Journal of Entomology and Zoology Studies

Available online at www.entomoljournal.com

Journal of Entomology and Zoology Studies

E-ISSN: 2320-7078
P-ISSN: 2349-6800
www.entomoljournal.com
JEZS 2020; 8(5): 423-426

Received: 22-06-2020
Accepted: 20-08-2020

CP Ghosh
Department of LFC, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

S Datta
Department of AGB, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

AK Das
Department of AGB, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

DC Roy
Department of LFC, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

A Roy
Department of LFC, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

NK Tudu
Department of Veterinary Anatomy and Histology, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

Corresponding Author:
CP Ghosh
Department of LFC, F/VAS,
WBUAFS, Kolkata,
West Bengal, India

Sustainable broiler goat rearing: An overview

CP Ghosh, S Datta, AK Das, DC Roy, A Roy and NK Tudu

Abstract
In India goat meat is preferred by all class and community of people. Broiler goats are reared only for meat production. With suitable feeding and other managerial interventions successful broiler goat rearing are possible. It is easy to monitor herd health and control disease incidence effectively. Broiler goats will gain weight at faster rate due to the fact that the feeds are quickly converted into flesh. Broiler goat rearing allows collecting the manure effectively and farmers can earn additional income with the sale of manure. This intensive system of goat rearing is preferred when there is scarcity of pastures for ample grazing and the areas have high market demand. A farmer can maintain easily about 15-20 kids at a time without any additional labor. It is highly profitable to the farmers who are already involved in goat rearing and if locally low costs feed ingredients are available.

Keywords: Broiler goat, chevon, housing, flushing, management

Introduction
The goat was probably the first animal to be domesticated around 9000-7000 B.C. This long association between goat and human indicates the variety of functions the goat can provide. In the present scenario of changing agro-climatic conditions, this goat has tremendous potential to be projected as the “Future Animal” for rural and urban prosperity. Goat rearing is mainly in the hands of resource poor, uneducated people and is mainly on the age-old concept of "zero input". Recently due to increase in its meat demand and quest for diversifying business activities, interest of entrepreneurs has shifted towards meat goat farming [12] Goats are prolific and resilient small ruminant livestock with a wide ecological adaptation. Production and consumption of goat meat are low despite the importance of the species, but this sector has huge potential to supply food for a growing human population [13]. Goat meat serves as a major source of meat in developing countries, while the conceptions about goat meat are changing due to the health benefits of the consumption of lean meat with low fat and cholesterol. Scientific research should be conducted on production of quality chevon by improving feeding, housing, health care and overall management systems.

Current scenario of goat meat production
India occupies first position in terms of goat population. Goats constitute 26.40% of the total livestock population and the 19th Livestock Census puts the number of goats in the country at 135.17 million. The meat production in the country as per 2015-16 data was 7 million tons with a per capita availability of 4.94 kg. Total Goat Meat production in 2015-16, was 942.91thousand tons. The goat sector contributes 14,453 crores to the agricultural economy of the country through meat (₹6851 crores), which accounts for around 8 per cent of the Gross Domestic Product (GDP) from livestock sector. In addition, the goat sector generates about 4% rural employment and about 20 million small and marginal farmers and landless labourers’ families depend on goats for their livelihood partially or completely. The availability of meat in India is only about 15g/person/day against the ICMR recommendation of 30g/person/day. Thus it is apparent that there exists a huge gap of meat availability. Urbanization, increased income and strong preference to goat meat will be some of major contributing factors for growth in goat meat production. Considering 14 kg per animal carcass weight and 45% of goats available for slaughter, the goat meat production will increase to 1.36 million tonnes by 2050.

Nutrient quality of goat meat

Goat meat has a number of health benefits and more nutritional value than other red meat. Low in calories, total fat, saturated fat and cholesterol than traditional meats, goat meat has higher levels of Vit. B12 and iron when compared to a similar serving size of beef, pork, lamb and chicken. Moreover chevon is most preferred red meat worldwide. Comparatively, goat meat also contains higher potassium content with lower sodium levels. Goat meat also provides an excellent source of iron because the haeme iron is about 5 to 10% more available than non-haem iron [3]. Chevon has an advantageous fatty acid profile, and the meat is ideal for health-conscious consumers (8). Desirable fatty acids in chevon ranged between 61 and 80% [2]. Goat meat provides an acceptable source of protein and essential amino acids to meet the dietary requirements of the average adult consumers. The amino acid composition varies little between species on a lean meat basis, while the diferences are more significant on a whole-meat basis. The PUFA/SFA ratios of chevon are often greater than similar values for lamb/mutton, beef, and pork. Although grain feeding improves the ratio of PUFA/SFA, it also increases the n-6/n-3 ratio to an unfavorable level [4].

