

Feeding management of goat

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Feeding may cost the highest expense in goat production. Goats raised for meat and milk need good quality feed in most situations and require an optimum balance of many different nutrients to achieve maximum profit potential. Majority of the goats reared in villages are hardly provided with any grain or good fodder. They have to browse and graze to meet out their nutritional requirements; as a result of which their body growth and milk production is very low. Goats respond readily to good management and proper feeding, and to ensure best results they should be taken care like other valuable animals. There is difference in feeding habit of goats from other farm animals, they response in different way to sweet, sour, bitter or salty feeds for acceptance and rejection. Goats produce more amount of milk than cow for the same amount of nutrients. Goats can use more amounts of low quality feeds for its maintenance than cow. Success in feeding can be achieved by formulating a nutritious and cheap ration. Preparation of balanced ration requires consideration of factors like nutritive value, bulk, palatability and digestibility, local availability and its cost. Fresh, clean water should be made available free of choice all the times. Water trough should be washed at least for twice in a month. Dairy goats require more water as compared to meat goats so; care should be taken in this regard.

FEEDING HABITS OF GOAT

Goats are small ruminants. They are sensitive animals with distinct feeding habits. They have actively movable upper lips and efficient prehensile tongue. They can graze on very short grasses and browse foliage of trees and plants. They spent 5-8 hours on grazing and browsing for their maintenance requirement. They are swift eaters and like wide variety of feeds. Goats do not like wet, stale or foul smelling feeds. They waste a lot of feed by trampling. They relish leguminous fodders like Lucerne, berseem, green arhar, cowpea, methi, and soybean more than non-leguminous fodders like sorghum, maize, oats, bajra. They relish variety of shrubs and weeds; and leaves of trees like babul, neem, subabul, ber, tamrind. They seldom like silage or straw. Rumen is undeveloped at birth but kids start picking up soft leaves at the age of 2-3 weeks and by 3-4 months of age rumen develops fully. Readily availability of green shrubs, tree leaves and leguminous fodders may constitute major part in goat ration. Goat producing good amount of milk or quick growth for more meat requires additional amount of leguminous fodders and concentrate feeds.

Nutritional Requirement of Goat

Sr.	Nutrient	Requirement
1	Dry matter	For dairy goats
		In temperate region 5-6% of live weight
		In tropical region 4-5% of live weight
		For meat type goats – 2.5-3% of live weight
2	Concentrate	
	For maintenance ration	250g for every 50 kg body weight
	For production ration	450g for every 2.5 lit. milk/ doe
	For pregnancy ration	During last 2 month of gestation 220g daily/ doe
	Stud buck	400g daily.
3	Water	450- 680 g/ day for a goat weighting 18-20 kg
4	Dry matter: total water intake ratio	1:4

Acceptable Quantity of Macro and Micro minerals in a Goat's Diet

Macro minerals (%)		Micro minerals (ppm)	
Calcium (Ca)	0.3-0.8	Iron (Fe)	50-1000
Phosphorus (P)	0.25-0.4	Copper (Cu)	10-80
Sodium (Na)	0.2	Cobalt (Co)	0.1-10
Potassium (K)	0.8-2.0	Zinc (Zn)	40-500
Chloride (Cl)	0.2	Selenium (Se)	0.1-3
Sulfur (S)	0.2-0.32	Molybdenum (Mo)	0.1-3
Magnesium (Mg)	0.18-0.4	Iodine (I)	0.5-50

Nutrient requirement of goats for pregnancy (Devendra, 1981)

Live weight(kg)	DM intake(g)	Total ME(MJ)	DP(g)
20	816	8.54	49.8
25	950	10.04	58.6
30	1104	11.55	67.4
35	1240	12.97	75.6
40	1368	14.31	83.4

Lactating Does

The amount of feed given to the lactating does depend on the amount of milk produced. For every additional kg of milk produced does depend on the amount of milk produced, 400g of concentrates or 0.1 kg good quality green fodder may be fed.

Some economic concentrate mixture (%)

Ingredients	Mix-1	Mix-2	Mix-3	Mix-4	Mix-5
Maize crushed	30	20	25	-	30
Wheat bran	20	20	25	25	20
Barley	-	10	5	20	10
Oats	10	10	10	25	-
Gram(crushed)	10	10	15	10	20
Groundnut cake	20	20	10	10	10
Gram/arhar chuni	10	10	5	10	10
Molasses	2	2	2	2	2
Common salt	0.3	0.3	0.3	0.3	0.3
Vit-A (g)	0.3	0.3	0.3	0.3	0.3
Vit-B2 (g)	0.3	0.3	0.3	0.3	0.3
Vit-D3 (g)	0.5	0.5	0.5	0.5	0.5
Mag. Sulphate	0.5	0.5	0.5	0.5	0.5
Phosphorus	2.4	2.4	2.4	2.4	2.4

Source: Dairy Handbook (production), NDRI, Karnal.

