

Abstract

The objectives of this study were to study the levels of protein and energy in ensiled total mix ration (eTMR) for wool sheep and study methods for increasing nutritional value, storage of forage and agricultural waste suitable for wool sheep on highland. In addition, to study methods for fattening wool sheep on highland. This study experiment 1 found that wool sheep fed eTMR with the level of TDN 60% has high dry matter intake body weight gain and Average Daily Gain (ADG). Moreover, it found that wool sheep fed eTMR with the level of TDN 60% has low feed conversion ratio (FCR), while the level protein were not significantly. So, suitable eTMR for wool sheep on highland are the level protein 16%, 18% and the level TDN 60%. Experiment 2, eTMR were divided into 3 group include group one: fresh total mix ration (fresh TMR), group 2: eTMR without *Lactobacillus plantarum* J39 (*L. plantarum* J39) and group 3: eTMR with *L. plantarum* J39. This study found that the pH value of group 2 and group 3 lower than group 1. Lactic acid and acetic acid concentration in group 2 and group 3 higher than group 1. Chemical compositions found that dry matter in group 3 highest. Studying wool sheep production efficiency found that dry matter intake, body weight gain, ADG and FCR were not significantly. Feed cost per gain (FCG) of wool sheep fed eTMR with *L. plantarum* J39 has lowest. Experiment 3, to study methods for fattening wool sheep on highland. Experiments design by completely randomized design (CRD). The treatment was divided into 3 groups include wool sheep not castrated (group 1), wool sheep are castrated at 4 months of age (group 2) and wool sheep are castrated at 6 months of age (group 3). This study found that body weight gain and ADG of group 3 was higher than other groups and FCR was lower than other groups. So, it can be concluded that eTMR with or without *L. plantarum* J39 can feed wool sheep on highland and castration wool sheep 4 months of age is the best suitable method.

Keyword: wool sheep, Ensiled total mix ration, Average Daily Gain, fattening, *Lactobacillus plantarum*