

Effect of Feeding DDGS on Milk Yield and its Composition in Dairy Cattle

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Abstract—Sixteen crossbred lactating cattle of average 411.75 ± 14.23 kg body weight, 14.01 ± 1.38 milk yield and 30.87 ± 6.10 DIM were divided into four treatment groups viz. T_1 , T_2 , T_3 and T_4 , of four animals each on the basis of milk yield and parity following completely randomized design. All the experimental animals were fed as per NRC (2001) feeding standards. The concentrate mixture of control group (T_1) was comprised (percent basis) of Maize grain (37), GNC (35), rice polish (25), mineral mixture (2) and common salt (1 part), while, in the concentrate mixture of lactating cattle of treatment groups T_2 , T_3 and T_4 , CP of GNC of control group was replaced with CP of DDGS @ 50, 75, and 100 %, respectively. Milk production was not impacted by 50% substitution of GNC with DDGS, but there was a curvilinear response to increasing DDGS in crossbred dairy cattle diets. Cattle fed 100% DDGS in place of GNC, milk yield tended to decrease (1.38 kg/d). The experimental cattle fed 50% DDGS substituting GNC produced higher ($P < 0.05$) amount of 4% FCM (1.39 kg/d). Cattle fed higher DDGS dietary inclusion rate (75 and 100% replacement levels) had decreased FCM production. The average milk fat percentage was higher ($P < 0.05$) in T_1 (4.56 ± 0.03) than T_3 (4.36 ± 0.07) and T_4 (4.31 ± 0.02), however, did not differ significantly with T_2 (4.47 ± 0.04) and similar trends were observed in total solid contents. The results revealed that milk fat and total solids contents are not affected by 50% replacement of GNC with DDG in concentrate mixture of cattle, however, crude protein contents of milk were not influenced even at 100% substitution. Milk energy value (kcal/kg) did not differ among cattle fed diets GNC based concentrate mixture or containing 50% DDGS in place of GNC. However, energy value of milk decreased ($P < 0.05$) by 18 and 26 kcal units per kg milk when DDGS was included at 75 and 100% as alternate protein source of groundnut cake. Similarly Nitrogen efficiency (milk N/N intake) percent value was higher in cattle fed 50% GNC and 50% DDGS (T_2) followed by control group (T_1) but did not differ significantly among each other, however, cattle fed 100 % DDGS had significantly ($P < 0.05$) less nitrogen efficiency. Feed efficiency and feed conversion ratio in terms of feed intake per kg 4% FCM production were not affected up to 50% replacement of GNC with DDGS. There was net saving of Rs. 1.32 as feed cost per kg 4% FCM production in cattle by replacing GNC with DDGS at 50 % level.

Keywords: DDGS, GNC, Dairy Cattle, Milk Yield, Milk Composition.