

Effect of Pellet Quality and Manufacturing Method on Fat Distribution in a Commercial Feed System.

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In the poultry industry, flock uniformity is critical and the way and amount of feed that is distributed along a feed line could impact on the performance of the flock and the uniformity of the growth rates, writes ThePoultrySite Senior Editor, Chris Harris.

A study, carried out at Kansas State University was designed to determine the effects of an industry pan feeder system on the proportion of pellets to fines in pelleted broiler feed and also to examine the distribution of nutrients.

Dr Chris Hancock from Kansas State University said that the trial looked at the qualities of pelleted feed against mash and was looking at the differences in feed distribution when the feed had spray-on fat.

He told the Poultry Scientific Forum in Atlanta earlier this year that previous work had indicated that an incremental increase from 8.7 per cent fines in the first pan to 33.7 per cent fines in the last pan had been observed in feed with a pellet durability index (PDI) of 79.

He said there had been an increase from 8.2 per cent to 27.7 per cent fines observed in feed with an 85 PDI.

The trial looked at two different pelleted feeds with both high and low PDIs, Dr Hancock said.

"In this trial, we examined pellets coated with 4.85 per cent soybean oil and conducted fat analysis to determine fat distribution in select pans along the line," he reported.

The First diet consisted of 61 per cent corn, 27 per cent soymeal and 4.85 soy oil. The second diet had added spray-on fat.

Even when feed was sifted an increase from 3.2 per cent to 20.18 per cent fines was observed in 79 PDI feed, while an increase from 2.64 per cent to 15.25 per cent fines was observed in 85 PDI feed.

A Chore-Time Model C2 Plus feed line with Brock feed bin and Model 75 auger line with surge bin was built with 93 pans spanning a 240 foot line. For the studies, the feed was added directly into the surge bin. Feed was collected at pre-determined pans.

The pellets were placed in a Davis S-3 mixer and then coated with soybean oil by mixing for two minutes.

The feed was then placed in the surge bin, passed through the feed line and collected at 12 pre-selected pans.

Samples were taken at the varying stages along the line and the weight of the feed as it entered the pan was recorded.

He said that the feed with a PDI of around 88 saw similar amounts of feed distributed along the line. The feed with a lower PDI distributed more at the end than at the beginning.

On the fat coated feed the research found that those pellets with more fat were distributed further along the line.

The results indicated fines increased along the line from 1.53 per cent to 2.49 per cent while pellets decreased from 98.47 per cent to 97.51 per cent.

The samples were extracted with ether and the fat content was determined.

Dr Hancock said that the results indicate that the fat content increased from 6.96 per cent to 7.31 per cent in the pellets and decreased from 7.94 per cent to 7.69 per cent in the fines.

"The difference in fat content indicates that nutrient inconsistencies in the line could contribute to uniformity problems in a flock," the scientific forum was told.

"Further examination may be necessary to determine if other nutrients differ when feed is passed through long feeder systems."

Footnote:

The research was conducted by C. Hancock*, R. S. Beyer, C.M. Rude, K. Dobbelleare, and J. Burden of Kansas State University.

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