

A BRIEF ANALYSIS ABOUT SHEEP FARMING OF KARNATAKA

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ABSTRACT

In India sheep are seen mainly in arid and semiarid agro-climatic zones. Maximum sheep population is seen in Andhra Pradesh, Karnataka and Tamil Nadu. There are 42 recognized breeds of sheep in our country. A few breeds also exist in higher altitudes like Jammu and Kashmir and produce fine carpet wool of apparel quality. Sheep doesn't require expensive housing and reared in a simple shelter with minimum ventilation. Sheep rearing can become more profitable by adapting modern latest technologies of management, scientific breeding, feeding, and culling and disease management. According to 2012, Livestock Census there are 65 million sheep in our country and Karnataka has 7 million sheep. Tumkur district has highest population of sheep with 10.68 lakh while Udupi district has the lowest number of sheep. In general sheep rearing is very less in the areas of high rainfall, deep forest, water logging and Malnad area. Sheep rearing can be taken on intensive management system with good protective measures in rainfall areas, in lands where agriculture cannot be taken due to barren lands, desert, hilly regions, uncultivated fallow lands etc. Sheep rearing does not require special knowledge or high investment and all the family members can be involved in sheep rearing. Sheep must be fast growing with high feed conversion ability and should have capacity to attain 18-20 kg liveweight at 6 months of age. Ewes should have good mothering ability and nurse the young ones to prevent early mortality. Sheep should have a capacity to produce twinning and the ewe should have a good mothering ability characters. If slaughtered at 6 months of age the meat should be soft and have a good flavor and the minimum dressing percentage should be 45-50 percentage and it should be tasty to consume.

KEYWORDS;-SHEEP, BANNUR, MALNAD, BELLARY, CHITHRADURGA, MANDYA, WHOOL, MEAT,

INTRODUCTION

Sheep is a small ruminant which provides us good quality meat, wool skin and manure. Sheep are found in tropical zone and can survive on sparse vegetation during draught conditions feeding on available shrubs, vegetation with lesser expenditure.

In India sheep are seen mainly in arid and semiarid agro-climatic zones. Maximum sheep population is seen in Andhra Pradesh, Karnataka and Tamil Nadu. There are 42 recognized breeds of sheep in our country. A few breeds also exist in higher altitudes like Jammu and Kashmir and produce fine carpet wool of apparel quality.

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Sheep rearing can be taken on intensive management system with good protective measures in rainfall areas, in lands where agriculture cannot be taken due to barren lands, desert, hilly regions, uncultivated fallow lands etc. Sheep rearing does not require special knowledge or high investment and all the family members can be involved in sheep rearing.

Breeds of sheep

Sheep are generally classified into 3 types based on the products obtained from them.

1. Wool purpose breeds
2. Meat purpose breeds
3. Dual purpose breeds (both meat and wool)

1. Wool purpose breeds: They produce good quality and quantity of wool. These sheep are mainly seen in Australia, Spain, and Russia etc. Few examples are Rambouillet, Soviet Merino etc. Indian breeds are Gaddi, Gurez and Karnah from HP.

2. Meat purpose breeds: These breeds of sheep produce good quality and quantity of meat. There are fast growing breeds and gain more body weight in short time. The examples of Indigenous breeds are Malpura, Sonadi, Macheri, Ramnad, Vemluretc. and examples of Exotic breeds are rambouillet, Dorset horn, and South Down.

3. Dual purpose breeds (Both meat and wool): These breeds produce fairly more quantities of meat and wool as compared to native breeds. Few examples of Indian breeds are Deccani, Hassan, Nali, Coimbatore, Ganjam etc. These breeds are acclimatized to their areas of a country.

India has produced many varieties of cross breed sheep suitable for different climates such as Kashmiri Merino, Avikalin, Avivastra and Bharath Merino etc.

Breeds of Karnataka

Sheep breeds in Karnataka are popular for meat purpose only. A few varieties produce wool of low quality and also in lesser quantity which will not fetch good price in market. Few examples of breeds seen in Karnataka include Bannur, Deccani, Hassan, Bellary, Chitradurga, Kenguri etc.

