Chapter - 5

Summary And Conclusion
Rations for goats, like those for other ruminants are composed of roughage and concentrates. Energy and protein requirements can be made by good quality roughages in the diet (except for early weaned kids) for does during the last two months of gestation and lactating dairy goats. Concentrate needs to be added in the diet to meet the energy and protein requirements of these animals. Goat will have also gain weight faster if more energy and proteins are provided in the diet. These are vital components of goat's diet affecting the utilization of other nutrients and overall productivity. Additional energy is needed in the diet for increased activity, type of terrain, amount of vegetation on range and distance travelled to get feed. Stall-fed goats with minimum activity need a basic maintenance level in the diet.

With the above considerations in view, the present investigation entitled "Energy and protein requirements for Jaunpuri goats" has great importance because this is a prominent goat breed of eastern Uttar Pradesh. For this purpose, seven trials were conducted during the course of investigation.

It is essential to mention here that for converting one form of energy into another, we employed the recommendation of Garret et al (1959).
100 GE = 76DE = 62 ME = 35 NE

Maintenance requirements for protein were calculated from energy intake (1MCal DE = 25 g DCP)

1. **Maintenance requirement**

   The requirements for energy and protein for maintenance were 170.16 ± 10.13 Kcal DE or 138.77±13.18 kcal ME or 78.32±7.43 kcal NE per metabolic body size ($W_{kg}^{0.75}$) and 3.54 ± 0.28g DP/$W_{kg}^{0.75}$, respectively.

   For maintenance DM intake of a goat was recorded on an average 2.78±0.17 Kg/100 Kg body weight or 64.45±3.84 g/$W_{kg}^{0.75}$ with an of 67.14 + per cent when dry + green and concentrate mixture were ingested in about 87:13 proportion, respectively.

   It is also clear that goat having comparatively low body weight had more intake of dry matter (on BW basis) as compared to the goat having large body weight.

2. **Growth requirement**

   From the total energy ingested, the maintenance part was substracted to arrive at the energy required for gain. The protein requirement of the growing animals was calculated from energy intake
(1Mcal DE = 25g DCP) as usual.

A kid required $10 \pm 0.35$ Kcal DE or $8.16 \pm 0.29$ Kcal ME or $4.61 \pm 0.16$ Kcal NE per metabolic body size ($W_{kg}^{0.75}$) for one gm gain in body weight. The requirement of protein for growth worked out to be $0.26 \pm 0.01$ g/g gain.

DM intake of kids during I month of milk-fed-stage was observed as $2.18 \pm 0.11$ Kg/100Kg body weight or $28.59 \pm 0.84$ g/$W_{kg}^{0.75}$ with an overall digestibility of $86.20 \pm 0.72$ per cent. During II month of age DM intake of kids remained as $1.82 \pm 0.15$ Kg/100Kg body weight or $25.40 \pm 2.68$ g/$W_{kg}^{0.75}$ with an overall digestibility of $85.91 \pm 0.53$ per cent. During III month of milk-fed-stage DM intake of kid was found as $1.47 \pm 0.05$Kg/100Kg body weight or $21.70 \pm 0.76$ g/$W_{kg}^{0.75}$ with an overall digestibility $71.97 \pm 1.48$ per cent. DM intake of weaned kids having 4-6 month of age was recorded as $3.95 \pm 0.11$ Kg/100 Kg body weight or $71.24 \pm 2.79$ g/$W_{kg}^{0.75}$ with an overall digestibility of $71.14 \pm 1.20$ per cent.

During this period weight gain on an average per day recorded as $24.25 \pm 1.32$g for I month age of kids, $25.5 \pm 1.82$ g for II month of age and $27.75 \pm 1.43$g for III month age of kids. While in weaned kids (4-6 month), per day weight gain was found as $25.00 \pm 3.09$ g.
It is interesting to note that the intake of DM during I month was primarily through milk (over 93%) and reduced to 84 per cent during II month and during III month intake through milk got reduced to 25.62 per cent.

It reveals to the fact that as the age of kids increased, the intake and digestibility of DM intake through milk was reduced but through roughages it was enhanced as the kids got increase in their age.

**Pregnancy requirement**

A pregnant goat required $211.23 \pm 7.25 \text{ Kcal DE} \text{ or } 172.35 \pm 5.92 \text{ Kcal ME} \text{ or } 97.30 \pm 3.34 \text{ Kcal NE/W}_{kg}^{0.75}$ representing the total requirements (maintenance + pregnancy) during the last 2 month of gestation. The combined requirement of protein for maintenance and pregnancy worked out as $5.28 \pm 0.18 \text{ g DP/W}_{kg}^{0.75}$.

It was concluded that goat having higher body weight required comparatively more amount of DE and DP for maintenance and pregnancy purposes as compared to the goat having lower weight. A higher requirement of DE and DP for heavy goats might be due to large body size of the mother and automatically big size/number of foetus during pregnancy.
**Lactation requirement**-

Energy and protein required to produce one Kg milk were worked out on the basis of intake and digestibility of DM and protein during lactation. A goat required $493.87 \pm 72.86$ g DM and $1303.81 \pm 430.17$ Kcal DE for lactation while for 1 Kg milk production these values were $658.80 \pm 97.15$ g DM and $1738.41 \pm 256.47$ DE respectively. Similarly, $1418.18 \pm 209.22$ Kcal ME or $800.58 \pm 118.11$ Kcal NE were required for 1 Kg milk production. On the other hand, $32.60 \pm 4.81$g and $43.46 \pm 6.41$g DP was required to produce milk in usual course and to produce 1 Kg milk, respectively.

In nutshell it may be concluded that Jaunpuri goats required almost similar amount of DM, energy and protein for maintenance, growth, lactation, pregnancy, purposes as required by Beetal or Barbari goats. The amount of nutrients was comparatively low than the requirement of Jamunapari goats.