

Poor quality roughage in ewes nutrition during pregnancy and suckling periods

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1085- SUMMARY AND CONCLUSION The present study was carried out at EL -Gemmiza Experimental Station of Animal Production Research Institute, Agricultural Research Centre, Ministry of Agriculture. The study included feeding, metabolism trials to determine the digestibility and feeding values of six tested rations, three of them included untreated rice straw and the others included rice straw treated with 3% anhydrous ammonia. Thirty six crossbred (Suffolk X Ossimi) ewes were selected randomly with age of 2-3 years and average weight of 40 - 55 Kg. Animals were randomly divided into 6 groups of animals each. The first group (let) was fed untreated rice straw + hay + barley. 2nd group was fed untreated rice straw + barley + co - op mixture. 3rd group untreated rice straw + barley + poultry litter. 4th group treated rice straw + hay + barley. 5th group treated rice straw + barley + co op mixture and 6th group treated rice straw + barley + poultry litter. These six rations were fed to ewes during early, late pregnancy and lactation stages. The percentages of ingredients in each ration differed according to the requirements of each stage. Feed intake, rumen characteristics, body weight of ewes, some blood contents, some milk contents, and some wool characteristics of ewes during early and late pregnancy and lactation stages were studied. In addition to that the study included weekly change in lamb's body weights during eleven weeks. The most important results obtained could be summarized as follows: -1. The inclusion of ammonia treated rations increased obviously CP and ash and decreased NFE contents and slightly increased compared to rations with untreated roughage. Rice straw in mixed contents, while its CF contents, when 2. Ammonia treatment significantly increased the digestibility of all nutrients in the experimental rations except EE digestibility and the effect was obvious in CF digestibility in rations including poultry litter. The digestion coefficients of DM, OM, CF and EE of the experimental rations fed in early, late pregnancy and lactation stages were nearly the same. At pregnancy stages CP digestibility values were significantly higher than those at lactation stage. A reverse trend was observed with respect to NFE digestibility. 3. In early and late pregnancy stages, the average of TDN and SV values were nearly the same, while average values at lactation stage were significantly higher than the values at both pregnancy stages. The differences between values of TDN and SV of the experimental rations due to treatment and ration effects, were non-significant. Rations containing poultry litter (R3 and R6) had lower TDN and SV values than the other rations. The differences between values of DCP, due to stage, treatment and ration effects, were significant ($P < 0.05$ and $P < 0.001$). In 109th pregnancy and lactation stages, the averages of DCP values, were higher than the values at early pregnancy. 4. Treating rice straw by 3% NH_3 significantly increased the and proved positive nitrogen balance. The amount of NR for ewes early pregnancy were significantly lower than those at late pregnancy stage. Corresponding values at lactation stage significantly exceeded those at late pregnancy stage. Ewe during early pregnancy stage lost, relatively to NI, higher amounts of nitrogen in urine than ewes during late pregnancy and lactation stages. Ewes fed rations including untreated rice straw lost relatively 19% of nitrogen via feces and lower amounts via urine than those fed rations including ammoniated rice straw. Ewes lost higher amounts via urine and retained apparently more nitrogen by feeding ammonia treated rice straw. 5. At early pregnancy stage, the values of OMI, CPI, CFI and ΔI were significantly lower than values at late pregnancy and the corresponding values at lactation stage significantly exceeded those at late pregnancy while NFEI

values showed the opposite; end at early pregnancy stage. Ammoniation of rice straw significantly increased OM, OM, CP and EE intake when compared with untreated rice straw. The highest average values of DMI, CFI and EEI values were recorded with R4 followed by R5 in descending order, while the highest values of CP were recorded with R6. The differences in ewe body weights due to ewe state (pregnant or lactating), variations among periods within pregnancy stage and rations (ammoniated or untreated) effects were almost highly significant. While differences due to treatment and variations among periods within lactation stage, were non-significant. The differences among weekly body weight gain of lambs from birth to the eleventh week of age, were highly significant, while the differences due to treatment, ration and the interaction between period and treatment, were non-significant.

7. Results of the rumen liquor characteristics showed variable trends at the different times of sampling with different treatments follows: -7.1. Ewes fed rations including ammoniated rice straw showed significantly ($p < 0.001$) higher average pH values, TVFA's and $\text{NH}_3\text{-N}$ concentrations than ewes fed rations including untreated rice straw. 7.2. Regarding the effect of sampling time on ruminal pH, it was found that the average value decreased gradually from the time zero hrs to 4 hrs after feeding then it increased again at 6 hrs after feeding. While, $\text{NH}_3\text{-N}$ concentration was at its minimum level at the time zero and increased to its maximum level at 2 hrs after feeding. Total VFA's concentration in the rumen reached the maximum at 6 hrs after feeding and the minimum at 4 hrs after feeding. 7.3. Poultry litter supplementation in rations increased TVFA's and $\text{NH}_3\text{-N}$ concentrations.

8. Results of blood analysis could be summarized as follows: -8.1. The differences in levels of each of GOT and GPT, due to ewe pregnancy stage and ammonia treatment of rice straw, were non-significant. With respect to the effect of the six rations, the differences among GOT values in blood of ewes fed the rations including untreated rice straw, were non-significant but highly significant with GPT values, while the differences among the rations including ammoniated rice straw showed a reverse trend in significance. 8.2.a. The average of TP, AL and AL/GL ratio decreased almost gradually from the first month till the end of pregnancy stage, while Chol. showed a reverse trend as the average slightly decreased with advance in months of pregnancy. Ca, P and Glu contents were lower in the first month than in the following months of pregnancy. The differences among averages of TP, AL, AL/GL, and Glu due to variations in months of pregnancy were significant ($P < 0.001$ and $P < 0.05$), while differences in averages of Chol, Ca and P were non-significant. 8.2.b. The differences between averages of each of AL, AL/GL ratio, Chol, Ca and P due to ammonia treatment effect, were almost highly significant, while those between averages of each of TP and Glu were non-significant. 8.2.c. The differences among the averages of each of TP and AL in blood of ewes fed the six different rations (the first three including rice straw untreated (A) + the other three rations including rice straw ammoniated (B), were highly significant, while with respect to Chol and P content the significance was only among (A) rations and among (B) rations for Ca and AL/GL ratio. The differences among the averages of GLU were non-significant.

9 - Milk yield of ewes reached the peak at the second, third and fourth weeks of lactation, then declined gradually till the end of the lactation period and the differences among milk yield estimates due to weekly production and treatment effects were significant ($P < 0.001$ and $p < 0.05$), while those due to ration effect, were non-significant. The differences in milk F%, due to weekly production, treatment and ration effects were highly significant ($P < 0.001$). The differences among TS%, due to weekly production and ration effects were highly significant ($P < 0.001$), while those due to treatment effect, were non-significant.

10 - Pregnant ewes fed rations including ammoniated rice straw showed significantly ($P < 0.001$) higher fleece weights (FW) than the pregnant ewes fed rations including untreated rice straw, while the differences between the averages of each of fibre diameter (FD) and fibre length (FL) were non-significant. The differences among the average values of FW, FD and FL of pregnant ewes, due to the effect of the three rations including untreated rice straw were non-significant, while the differences among values due to the effect of the other three rations including ammoniated rice straw, were highly significant.