

2. Stretching boundaries on sustainable broiler feeding: Moist brewers' spent grains and European inclusive diets

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The increasing demand for poultry meat, while releasing pressure of the feed over food competition, urges for the development of new feeding strategies. Previous studies on moist feeding for broilers, including brewers' spent grains (BSG), showed positive results on gastrointestinal tract (GIT) development, several production and morphological parameters.

The present study was aimed to assess a sustainable moist diet including BSG, in the perspective of using European dietary ingredients. A 2x2 factorial design was executed with 416 male Ross broilers, including 4 treatments. Half of the birds were fed a non-European (T1) or European (T3) ingredient dry pellet diet, the other half were fed a moist diet including 20% BSG either as non-European (T2) or European (T4) diet.

In week 1, both body weight gain (BWG; 9.3%) and dry matter feed intake (DMFI; 15.5%) were higher ($p < 0.001$) for dry fed birds as compared to moist fed birds, irrespective of diet formulation. From week 3 onwards the moist fed birds performed better than the dry fed birds, resulting in week 5 in significant higher BWG (13.8%; $p = 0.004$) and DMFI (13.4%; $p = 0.007$).

Relative weights of the proventriculus and gizzard were higher on day 7 ($p < 0.001$ and $p = 0.002$) and for the gizzard also on day 14 ($p < 0.001$) and day 35 ($p < 0.001$) for moist fed birds.

Mean retention time tended to be higher ($p = 0.068$) in the small intestine for moist fed birds.

There seems to be a great potential for introducing a sustainable moist diet including BSG and European ingredients for broiler chickens.