

## Effect of Supplementing Ziziphus Spina-Christi Leaf Meal to Natural Pasture Hay on Feed Intake, Body Weight Gain, Digestibility, and Carcass Characteristics of Tigray Highland Sheep

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**Abstract :** Fodder trees such as Ziziphus spina-christi have the potential to enhance the utilization of natural grazing resources and also to mitigate seasonal feed shortages. The experiment was conducted with the objective of evaluating the effect of supplementing Ziziphus spina-christi leaf meal (ZSCLM) to natural pasture hay on feed intake, body weight gain, digestibility, and carcass characteristics of Tigray highland sheep. A randomized complete block design was employed with 5 blocks based on initial body weight, and sheep were randomly assigned to five treatments. Treatments were: 100g concentrate mix + ad libitum natural pasture hay (T1), T1+ 100g ZSCLM (T2), T1 + 200g ZSCLM (T3), T1 + 300g ZSCLM (T4), and T1 + 400g ZSCLM (T5) on dry matter (DM) basis. Dry matter intake was greater ( $P<0.05$ ) in sheep on T5 compared to T3 and T1, while the total DM intake among T2, T4, and T5 were similar. Crude protein and metabolizable energy intake differed ( $P<0.05$ ) among treatments with highest and lowest values in T5 and T1, respectively. Average daily gain was higher ( $P<0.05$ ) in sheep kept on T2, T3, and T4 diets than T1. Higher ( $P<0.05$ ) DM digestibility was found in T4 and T5 than T1. The highest ( $P<0.05$ ) OM and CP digestibility was observed in sheep fed T3, T4, and T5 diets. Rib eye muscle area was higher ( $P<0.05$ ) for T4 than T1 and T2. Dressing percentage was similar ( $P>0.05$ ) among treatments. The current study indicated that supplementation of Tigray highland sheep with 200g air-dried Ziziphus spina-christi leaf meal leaves with 100g of concentrate mixture in their diet significantly increased feed intake and apparent digestibility, body weight gain, hot carcass weight, and rib eye muscle area by improving feed conversion efficiency.

**Keywords :** body weight, carcass, digestibility, and ziziphus spina-christi leaf meal

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