1-

**FEEDING CONCENTRATED DIETS TO GROWING LAMBS: 1 â€“ EFFECT ON GROWTH PERFORMANCE.**

Twenty nine Finland X Rhmani (1/2F.* 1/2R.) male lambs were selected from Sakha Farm. The lambs had average live body weight of 13.9±SE Kg and 70.9±SE days old. The animals were divided into four unequal groups (8 animals for groups 1, 2, 3 and 5 animals for group 4). After an adaptation period, the lambs were fed the experimental diets, differing in concentrate / forage ratio. Lambs of group 2 were fed on 100% concentrated feed mixture(CFM), lambs of group 3 were fed 85% concentrate feed mixture + 15% forage while, animals of both groups 1 and 4 were fed 70% concentrate feed mixture and 30% forage as the common and control feeding system. All groups received their experimental diets for 68 days after the adaptation period. Three lambs from each of groups 1, 2 and 3 were slaughtered at an average live body weight of 27 Kg. No animals were slaughtered from group 4 since they are similar to those of group 1. The remaining 5 animals from groups 1, 2 and 3 continued to receive the same experimental diets while those of group 4 were switched to receive 100% CFM, until all animals in all treatments reached slaughter weight of about (45kg). Live body weight (LBW) and feed intake were recorded and feed conversion values were calculated during the two stages. Results revealed that average daily gain attained by lambs continuously fed 100% concentrate diet was 272 g, being 216 g in stage 1 and 297 g/h in stage 2. However, lambs started feeding on 100% concentrate diet after being fed the control diet, accomplished better growth rate (324 g/h/d) during stage 2 while was similar to the control one during stage 1 ((187 g/h/d). Lambs fed 85% concentrate (T3) did not show difference than the control. Lambs of both groups fed 100% concentrates either during the whole period or only during the second period reached marketing weight (45 Kg) earlier than the other two treatments by about one month. Feed intake as a percentage of body weight in the first, second and whole stages were calculated and found to range from 3.5 to 3.8 % for lambs. being relatively less than those recommended in NRC (1985) for lambs of daily growth rate from 222 to 324g/h/d. Measured as kg DM/Kg gain, feed conversion (FC)for the comparative trials showed better rate in stage one compared to stage 2 of fattening. In both stages the best FC was attained by T2 which received 100% concentrate diet being, 4.32 and 6.29 kg DM/ Kg BW during stages 1 and 2 of fattening, respectively. The next two parts of this series of experiments will deal with the effects on fermentation in the rumen, anatomy of the digestive system and the histology of the rumen to better interpret the findings before recommending the optimal system of feeding high concentrates. Keywords: Lamb, growth, feed intake and feed conversion, concentrate feeding

2-

**INFLUENCE OF SOME NITROGEN SOURCES ON FERMENTATION AND DIGESTION OF DIFFERENT POOR QUALITY ROUGHAGES**

Three mature male ruminally canulated sheep were fed at 90% of their ad libitum intake. The three control rations, one from each tested roughage were formulated along with concentrate feed mixture v CFM w at the commonly practiced ratio being:

- 30% rice straw v RS w + 70 CFM
- 30% maize stalks v MS w + 70 CFM
With the objective of increasing the use of roughage, six tested diets were formulated by almost doubling their ratio as in the respective control diets and reducing the traditional CFM as a protein supplement to less than one half by either quality soybean meal, 10% or equivalent urea, as follows:

1. 60% RS + 30% CFM + 10% SBM
2. 60% RS + 38.8% CFM + 1.2% U
3. 60% MS + 30% CFM + 10% SBM
4. 60% MS + 38.8% CFM + 1.2% U
5. 75% CS + 17% CFM + 8% SBM
6. 75% CS + 24% CFM + 1.0% U

These proportions were chosen to achieve iso-nitrogenous diets containing about 12% CP necessary for optimal utilization and fermentation of roughages in the rumen.

The in situ dry matter disappearance values increased significantly when feeding on CS than MS or RS 50.63, 40.24 and 34.17%, respectively, and the neutral detergent fiber disappearance increased significantly when feeding on CS than MS or RS 29.81, 28.48 and 27.49%, respectively. The acid detergent fiber disappearance followed the sametrend of NDF disappearance %. The potential degradability of DM for CS and MS were higher than RS 56.72, 56.37 and 54.08, respectively. The potential degradability of NDF for MS was higher significantly than RS and CS (53.32, 48.32 and 37.91%, respectively). The potential degradability of ADF for MS and RS were higher (P<0.01) than CS (55.64, 55.08 and 47.05, respectively).

The mean rumen volatile fatty acids (VFA) values increased significantly when feeding on MS than CS or RS (9.30, 8.68 and 8.5 ml Eql/100 ml RL, respectively), and the concentration of NH3 was higher (P<0.01) when added CFM+U than CFM+SBM or CFM (18.86, 16.4 and 15.71 mg/100 ml RL, respectively).

