

## News &amp; Comments

## Replacing Conventional with *Enogen Feed Corn* in Poultry Diets to Enhance Starch Gelatinization

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The main source of energy in diets for cattle and up to 50% of the diets for poultry is starch. The evaluation of grain processing techniques that improve starch availability, such as grinding and thermal processing, has received a lot of scientific attention. Amylase, a glycolytic enzyme that converts starch into sugars, plays a major role in the digestion of starch. Therefore, by expanding the surface area of starch molecules and increasing the amount of substrate available for amylase to attach to, grain processing can enhance the digestion of starch. A high amylase maize variety's potential response to pelleting is still unknown. Heat and steam-derived moisture must be added for pelleting. This study's objective was to determine the impact of conditioner retention duration and corn type on a poultry pellet's pelleting characteristics, diet and subsequent broiler growth performance and carcass traits.

In a 45-day randomized complete block experiment, 1200 male broiler chicks (Cobb-Vantress, Siloam Springs, AR) were employed. Diets were steam-conditioned for 30 or 80 seconds at 75 degrees Fahrenheit for the pelleting trial using a Wenger dual staff pre-conditioner (Model 150) and were then processed through a 30-horsepower pellet mill (1012-2 HD Master Model). By modifying the conditioner screw speed and dividing the input into the conditioner by the production rate, retention times for the conditioner were calculated. For soluble starch analysis, a total of 10 mash samples per treatment were taken before pelleting.

For all responses in the performance trial, there was no proof ( $p>0.31$ ) of interaction between corn type and conditioner retention time. Additionally, body weight, average daily increase, average daily feed intake, or feed conversion ratio did not show any primary effects of conditioner retention duration ( $p>0.18$ ). The experiment's findings reveal no indication that pelleting EFC or CON diets will result in different pelleting parameters, such as HPT, PDI, or pellet mill energy consumption. Studies found that when EFC replaced CON in pelleted meals, there were only slight increases in HPT and no differences in PDI or energy consumption. In the current research, cooler pellets of EFC diets were found to have more soluble starch than cooler pellets of CON diets. This information might support the idea that exogenous amylase has the potential to promote protein digestion in connection to lipolysis, increasing the dressing percentage. However, in the current trial, broiler feed efficiency measured on a carcass basis did not differ between treatments.



Overall, this experiment's findings indicate that substituting EFC for CON in poultry diets should have no impact on the effectiveness of the pelleting procedure or the calibre of the pellets created. The higher amylase content of EFC appears to improve the gelatinization of starch during pelleting, increasing the amount of soluble starch in the pelleted food and, thus, theoretically, the animal's availability of starch.

#### **JOURNAL REFERENCE**

C.N. Truelock, C.J. Delfelder, R.S. Beyer, J.M. Lattimer, A.N. Baker, C.B. Paulk and J.S. Drouillard, 2021. Effect of Enogen® feed corn on pelleting characteristics of a poultry diet and subsequent broiler growth performance and carcass traits. *Int. J. Poultry Sci.*, 20: 116-122.

#### **KEYWORDS**

Alpha-amylase, broilers, Enogen®, poultry diet, starch, corn

