

## An evaluation of the feeding value of bluegrass straw pellets for growing beef and dairy heifers

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Three studies were conducted to evaluate the feeding value of bluegrass straw pellets (BGP). Holstein heifers (n=36; 247 kg) were assigned to one of three levels of BGP (0, 11, and 22% BGP). The BGP replaced alfalfa silage in the diet (DM-basis). Growing beef heifers (n=53; 298 kg) were assigned to diets where BGP were included at 0, 15 or 30% of DM. The BGP replaced alfalfa hay on a DM-basis. Dairy and beef heifers were fed these diets for 60d. The dairy heifers consumed 6.8 kg/d during the first 30d. During the second 30d, dairy heifers fed 22% BGP tended to consume more DM (9.9 vs. 8.5 kg/d). Over the 60d trial, dairy heifers fed the BGP had greater ADG ( $P<.02$ ) than heifers fed 0% BGP ( $.97 \pm .11$  vs.  $.82 \pm .09$  kg/d). There was no difference in ADG of dairy heifers fed 11% or 22% BGP. Beef heifers fed 30% BGP had higher ADG ( $1.04 \pm .04$  kg/d;  $P<.01$ ) than heifers fed 0% or 15% BGP ( $.82 \pm .04$  and  $.77 \pm .04$  kg/d, respectively). Beef heifers fed 30% BGP for 60d tended to have greater feed intake (9.4 kg/d) than heifers fed 0% BGP (8.6 kg/d) or 15% BGP (9.1 kg/d). Predicted NEm and NEg of the BGP were 1.63 Mcal/kg and 1.09 Mcal/kg, respectively.

Ruminally-fistulated cows (n=3) were used in a 3 x 3 Latin square design to determine the digestibility of BGP, bluegrass straw (BGS) and pea hay (PH). The diets consisted of (DM-basis): PH, 100% PH; BGP, 46.5% BGP, 46.5% PH; BGS, 45% BGS, 45% PH. Cows were adapted to their diets for 21d initially and for 19d between periods. Nylon bags (n=4) of PH, BGP and BGS were incubated *in situ* for 0, 4, 8, 16, 24 and 48h. The dry matter disappearance (DMD) at all incubation times was greatest in PH and lowest in BGS ( $P<.0001$ ). Specifically, DMD after 4 and 48h of incubation was 33 and 72% for PH compared to 17 and 57% for BGP and 9 and 45% for BGS. Disappearance of NDF and ADF *in situ* increased substantially with length of ruminal incubation time ( $P<.0001$ ), however, the extent of fiber degradation was similar for all treatments, especially after 48h of incubation. Total tract digestibility was determined by placing a bolus of chromic oxide into the rumen daily from d15 to 21. Fecal grab samples were collected every 4h on d19 to 21 and composited by cow. Total tract disappearance of the DM of BGP was 46.2%, which was lower ( $P<.0001$ ) than the DMD of PH and BGS (63.5 and 52.1%, respectively). Total tract digestibility of CP (64.7%) and ADF (54.1%) of PH was greater ( $P<.0001$ ) than the same nutrients of BGP (57.8 and 37.4%, respectively) and BGS (60.6 and 45.6%, respectively). Total tract disappearance of the NDF of BGP was not significantly different than BGS, but was lower ( $P<.0001$ ) than PH (39.9 vs. 52.1%). The rate of passage of BGP is most likely greater than BGS and may explain why the total tract disappearance of nutrients from BGP was lower than BGS. Increased intake of BGP in a production situation would probably offset the decrease in total tract digestibility. Therefore, BGP can be used to replace moderate quality forage for growing dairy and beef heifers.