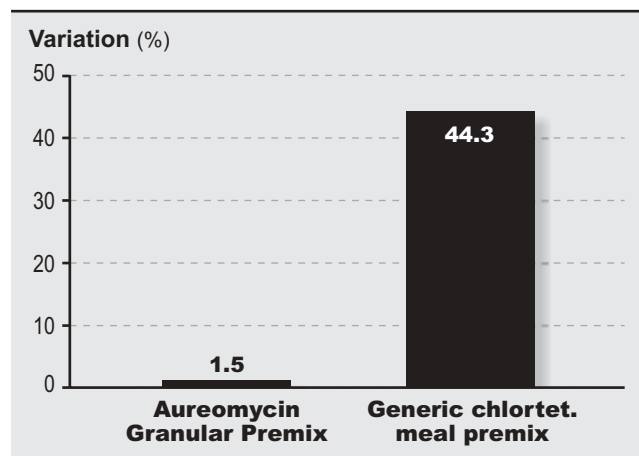
- During all manufacturing phases, the chlortetracycline concentrations of feed made with Aureomycin Granular Premix were consistently closer to the intended potency than feed manufactured with a generic chlortetracycline meal premix; these varied from 5.0 to 44.3% of the intended potency (Figures 1 to 3).
- After 4 weeks, feed manufactured with Aureomycin Granular Premix retained 99.0% of its chlortetracycline activity, an 8.6% increase in stability in pelleted feed compared to the generic chlortetracycline meal premix (Figure 4).

Discussion of Results

Mixer Carryover

The concentration of a medication in the boot is a measure of mixer carryover. In boot samples, the chlortetracycline concentration in feed batches made with Aureomycin Granular Premix was within 1.5% of the intended potency, whereas the generic meal premix varied 44.3% from the intended potency (Figure 1).

FIGURE 1: Chlortetracycline in boot samples – % variation from intended potency.



Consistency of Meeting Label Guarantee

Lower variation of the intended potency in the feed means the label guarantee will be met more consistently. The chlortetracycline potency in mash feed manufactured with Aureomycin Granular Premix was within 0.8% of the intended potency, whereas the generic meal premix varied by 5.0% (Figure 2).

In finished feed pellets, batches mixed with Aureomycin Granular Premix were within 3.2% of the intended potency, whereas the generic chlortetracycline meal premix varied from the goal by 14.0% (Figure 3).

FIGURE 3: Chlortetracycline in feed pellets – % variation from intended potency.

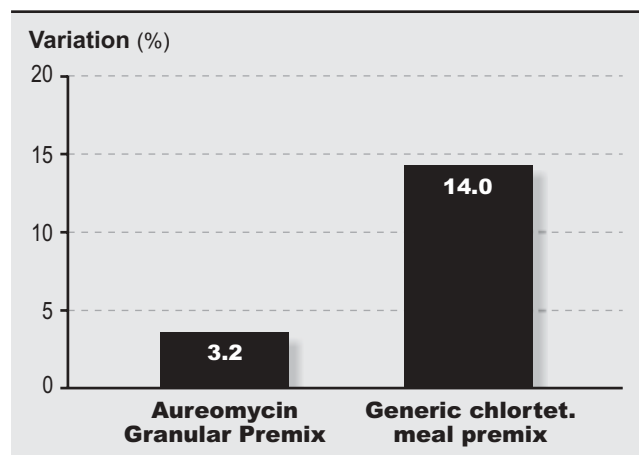
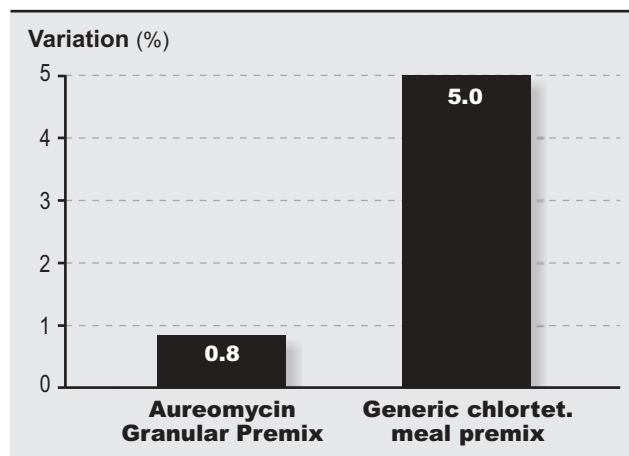


FIGURE 2: Chlortetracycline in mash feed – % variation from intended potency.



Stability in Feed Pellets

After 4 weeks, feed manufactured with Aureomycin Granular Premix retained 99.0% of its chlortetracycline potency (Figure 4). This was an improvement of 8.6 percentage units compared to feed made with the generic chlortetracycline meal premix, that retained only 90.4% of its potency. Feed containing Aureomycin Granular Premix lost only 5 g/ton (1.0%) of its potency 4 weeks after manufacture, compared to a loss of 44 g/ton (9.6%) for the feed containing the generic chlortetracycline meal product.

FIGURE 4: Chlortetracycline in feed pellets – % loss after 4 weeks.