1. Mandya breed

- This breed is also called as Bandur or Bannur. It is renamed as Mandya breed.
- These sheep are bred largely in Mandya, Malavalli, and Bannur areas of Mandya district.
- They are also found in Mysore and Bengaluru districts.
- The sheep have creamy or white body colour with specific brown patches on head and neck region.
- They have round and broad chest with small legs. They have bulged Roman nose and do not possess horns.
- They have compact body resulting in higher body weight and meat yield. Mandya breed produces meat of high quality with inter muscular fat (marbling) which makes meat soft and tasty.
- When it is cooked it gives pleasant smell which is unique feature of this breed. The meat is of good quality and tasty and the dressing percentage is 40-45% of live body weight.
- This breed of sheep is used in other parts of India as well as abroad for developing good meat variety sheep.
- The sheep attains 16-18 kg live weight in 6 months and will become fit for breeding within 13-17 months of their age. The sheep generally produces 3 lamb crop in span of 2 years. The adult sheep attains 35 kg body weight. Mandya breed produces Coarse quality wool which is used by locals to produce rough blankets and carpets.

2. Deccani breed

- The sheep of this breed are specially spread in Bijapur, Gulbarga, Dharwad and Raichur Districts of Karnataka as well as in Maharashtra.
- There is variation in Body colour such as Brown, black, Brownish black, whitish black and blackish white.
- The legs are not too long also not too short. Breed weighs of 30 to 35 kg in males and 25 to 30 kg in females.
- Rams have curved horns and produce wool of medium quality. Shearing of sheep is done twice a year.
- The wool yield is around 750-800g /year with 50% dressing percentage. In Rural areas good quality blankets, muffler, sweater and short caps are prepared from the wool of this breed of sheep.

3. Hassan breed

- This breed is slightly different from Mandya breed with body colour and shape being similar to Bannur.
- The head and neck are black or brown. The legs are long. The quality of wool is coarse rough and many times is not useful for preparing blankets.
- The meat is of less tasty compared to Mandya breed and the dressing percentage is 45-48% with an average body weight of 30-35 in males and 25 to 30 kg in females.

4. Bellary and Chitradurga Breed

- These sheep are prevalent in Chitradurga and Bellary areas. These sheep are similar to Hassan and Deccani breed in body weight and shape. T
- he colours seen are black, ash like and black with white colour patches.
- The legs are lengthy which helps animals walk several miles in search of food and water without much strain.
- Rams have horns and attain 35-45kg weight in 2-2 ½ years of age, whereas ewes are polled and gain 30-35kg in 2 years.

- These animals produce low quality hairy wool fit for rough blankets. Meat is of less taste.

Housing of sheep

- Sheep doesn't require expensive housing. A shed to protect them from rain, wind and extreme cold during winter is essential. The floor space required per adult ewe is 8-10 sq.ft., adult ram is 14-15 sq.ft. and for young lambs is 5 sq.ft. To protect sheep from theft and predators it is advisable to house them in low cost shed built by jungle wood or bamboo sticks. The roof can be made of coconut or arcanut leaves (called Roppa in Kannada). In nomadic system of rearing sheep flock is penned with net in the harvested fields during nights. This will improve the fertility of such soils.

Breeding of sheep: Norms to be followed

Development of sheep breed for meat is going on since 2-3 decades in our Karnataka. Crossing and development through selection is going on as per guidelines of ICAR. To improve the profits from sheep rearing it is important to utilize economic traits through selection. The desirable features and characters of such traits for selection are as follows.

- The ewe and ram used for mating should be free from genetically transmitted disease and should be of different parents to avoid inbreeding. Normally the ewe lamb will come to heat first time during 9-13 months of age, while ram lamb will mature at age of 12-15 months of age.
- The body growth and confirmation of sheep should be breed specific. Sheep must have special characteristics of fast growing, early maturity and produce healthy lamb crop.
- Timely conception, mothering and nursing abilities are important desirable traits to be observed in selecting ewes.
- The rams should have broad chest strong built up majestic look with masculine characteristics and testicles without any defects such as cryptorchidism. The rams should have produce good quality semen.

Desirable characters for meat purpose breeds:

Sheep must be fast growing with high feed conversion ability and should have capacity to attain 18-20 kg liveweight at 6 months of age.

Ewes should have good mothering ability and nurse the young ones to prevent early mortality.

Sheep should have a capacity to produce twinning and the ewe should have a good mothering ability characters.

If slaughtered at 6 months of age the meat should be soft and have a good flavor and the minimum dressing percentage should be 45-50 percentage and it should be tasty to consume.

Desirable characters for wool purpose breeds:

The wool purpose sheep breeds also should be fast growers similar to meat purpose breeds and should be a good feed converters and ewes should have good mothering abilities.

