

## Abstract

The objectives of the study were to investigate the chemical compositions of local feedstuff and agricultural crop residue for dairy goat and wool sheep, estimate methods of increasing nutritive value and storage of local feedstuff and agricultural crop residue, to develop rations from local feedstuff and agricultural crop residue for dairy goat and wool sheep and to study appropriate method of fattening for dairy goat and wool sheep in high-land. The experiment 1 was investigation of chemical compositions of local feedstuff and agricultural crop residue including cabbage, celery, fennel, fragrant, philly, costa salad and red oak. The results indicated that dry matter (DM) was 4.82, 7.96, 8.46, 4.82, 7.96, 8.46 and 8.46 %, respectively whereas crude protein (CP) was 23.33, 19.81, 7.88, 23.33, 19.81, 7.88 and 7.88 %, respectively. In addition, ether extract (EE) and crude fiber (CF) was 4.86, 5.09, 2.33, 4.86, 5.09, 2.33 and 2.33 % and 15.14, 12.50, 17.26, 15.14, 12.50, 17.26 and 15.14 % for cabbage, celery, fennel, fragrant, philly, costa salad and red oak, respectively. The experiment 2 was estimation of methods of for increasing nutritive value and storage of local feedstuff and agricultural crop residue. The roughage were divided into 3 treatments including fresh roughages, roughage without inoculation and roughage with *Lactobacillus plantarum* J39 (LAB) . It was found that the lowest pH (3.85) and the highest lactic acid (8.51%) were found in LAB group while ammonia-nitrogen ( $\text{NH}_3\text{-N}$ ) in fresh roughages was lower than other groups. LAB group had CP content (6.29 %) higher than control (5.98%). In contract, neutral detergent fiber (NDF) in fresh roughage was significantly higher than others group ( $P<0.05$ ). Additionally, CF and lignocellulose (ADF) in both of silage were higher than fresh roughage. In experiment 3 was the development of goat and wool sheep rations from local feedstuff and agricultural crop residue for dairy goat and wool sheep. The experimental diet were divided into 4 treatments including 1. control diet (*ad libitum* roughages and 1.5% concentrate of body weight), 2, 3, and 4: animal receiving CP 14, 16 and 18% in total mixed ration (TMR), respectively. The results revealed that wool sheep receiving various

protein in TMR had body weight gain (BWG) and average daily gain (ADG) higher than control because wool sheep receiving all TMR treatments had DMI higher than control group so increasing BWG and ADG while FCR was lower than control. However, wool sheep fed 14% CP TMR had the lowest Feed cost per gain (FCG). The body weight gain and average daily gain in dairy goats fed 18% CP TMR higher than other group while feed cost per gain (FCG) lower than other group. In addition, dairy goats received all TMR treatments had FCR lower than control. In experiment 4 was the study of appropriate method of fattening for dairy goat in high-land. The experiment was conducted as a 2x3 Factorial in a completely Randomized Design with 2x3 factorial design (castration and no castration and CP levels; 14, 16 and 18%). It was found that castrated dairy goats had DMI higher than non castrated while level protein did not significantly affected DMI. In addition dairy goats fed 16 and 18% CP TMR and castrated dairy goats had the highest BWG and ADG. Dairy goats fed 16 and 18% CP TMR had the lowest FCR while castration did not significantly affected FCR. However, dairy goats fed 18% CP TMR had the lowest Feed cost per gain (FCG). According to all of experiments, it is concluded that quality of silage are improved by using *L. plantarum* J39. Wool sheep was fed 14% CP in TMR, resulting better growth performance and lowest feed cost per gain (FCG) while dairy goats was fed 18% CP in TMR resulting better growth performance and lowest feed cost per gain. Additionally, castrated dairy goats and fattening by using 18% CP TMR encourages the growth performance of dairy goats in high-land.

**Keywords:** Dairy goat wool sheep high-land and *Lactobacillus plantarum*