

### **P333 Post pellet fat application using fat coater improves pellet durability index (PDI) and does not affect enzyme (phytase) recoveries when applied using post-pellet liquid application (PPLA) system**

***M. K. Manangi\*, Deeker, M., Hancock, D., Vazquez-Anon, M., Novus International, Inc., St. Charles, MO;***

The objective of this study was to examine the effects of different levels of fat added pre- and post- pellet on pellet durability index (PDI) and if varied levels of fat added post-pellet affect enzyme (phytase) recoveries when applied post-pelleting after fat application using post-pellet liquid application (PPLA) system. The three treatment diets consisted of D1 with 4.5% fat in the mixer; D2 with 2% fat in the mixer and 2.5% fat post-pellet, and D3 with 1% fat in the mixer and 3.5% fat post-pellet. Post-pellet application of fat was done using the fat coater built into the PPLA system. For all three diets, the liquid phytase (CIBENZA® PHYTAVERSE®) was sprayed @500u/kg diet post-pellet after fat was applied using PPLA system. The common Basal diet for all three diets was formulated to meet industry specifications with calculated fat levels of 6.84% (including 4.5% supplemental fat). The feed samples were collected at the exit of PPLA system and analyzed for 1) particle size distribution to calculate % fines by sieving using US#6 sieve (sample size, n=4 per diet), 2) PDI (n=8 per diet) using Holmen NHP100 pellet durability tester, 3) crude fat (n=4 per diet), and 4) phytase (n=4 per diet). The data were subjected to ANOVA and significance was tested at  $P \leq 0.05$ . The fines for 3 diets were 50.8, 37.9, and 20.2%, respectively, and were significantly different from each other ( $P < 0.05$ ). The PDI for 3 diets were 46.9, 73.7, and 88.0%, respectively, and were significantly different from each other ( $P < 0.05$ ). The fat recoveries for 3 diets were 7.08, 7.82, and 7.75%, respectively, and were not different from each other ( $P > 0.05$ ). The enzyme recoveries for 3 diets were 464, 652, and 572 u/kg diet, respectively, and were not different from each other ( $P > 0.05$ ). In summary, data indicates that reduction of fat addition in the mixer and adding fat using fat coater post-pellet helped to achieve significant reduction in %fines and increase in pellet durability. Additionally, fat application up to 3.5% using fat coater (post-pellet) did not interfere with post-pellet enzyme application using a PPLA system as recoveries for both fat and enzyme were as expected relative to theoretical values.

**Key words:** Fat coater, Phytase, Post pellet liquid application