Sheep should possess ability to produce good quality and quantity of wool of long crimp nice to touch, white, shining and get along with other synthetic wool fibres and should be high wool yielding.

The Breeding management practices

The male and ewe used for breeding should not be from the family or genetically related and should not follow inbreeding.

1. Generally female sheep will reach sexual maturity at the age of 9-13 months and male sheep by 12-15 months of age.
2. Female sheep should be bred only after attaining the optimum body weight
3. Sheep can be bred through artificial insemination or through natural mating. The ideal sex ratio required is one male for every 30-40 females.
4. The gestation period in sheep is 145-150 days (5 months).
5. The ewe will come to oestrus 2-3 months after lambing. There is good chance of conception during this period.
6. There are two breeding seasons seen in sheep viz., once during spring season, March to April and another during autumn season July to August. The lambing season is generally during August to October and December to January.
7. The lambing interval is generally 8 months. Hence we can expect 3 lambing's in 2 years. To avoid inbreeding it is necessary to use a breeding unrelated Ram from outside the farm. It is desirable to change the breeding Ram once in 3-4 years.

Management of pregnant ewe

Pregnant ewe should be separated from the flock until lambing. Provide good quality green fodder or green tree leaves as basic feed with 200-250g of balanced concentrate daily in the evening. In case of dystocia (difficulty in lambing) approach a Veterinarian.

Care of young lambs

Care and Management of Lambs

- Lambing pen must be equipped with portable manger and water trough.
- Usually mother will lick her lamb dry. However, under certain situations she doesn't do this make the lamb dry by using clean, soft, dry towels.
- Lambs will be on feet within 10-15 minutes and reach up to udder within 20-25 minutes after birth. If lambs fail to do so, provide assistance to reach to the udder for colostrum consumption within 30 minutes. If the mother's milk is not available, consult the veterinarian for oxytocin injection or colostrum from the other sheep has to be provided to the lambs.
- Teats of mother are tight and turgid immediately after parturition hence lambs face difficulty to take colostrums. Remove few strips of milk and make the teats loose.
- Keep the lambs along with the mothers in lambing pen for at least three days.
- Lambs should be protected from getting chill by wrapping in curtains made up of jute / blanket.
- The lambs should be dewormed at the age of 15 days and later every two months the deworming is repeated to prevent parasitic infestations which help in growth of the lambs.
- After lambs attaining the age of 3 months, the lambs should be separated from the mother, reared separately and should be fed recommended concentrates.
- Lambs fed well with balanced feeding attains 15-20 kg weight in 6 to 9 months and if slaughtered will fetch tender meat.

Feeding Management of Lambs

- The lamb up to 2 weeks of age entirely depends on mother's milk. Colostrum must be given to the lamb as it is a rich source of fat, protein, vitamin and immunoglobulins to protect it from several infectious diseases in the initial stages of life. The lambs are allowed to suckle in the morning before the ewes are let out for grazing and again in the evening when the ewes are brought back to the pen.
- At one week of age, a handful crushed and compounded concentrate feed should be given to lambs for nibbling and required quota of concentrate should be given after 15th day onward. After about 1.5 months of age, lambs should be let loose nearby night pen for grazing or they should be provided with ad lib dry fodder and limited green fodder.

Scientific feeding of sheep

- Feeding is the main factor responsible for proper growth, reproduction and production of meat and wool. In India very few farmers are devoting their land for growing fodder crops for feeding sheep and goat.
- Wherever fallow lands are seen those areas are used for grazing sheep on available shrubs and grasses. Sheep are to be grazed for 8 hours per day commenced after sun rise and stopped at sunset. When fodder cultivation is taken up with irrigated modern cultivation practices, the animals are to be fed in stall by regular harvesting of fodder and dried under shade by cutting in to small pieces with the help of chaff cutter.
- The sheep are to be provided with good quality nutritive balanced feed to get better performance of meat and wool production. Sheep need 4-6 kg of green fodder every day. One acre of green fodder cultivation will suffice for feeding 20 sheep in stall fed conditions for a year. During seasons of lower fodder yield the growth of the sheep will be lower. Under the circumstances, dry ragi fodder or any dry fodder can be given to sheep to gain weight.