Advantage of broiler goat farming

The Broiler goats are reared only for chevon (quality meat) production, no need to worry about breeding strategies. These type of goats are not allowed to graze on pasture this provides to raise them in hygienic disease free environment and it is very suitable for urban or peri urban goat rearing. This can also protect them from any predators. Risks of diseases are less in broiler goat farming as they are raised in controlled environment. From management point of view it is easier to maintain overall flock. The proper feeding and other management interventions are possible in broiler goat rearing. It is easy to monitor herd health and control disease incidence effectively. Broiler goats will gain weight at faster rate due to the fact that the feeds are quickly converted into flesh. Broiler goat rearing allows collecting the manure effectively and farmers can earn additional income with the sale of manure.

Package of practices for successful broiler goat rearing

Housing

Goats do not need elaborate housing. Farmers must ensure adequate ventilated and elevated shed is required for Broiler Goat. The housing should be low cost goat house with a raised platform about 3.5-4.5 ft height from ground level by using bamboo/wooden platform. The goat house floor and side walls can be made with wood or bamboo. House roof can be made with coconut leaves, paddy straw or asbestos sheets. The height of roof may be 12-18 ft. If budget permits, shed can be raised over concrete pillar with concrete floor. It requires floor space of 10-12 sq ft per broiler goat kid. Make a provision that the floor has at least 1 cm space between wooden polls to allow passage of goat manure and urine to the ground. It can protect from any snakes, rats and other predators.

Selection of kids

There is no specific breed used for broiler goat rearing, available breed (local) adopted and suitable for particular area should be selected for broiler goat farming. The goat kids about one month old i.e before starting to nibbling green leaves and are having higher body weight at birth should be selected. They are not allowed for further breeding and not be allowed to feed on green fodder/grazing green grasses in open spaces. We can include both male and female goats.

Selection of parent stock

Doe

The doe should be healthy and well-built body, standing on four legs equally, and good mothering ability to raise the kids. Enough size to be able to deliver twin birth, almost 3 times of birth in two years will be desirable. It should have wide chest, higher Dry matter intake capacity higher growth and suitable development of body, shining and attractive body; and sound healthy fertile reproductive organs.

Buck

Physically healthy buck should be selected and should have strong legs. The Status of physical condition should be neither obese nor thinner. Information on mother of buck- it can forecast of offspring's ability. The weight of testes and scrotal circumferences are the important criteria for desire fertility.

Breeding of parent stock

Parent stock should be allowed for mating by using quality superior of male or by using frozen semen at about 45-60 days after parturition. Thereby the farmers can get maximum no of goats from doe for supply of goat kids for broiler goat production. Repeated mating by using same male should be avoided to reduce inbreeding.

Breeding Strategies

Meat production traits in goat include body weight at slaughter, efficiency of feed conversion and dressing percentage [9]. Hence breeding strategies should be directed towards improving growth rate, body weight, reproductive efficiency, dressing percentage and to reduce mortality [10]. The optimum body weight for slaughter is an important factor for consideration, while developing a breeding strategy for improving the meat production.

Importance of flushing

Flushing denotes increasing the level of feed offered to breeding does, mostly energy, starting about one month prior to expected breeding season and the main objective is to increase weight gain, ovulation rate and litter size. If Body Condition Score (BCS) is below 3.0 (5 point scale) then animal should be given energy reach concentrate (500 gm-750 gm, with CP-13-15% and TDN-65-70%) to reach optimum BCS >3.5 during kidding. So meat goat breed with optimum BCS and better live weight during breeding season (mating period) will have higher fecundity and litter size. Flushing can be accomplished by moving breeding does to a green nutritious pasture one month prior to the introduction of the bucks. In our country maize/wheat is the grain of choice for flushing; whole cottonseed is another low cost, high energy and protein supplement [5].

Estrous Synchronization

In a organized farm, synchronization of estrus by using PGF2 alpha injection and fixed time AI by using superior quality frozen semen will increase not only conception rate but also the farmer can bring all the goats to deliver (kidding) at a specified period of time. This technique has several advantages like no need of oestrous detection, fixed time AI can be possible, batch management of kids may be easier and reduce inter-kidding interval. Moreover birth of kid can be

planned as per market demand and it is highly successful for broiler goat production.