The DMD% increased significantly when added CFM+U than CFM+SBM or CFM (42.85, 41.93 and 40.26, respectively). The NDFD and ADFD% followed the same trend in DMD (29.74, 28.36 and 27.69, respectively), and (35.97, 35.08 and 34.91, respectively). The potential degradability of DM increased significantly when added CFM+SBM than CFM+U or CFM (56.75, 51.65 and 49.37%, respectively). The buffering capacity (BC) values increased significantly (P<0.01) when added CFM+U than CFM or CFM+SBM (11.03, 10.26 and 9.64 ml Eq./100ml RL, respectively). The VFA values were increased significantly (P<0.01) when added CFM than CFM+U or CFM+SBM (9.84, 9.96 and 7.67 ml Eq./100 ml RL, respectively). The concentration of NH3 increased (P<0.01) when added CFM+U than CFM or CFM+SBM (19.91, 15.63

3. INFLUENCE OF SOME NITROGEN SOURCES ON FERMENTATION AND
DIGESTION OF DIFFERENT POOR QUALITY ROUGHAGES.

Three healthy Rahmany rams were used. They were fed at 90% of their ad libitum intake during successive metabolism trials. The experimental rations were formulated to be almost iso-nitrogenous and contain about 12% crude protein recommended by Å~wrskov et al. (1972) to ensure maximal rate of fermentation in the rumen as follows:

1. 30% rice straw (RS) + 70 % concentrate feed mixture (CFM)
2. 30% maize stalks (MS) + 70 % CFM
3. 40% clover straw (CS) + 60 % CFM
4. 60 % RS + 30% CFM + 10% SBM
5. 60 % RS + 38.8% CFM + 1.2% U
6. 60 % MS + 30% CFM + 10% SBM
7. 60 % MS + 38.8% CFM + 1.2% U
8. 75 % CS + 17 % CFM + 8 % SBM
9. 75 % CS + 24 % CFM + 1.0 % U

The results obtained showed that:

There were no significant effects on the digestion coefficient of DM, OM, CP, hemicellulose, N-balance and DCP% when feeding on RS or MS and CS. The CF digestibility increased significantly (P<0.05) when feeding on RS than MS or CS (64.04, 52.89 and 50.41%, respectively). The NDF digestibility increased significantly (P<0.05) when feeding on MS or RS than CS (58.69, 54.92 and 48.03%, respectively). The ADF digestibility increased significantly (P<0.05) when feeding on RS than MS or CS (60.09, 54.20 and 41.90, respectively). Cellulose digestibility increased significantly (P<0.05) when also feeding on RS than MS or CS (72.21,65.85 and 51.31%, respectively). The dry matter intake (DMI) increased significantly (P<0.05) when feeding on CS than MS or RS (905.37, 799.64 and 761.66 g/day, respectively). The TDN% increased significantly (P<0.05) when feeding on RS or MS than CS (60.11, 60.52 and 55.53, respectively).

The DM digestibility increased significantly (P<0.05) when added CFM than with SBM or urea (64.4, 58.52 and 55.54, respectively) and the OM digestibility was as the same trend (68.40, 61.68 and 58.41%, respectively). The ADF digestibility increased significantly (P<0.05) when added CFM or with SBM than added urea (53.49, 53.89 and 48.82%, respectively) but cellulose digestibility increased when added CFM than with SBM or urea (68.09, 63.09 and 58.19%, respectively). The DMI increased (P<0.05) when added CFM than with SBM or urea (919.20, 737.61 and 809.87 g/day, respectively). The TDN % values were higher (P<0.05) when added CFM than with SBM or urea (63.02, 56.43 and 57.61, respectively).

In general, there were positive effects on cell wall digestion with N-sources when feeding on RS but there were negative effects on the feeding with MS and there were no significant effect in feeding with CS.

Keywords: sheep, rice straw, maize stalks, clover straw, digestion coefficient.

EFFECT OF ESTROUS AND OVULATION SYNCHRONIZATION ON REPRODUCTIVE PERFORMANCE OF EWES

Small ruminants play an important role in animal production. Many research studies have been carried out to improve reproductive performance in sheep. Increasing lamb production can be achieved mainly by increasing the number of lambs per ewe and the
number of lambing per year through the hormonal control of ovarian and oestrous activity mainly during out of season. The present study was carried out at the animal production research station belonging to agricultural research center, Faculty of Agriculture, Mansoura University. New protocol for GnRH-treatment is assessed compared with vaginal sponges treatment and the economic input is also studied. The obtained results could be summarized as follow:

1-In the first treatment (vaginal sponges) with PMSG, fertility rate, lambing rate and twining rate were 75, 100% and 2 lamb/lambed ewe, respectively.

2-While the results for the second group (GPG) the fertility rate, lambing rate and twining rate were 33, 100% and 2 lamb/lambed ewe respectively.

It could be concluded that vaginal sponges treatment was the better and economically technique during out of season to obtain optimal synchronization of both of ovulation and lambing using frozen semen, saving time and cost compared with GPG hormones technique for synchronization of estrous and ovulation in ewes. In this respect, main studies must be carried out using different doses of hormones during breeding season and out of season to improving reproductive performance and lambing rate in the ewes (sheep).

5- EFFECT OF USING BLCK SEED ON GROWTH PERFORMANCE AND ECONOMICAL EFFICIENCY OF RABBITS.

A total number of 18 growing males of New Zealand White rabbits aged 5 weeks were randomly divided into 3 experimental groups to study the effects of using different forms of Nigella sativa as a replacement of soybean meal protein on growth performance, and economical efficiency of NZM rabbits. The rabbits of the control group was fed diet free from NS, replacement soybean meal protein by NSM protein was used at levels of 25% in the group (2) and Nigella sativa seed (4kg/tn) used in group (3). The experiment lasted for 60-70 day. The growth performance of the experimental rabbits was studied in terms of average weight gain through out the experimental period, also economical efficiency was calculated for all the rabbits groups studied. The obtained results indicated that the highest values of body weight, body weight gain, and economical efficiency were observed for groups fed Nigella sativa meal and seed at the end of the experiment, followed by control group. The results showed that NSM protein can be used in rabbits diets up to 25 % of soybean meal protein during growing period without any adverse effect on performance.