Balanced feed concentrate formulation

The ration provided to sheep can be classified into two types

1. Maintenance ration
2. Production ration

1. Maintenance ration:

- This feed is required for day to day maintenance of basic metabolic activities.
- The nutrients required for maintenance ration is obtained by grassing grasslands, feeding on crop residues, weed grasses, fodder tree leaves (Subabul, Melia dubia, drumstick, Agase,) green manure leaves, and shoot of fodder plants which contain more than 18 % crude fibre.
- Since sheep is ruminating animal feed on forages and synthesize some of the nutrients by utilizing microbes. Subabul leaves should not be given more than 10 % of the total forages.

2. Production ration

- The maintenance ration need to be fed adequate to meet the nutrients required for production.

- The production ration consists of 16% crude protein to be given to sheep for growth and production. Lambs grow faster with production ration and in lactating ewes to produce more milk and improves reproductive efficiency of animal.
- Production ration is provided in the form of balanced feed concentrate. Such a concentrate feed can be prepared by farmers using available grains legumes and oil cakes as detailed in following formula and feeding schedule.

Table 1: Concentrate feed formula

Sl. No.	Details	Quantity (kg)	Source of
1	Maize/Jowar/Ragi flour	40	Energy
2	Wheat/Rice bran	37	Energy & fibre
3	Groundnut/safflower/tilcake /sunflower cake /cottonseed cake /horsegram/soyaseed powder	20	Protein
4	Common salt (crystals)	01	Minerals
5	Mineral Mixture	02	minerals
	Total	100	

Table 2: Feeding schedule

Sl. No.	Age	Maintenance ration	Balanced feed
1	From first day to one month	Sucking of milk	Lambs depend on mothers milk
2	2-3 months (every day)	Sucking ends at 3 rd month	50g/ lamb Balanced feed along with mother milk
3	4-9 months	Fodder (Grazing/Stall feeding)	100-200g /lamb/day
4	Mother ewes while suckling young ones	Grazing/Stall feeding	200-300g/ewe/day
5	Breeding Rams	Stall/feeding only	200-250g/Ram

- A large sheep flock in our country are allowed for grazing in waste lands tank bund, channel bund, near hillocks etc from morning to evening by nomadic farmers.
- They practice feeding lambs with tender grass shoots of acacia, ber fruits etc. To get better weight gain and to prevent weight loss during summer the sheep can be fed with locally available cereals and legumes mixture @ 100g / animal (Growing and adult).
- Growing lambs and adult breeding male sheep are given protein source concentrates like cotton seed cake or ground nut cake or concentrates.

Water requirements in sheep

Sheep will not require water at frequent intervals. Only once or twice in a day is sufficient. The stall fed sheep and lamb are to be provided with clean and fresh water always to meet their water requirement

PRACTICE OF STALL FEEDING – IN SHEEP AND GOAT REARING INTENSIVE SYSTEM

Stall feeding under intensive system of sheep/goat rearing is becoming inevitable and common due non availability of land and labor for grazing/range system. A low cost loose housing in an enclosed area with proper protection against predators and thefts is enough for housing these species and required fodder is chaffed and supply of clean drinking water. Exposure to very high or low temperatures for a longer duration drastically affects the performance of sheep and goats in terms of growth/gain in weight during summer due to loss of appetite and reluctance to eat resulting in loss of body weight. During winter much energy is utilized for maintaining own body temperature resulting in poor growth due to non-availability of optimum energy for the purpose.

Housing is of two types

1. Ground level with suitable soil for absorbing urine/moisture if any in the droppings of excreta.
 2. Raised and slatted floor using seasoned wood pieces.
- Arrangement for feeding of chaffed fodder and concentrates, providing separate pens for growing lambs, adult sheep, pregnant sheep, lactating mothers with own young ones for 10 days and suitable management practices to be followed. The feeding of forages and concentrates of the sheep should be balanced based on the body weight.
 - Breeding males (RAM/BUCK) are always separately housed. During breeding seasons PEN MATING system is best by allowing females in heat (1 or 2 males for 20-25 males) and the breeding males are allowed during night and separated during the day.

- Timely vaccination and deworming practices should be followed as recommended by the veterinarian. Regular checking and monitoring for the body weight will help to correct for the growth of the sheep.

Flushing

- The nutrition level for adult breedable ewes and lambs has to be stepped up to promote their body weight about 2 weeks prior to breeding seasons. This will help to produce healthy lambs and also to synchronize the oestrus so that more number of ewes come into heat in a similar time period. This will increase fertility percent in the flock and management will be easier.
- Flushing ration is continued during breeding season and even followed during practiced and can be as mentioned below:
- Grazing + 150 to 200g concentrate feed or grain mixture of cereals and legumes (2:1) per day/adult ewe.
- Green grasses and legume leaves + 100 to 150 g concentrate feed / day/ewe or grain mix of cereals and legumes.