Dehorning

Development of horn is a recessive trait of goats and is found in most Indian breeds. For safety and proper management remove the horns at early age, between one to two weeks of age. There are several ways to dehorn goats, like dehorning pastes or similar caustic compounds, burning irons, or physically removing the horns. Dehorning paste should be used with care. When using the hot iron method of dehorning, be sure to apply the iron just long enough to produce a copper color to the horn cells. The hot iron method is the best method because minimal blood loss occurs. The heat should be used for short periods (10-20 sec) otherwise brain damage occurs.

Castration

The musk gland develops when bucks reach puberty. These glands emit a distinct odor that often taints the taste and odor of the meat. Once an animal reaches puberty, it is more active and harder to feed to an acceptable level of eating quality**.** Bucks should be castrated at the age of 2 months to minimize the incidence of urinary calculi. For castration surgical method or Burdizzos' (9 inches) castrator can be used.

Weighing goats

All goats should be weighed on entry into the production system and weekly with the minimum of disturbance. If weekly weighing is likely to cause disturbance, then it is necessary to weigh less frequently. Frequent disturbing goats may result in decreased feed intake and weight gain. Weighing should be done preferably at morning with same stage of gut fill at each time.

Feeding Management

Broiler goat production system is an intensive system of rearing goats to provide energy, protein and other nutrients in the desired quantity by feeding semi –solid concentrate diet up to three months of age [7]. This feeding system may not always be economical, especially where high quality and quantity of adequate forage is available. The creep feeding can also be uneconomical when animals are reared on adequate high quality green pasture [1]. It is necessary to pay close attention to cost of feed, additional weight gains and the market value.

The success of broiler goat production solely depends on strategic feeding management. Timely and proper feeding schedule is most important factor that influences the growth rate particularly body weight in broiler goats. Immediately after that kids should be given optimum quantity of colostrums. The young kids should be allowed mother's milk 3-4 times daily. The colostrums have high in nutrients, including energy, vitamin A, B, protein, and minerals. Overfeeding colostrums or other milk can cause scours. Excess colostrums can be frozen and fed at body temperature after thawing. Orphan kids may be left on goat's milk or changed to cow's milk or a commercial milk replacer after the first days on colostrum. Pay special attention to kids born as multiples to ensure that they are receiving adequate nutrients from their dams.

The selected goat kids for broiler goat farming are reared intensively by providing concentrate feed @ 5 grams mixed with equal quantity of broken boiled rice at initial stages (2 week to 1 month). Then gradually increase the feed amount day by day. The feed intake should increase like 7grams, 10 grams, and 15 grams like that. As supplemental feed, you can also add coconut cake, rice bran or ground cake with minimum level of 1 to 2 grams/day /goat kid to maximum of 150 to 200 grams/day /goat kid. Liver tonic and fish oil may be given twice in a week @ 2.5 ml/goat/day initially and can increase gradually up to 5 to 10ml/goat kid/day. We can buy goat feed available in the market or prepare on your own by following feed ingredients.

Deoiled ground nut cake - 12 grams, Horse gram grains- 30 grams, Wheat/Maize/Jowar grains -30 grams, Rice polish/wheat bran -15 grams, Dried unsalted fish -10 grams, Mineral mixture -1.5 grams, common salt -1.5 grams, VitAB2D3 25 grams/100 kg of feed mixture [6].

FAMCHA and Parasitic control measures

The FAMACHA scoring system was developed in South Africa, was introduced to the U.S. by the American Consortium for Small Ruminant Parasite Control (*www.acsrpc.org*). There is a well-established process to check for anaemia called the FAMACHA system, in which you judge the colour of the mucus membranes inside of the lower eyelid (conjunctiva) and compare it to colours on a FAMACHA card. This colour of the conjunctiva reflects the amount of RBC status of the animal. The scores determined with the card to identify and selectively deworm sheep and goats with anemia. Selective deworming minimizes drug use and slows down the development of drug resistant of gastrointestinal parasites. It is also useful in selective breeding decisions by identifying those animals that are most susceptible to barber pole worm infection and its lowering of selection pressure on *H. contortus* for anthelmintic resistance. Small ruminants (sheep and goat) are highly susceptible to gastrointestinal parasites in our country. Parasites thrive well when the weather is hot and humid. In the past, producers were advised to use preventative deworming treatment to maintain livestock health. Unfortunately, doing so caused resistance to all common classes of dewormer. Now day's farmers are encouraged to selectively deworm only those animals that require treatment. Selective treatment is better for animals, decreases drug resistance and helps keep pastures clean.