Proportions of ingredients for preparing goat ration of different categories

Ingredients	Kid ration	Growing ration	Lactating ration	Pregnant goat ration
Maize	37	15	52	35
Pulses	15	37	-	-
Oil cakes	25	10	8	20
Wheat bran	20	35	37	42
Mineral mixture	2.5	2	2	2
Common salt	0.5	1	1	1

Source: Sharma & Dabas (2009)

USEFUL INFORMATION FOR FEEDING OF GOATS

1. Goat is very efficient ruminant taking 80 % of its nutritive requirements through browsing.
2. Goat utilizes coarse fiber feed for efficient energy production.
3. DMI of goat is higher compared to large animal which is 4-5 % of their live weight.
4. A little high level of protein appears to be beneficial for goat feeding.
5. Due to smaller stomach capacity daily feed may be offered 3-4 times.
6. The goat have mobile upper lip and very prehensile tongue, goats are able to graze on very short grass and to browse on foliage, not normally eaten by other domestic livestock.
7. Goat has higher basal metabolic rate than cattle therefore maintenance requirement is higher than those of cattle.
8. Feed cost and labour per unit are comparatively higher than other livestock.

9. A mature goat will consume about 5 kg of green fodder daily (5 doe consume equivalent to a cow)

Feeding System:

- A. Tethering
- B. Extensive
- C. Semi-intensive
- D. Intensive

Tethering

When grazing facilities are limited and one or two goat are to be kept then tethering is convenient. In this system animal is tied with a rope of 3-5 meter with a slip knot to a peg of 35-50cm long. Peg is driven into the ground over a grazing area which permits the goat to brow over a limited area depending upon the length of the rope. Change the location whenever necessary so that goat may get sufficient grass to meet the requirement. Provide a temporary portable shelter closely within reach of animal so that it may turn to it in the event of extreme heat or heavy rains.

Note

- Goat has a strong dislike for rain and for getting wet.
- Goat should have tethered both in morning and evening.
- Goat should be kept in the shed in day.

Advantages

- It helps to keep the goat out of the door.
- Feeding goat is convenient.
- Utilization of grass properly.

Precaution: Graze animal on a plot which is definitely known to be free from parasites.

Extensive System

It has been observed that when a goat find opportunity to browse for about 8-9 hrs./day, the goat can take care of their maintenance but rate of growth slowdown. This system of rearing goat is common in India which includes migratory, free range, pasture and range management of goat. Small farmer and landless laborer take their goat and sheep together walking long distances in of feed and water.

Grazing method (Bhatta et al., 2003)

Cut and carry System: In this system animals are fed on fresh forage harvested from pasture under stall feeding. This system is more beneficial in region where precipitation and pasture growth is disturbed round the year.

Rotational

In this grazing system, animals are rotationally grazed with an interval of 45 days. The area is dividing into 4 paddocks; each paddock is grazed for 15 days and then shifted to

the next. Under this system, vegetation gets rest of 45 days which help them to regenerate and grow. It provides equal grazing pressure to all area of pasture.

Deferred Rotational

This is used when preparation of hay for lean period is an objective. In this system, one paddock is protected from grazing during the active phase. The grass from paddock is harvested before flowering for the preparation of hay. Remaining three paddocks are utilized under rotational system.

Continuous system

Utilization of range vegetation by all kind of livestock under continuous grazing is the most prevalent system in country. In this system, vegetation does not get an opportunity to grow. Successive high grazing pressure over a long period deteriorates the grazing resources.

Limitation of Extensive System

1. Natural potential of range land is low due to long dry summer, erratic rains, light textured soil, deficient organic matter.
2. There are marked fluctuations in availability of feed from region to region and season to season.
3. Poor nutritional availability to animal does not give enough opportunity to exhibit their genetic potential.

Advantages of Extensive System

1. Easy and convenient method of raising animal.
2. Use of low resources.
3. Managerial advantage due to small sized flock with farmers.
4. More economical than cattle under natural grazing or browsing (*Raut and Nadkarni, 1947*)
5. Indigenous goat 2.5 times more economical than sheep on free range grazing in semi- arid regions (*Acharya et al., 1980*).
6. Increase fertility of soil by way of manure and urine dropped by animals.
7. Help in control of weeds by animals thus reducing the expenses of weedicides.
8. Provision of abundance shed offered by tree on range lands.
9. Less expenses in rearing of goats.
10. Capital and labour expenses are less.

Semi-intensive System

This system is combination of intensive and extensive system in which limited free range grazing is allowed with stall feeding. Goat of different farmers are grazed together for 4-6 hrs. a day, and then kept in stalls where they are offered tree leaves, hay, dry fodder, green kitchen waste, crop residue and concentrate mixture depending upon the availability. Therefore, the performance of goats depends upon quality and quantity of

feeds made available through limited browsing and supplementing feeds in stalls. However the level of nutrition is better, than goat find in extensive system.

Note:

- Goat should not be loosed for grazing until the dew has dried up *i.e.* two hours after sunrise.
- Grazing
- Grazing on wet grass with dew cause intestinal inflammation and timpanists.

Intensive System

This system includes two methods:

1. Keeping goats in stalls and feeding them cultivated fodder and concentrate to meet their requirements.
2. Grazing of goats on developed pasture permitting stocking rate of 16-60 goats per hectare depending upon the kind of grass level of fertilization, irrigation and legume availability (*Devendra and Burns, 1983*).