Feeding during late pregnancy

Growth of foetus is more during the last months of pregnancy (4th to 5th month). During this stage, more energy is needed and as pregnant ewes cannot consume more roughage, more cereals have to be fed to meet the energy levels required for the growth of the foetus.

Feeding lactating ewes:

Feeding at this stage is very important and to be focused on to the milk production, making up of tissue losses and building up of body immunity. Providing roughages including dry legumes supplemented with concentrates or grain mixture and mineral mixture is a must up to 3 months. This practice will enable to produce more milk for the suckling lamb and to advance recovery of reproductive system.

DISEASE MANAGEMENT IN SHEEP

Sheep are prone for infectious diseases. The following precautionary measures has to be taken to prevent disease attack.

1. Annual vaccination against all diseases has to be undertaken with the recommendation of the veterinarian before the rainy season with the interval of 15 days.
2. Sheep should be grazed in a disease free areas and drinking water should be flowing in natural water bodies.
3. Segregation of diseased sheep from the flock
4. Sheep should be protected from the extremes of the climate.

Anthrax

A bacterial disease caused by *Bacillus anthracis* which produces 2 types of toxins viz Hemotoxin and neurotoxin. The disease is prevalent in endemic area and cause severe outbreak in all animals. Young animals more prone for disease outbreak.

Factors responsible for spread of disease and

Disease also spreads from contaminated soil, fodder, feed etc. and also by contact may also spread from biting and blood sucking insects like fleas, ticks, flies and carnivores animals. The disease will be severe when animals are transported or when already infected with FMD disease and high incidence in young growing animals.

Symptoms: Disease spreads very rapidly with high mortality. Sometimes the affected animals may not show symptoms but there will be sudden severe bleeding in mouth and nose. Affected animals are sheep, goat, cattle and horse. Temperature of 105-107° F with difficulty in breathing, shivering, biting teeth, rotation of eye balls etc.

Identification of the disease: post mortem examination should not be carried out in dead animals. Sudden severe bleeding in mouth and nose is the characteristic symptom of the disease.

Preventive measures

Preventive vaccination with live attenuated *Bacillus anthracis*. The vaccine can be used during calf hood stage also and immunity lasts for a year only.

2. ENTEROTOXEMIA

This is a contagious disease which spreads very rapidly commonly seen in sheep and goats. The disease is caused by *Clostridium perfringens D* bacteria. The bacteria is commonly seen in intestine and stomach. When animals are fed with excess fodder and starchy diet blocking the gastrointestinal tract results in excessive multiplication of organism. Production of toxin is the cause of mortality. The organism is also present in soil for several years in the endemic areas.

Predisposing Factors responsible for spread of disease:

1. Grazing in misty climate areas by sheep
2. Disease is more severe in young lambs fed on milk diet
3. When Sheep intake of feed is higher and fattened sheep
4. When sheep are fed with excess jowar grains in rainy season and a sudden change of diet.

Symptoms of disease:

1. Infected sheep are dull, weak and lie down in unconscious stage with head stretched out with violent movement of legs and die after loss of consciousness.
2. The urine is turbid and contains sugar
3. Diarrhea

Preventive management

1. Avoid frequent changes in diet
2. Do not feed excess starchy diet
3. Vaccinate young lambs above 3 months. A booster dose is to be given after 3 weeks of initial vaccination.

3. Pasteurellosis

This disease is also called "Transporters disease/Shipping disease/septicemia/pneumonia etc. The disease occurrence is universal in nature. The disease is caused by bacteria *Pasturella multocida* and *Pasturella hemolytica*. The disease causing organisms are commonly present in respiratory tract and gastrointestinal tract.

Pre-disposing factors for the Spread of disease: The disease spreads during transporting of sheep for long distances, flocking of sheep in damp areas during climatic variations, rainfall, overcrowding and contaminated feed and water. Affected animals are sheep, cattle, pigs, rabbit and rats.

Identification of disease: The disease is prevalent in endemic areas. In such areas it is necessary to provide vaccination of all healthy flock. Whenever new animals are purchased it is important to observe for symptoms of disease and should be vaccinated.