Coccidiosis can cause severe problems in goats, especially those managed in confined or dry lot conditions. These goats should receive a coccidostat regularly in their feed. Treatment of coccidiosis with anthelmintics (dewormers) is not so effective.

Marketing

In India goat meat is preferred by all community and classes of people. So marketing of broiler goat is not a major problem. Direct marketing is highly profitable but middleman involvement can reduce the price of animals. Here we can form Goat Cooperative to fetch maximum income. Broiler goat meat is soft and minimize goaty odour. Marketing should be done at the attainment of 25-30 kg or at the age of 6-8 months of age. Profitability will be influenced by season, year, management, and genetics. Producers may also have personal preferences as to how they want to fatten their goats. In the long run, vertical and horizontal integrations would have to be evolved for achieving sustainability of commercial goat production and remaining competitive in the global market. Service centers will have to be established to provide technical knowledge, recommended inputs and market

information. Small size modern slaughterhouses need to be established near the production centers (possibly in each development block) to maintain commercialization of goat production. The private sector may be encouraged to create such infrastructures through appropriate policy support and incentives. This would enable the farmers to enhance their productivity and reduce cost of their production [11].

Conclusion

This intensive system of goat rearing is suggested when there are no pastures available for ample grazing (high market demand). A farmer can maintain about 15-20 kids at a time without any additional labour. It is highly profitable to the farmers who are already involved in goat rearing and if locally low costs feed ingredients are available. The kids should be sold off at about 6-8 months (25-30 Kg body weight). A farm woman/farmer can produce more number of broiler kids in short period of time. Apart from these the reproductive efficiency of female goats can also be highly exploited by proper planning of breeding. This system is excellent for development of urban or suburban goatery.

References

1. Alcock D. Creep feeding lambs. Prime facts: Profitable and sustainable Primary Industries. www.dpi.nsw.gov.au/primefacts database. 2006; 224:1-4.
2. Banskalieva V, Sahlu T, Goetsch AL. Fatty acid composition of goat muscle fat depots: A review. Small Ruminant Research. 2000; 37:255-268.
3. Casey NH, Van Niekerk WA, Webb EC. Goats meat. In: Caballero B., Trugo L., Finglass P. editors, Encyclopedia of food sciences and nutrition. Academic Press, London. 2003, 2937-2944.
4. Enser M, Hallett KG, Hewett B, Fursey GAJ, Wood JD, Harrington G. Fatty acid content and composition of UK beef and lamb muscle in relation to production system and implications for human nutrition. Meat Science. 1998; 49:329-341.
5. Ghosh CP**,** Datta S, Mandal D, Das AK, Roy DC, Roy A *et al*. Body Condition Scoring in goat: Impact and significance. Journal of Entomology and Zoology Studies. 2019; 7(2):551-560.
6. https://www.goatfarming.in/broiler-goat-rearing-information-guide, 2019.
7. Kotresh Prasad C, John Abraham, Balusami C, Roshin AJ, Senthil Murugan S. Haematobiochemical profiles of Malabari kids fed broiler concentrate diet. Indian Journal of Small Ruminants. 2016; 23:94-96.
8. Mahgoub O, Khan AJ, Al-Maqbaly RS, Al-Sabahi JN, Annamalai K, Al-Sakry NM. Fatty acid composition of muscle and fat tissues of Omani Jebel Akhdar goats of different sexes and weights. Meat Sci. 2002; 61:381-387.
9. Mandal A, Karunakaran M, Ghosh MK, Dutta TK. Breeding Strategies for Sustainable Goat Farming in India. Research and Reviews- Journal of Dairy Science and Technology. 1994; 3(1):1-7.
10. National Livestock Policy - Government of India. Ministry of Agriculture Department of Animal Husbandry, Dairying & Fisheries. 2013, 10-11.
11. Shalander Kumar. Commercial Goat Farming in India: An Emerging Agri-Business Opportunity. Agricultural Economics Research Review. 2007; 20:503-520
12. Sharma N, Rajkumar V, Agnihotri MK, Goat MK. meat production in India: emerging trends and export potential. Interaction seminar on Meat Production and export potential: Impact of globalization and quality concepts. Central Institute for Research on Goats, Makhdoom, Farah -281 122 Mathura (U.P.). 2003, 42-50.
13. Webb EC. Goat meat production, composition, and quality. Animal Frontiers. 2014; 4:33-37.