Symptoms: The disease is a combination of septicemia and pneumonia with high temperature, dullness, difficulty in breathing with copious jelly like discharge from nose. The sheep will die within 12-24 hours after onset of disease. The postmortem findings in dead sheep are petechial hemorrhage in skin, inner parts of intestine etc.

Prevention and control: The infected sheep are to be treated with sulphathiazole and sulphamerazine. Preventive vaccination is done with *pasteurella multocida* strain. 5-10 ml of vaccine should be inoculated for sheep or 2 ml of adjuvant vaccine of 2 ml to be given as recommended by veterinarian.

4. BLACK QUARTER

This disease is commonly seen in sheep and cattle caused by *Clostridium chauvoei* organism

Spread of the disease: contaminated feed and water or by organism enter through wound caused due to shearing in sheep.

Symptoms: High temperature of 105-106 F, limping, black emphysematous swellings over shoulders, chest neck and thigh regions. On palpitation of the thigh muscles, crepitating sounds are felt due to air. Dull depressed and anorexia are commonly observed general symptoms.

Prevention and control: Black quarter vaccine of 2-3 ml before rainy season inoculated in neck region or thigh region

5. BLUE TONGUE

Blue tongue is a recent emerging sheep disease in our country caused by a virus. The disease is spread by *Culicoides* mosquito bite. The sheep housed in damp soil in rainy season are more prone for the disease.

Symptoms: The affected sheep or goat loses appetite for feed, dull appearance with high temperature. Swelling in the ear, nose, eye, eyelid and throat is more visible. There will be red patches in mucosa of mouth and nose with frothy salivation and also swelling of lips, chin and other parts of body. In few sheep tongue is bluish with ulcers in mouth and swelling of tongue. Infected sheep will isolate itself from flock.

There may be wound on upper and inner part surrounding the hooves resulting in lameness. Affected sheep will be off feed, become weak, and ultimately die.

Prevention and control:

1. Vaccination to control Blue tongue administered yearly once,
2. Avoid dampness so that mosquitoes are not attracted and protect from *Culicoides* mosquito biting the animals.
3. Fumigate shed by burning neem leaves and stem to evoke smoke during evening which will prevent mosquitoes entering the shed,
4. Avoid shearing of sheep during monsoon days.

6. SHEEP POX: is a viral disease caused by pox virus which spreads from infected sheep saliva, air, nasal discharge, skin contact with infected sheep and shepherds, bedding materials, etc. causing severe mortality in young lambs.

Symptoms: Higher temperature, discharges from eyes, nose, mouth, salivation etc. Pustules will appear on base of tail, around the eyelids, lips, udder and thigh region, skin etc. These pustules become ulcers, causing discomfort to animal and the discharge will be highly contagious to other animals. The pustules in lungs and respiratory tract

produce cough in animals. Disease is more severe in young lambs resulting in mortality up to 50% and cause abortions in pregnant sheep.

Prevention: Sheep can be protected from Sheep pox by vaccinating sheep with pox vaccine before summer.

5. Pesti des Petis Ruminants (PPR) /Goat plague

Is a viral disease also called as Plague of small ruminants affecting sheep and goats and can cause severe mortality. The disease spreads through discharge of infected sheep & goat. The organism lowers immunity in sheep and goat which aid faster multiplication of organism result in mortality.

Symptoms: High temperature with watery discharge from eye and nose. There diarrhea in 3-4 days and results in death in one week time.

Prevention and Control measures: Periodical vaccination of all animals before onset of summer.

Table: Schedule of preventive health care management in **Sheep & Goat** for prevention of disease outbreak around the year.

Sl no	Month	Vaccination	Deworming	Cleaning and shearing	Supplementary feeding after grazing/sheep
1	January	Sheep pox	-	-	Dry fodder 200 gm
2	February	-	Deworming	-	Dry fodder 300g, concentrate 100g
3	March	-	-	Washing and shearing	Dry fodder 300g, concentrate 100g
4	April	PPR HS	Deworming	-	Dry fodder 300g, concentrate 150g
5	May	ET, Anthrax	-	Washing animals	Dry fodder 300g, concentrate 150g
6	June	Blue tongue	-	-	Dry fodder 300g
7	July	-	-	Washing animals	Dry fodder 300g
8	August	-	Deworming	-	-
9	September	-	-	-	Dry fodder 300g
10	October	-	-	Washing and shearing	-
11	November	-	Deworming	-	-
12	December	-	-	Washing animals	Dry fodder 100g

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