

Commercializing the smallholder goat sector in India

Recommendations from innovation platform discussions in Bihar, Odisha and Uttar Pradesh



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Investing in rural people

Commercializing the smallholder goat sector in India

Recommendations from innovation platform discussions in Bihar, Odisha and Uttar Pradesh

V. Padmakumar, Isabelle Baltenweck and Christoph Weber

International Livestock Research Institute

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Summary

In 2015, the Bill & Melinda Gates Foundation (BMGF) and the International Fund for Agricultural Development (IFAD) launched a scoping project for “Public Private Producer Partnerships (PPPPs) in small ruminant value chain development in India” with a view to build a solid understanding among goat industry stakeholders (public and private) on the profitability, competitiveness, and importance of investing in the goat sector as a mean to enhance the livelihoods of and business opportunities for poor farmers in the rural areas of Bihar, Odisha and Uttar Pradesh.

Contributing to this scoping project, the International Livestock Research Institute (ILRI) established a participatory process of constructive engagement of all relevant stakeholders in the sector through the Innovation Platform (IP) approach¹. ILRI organized and facilitated two rounds of IP meetings in the three states. In these meetings more than 250 participants with different backgrounds and interests (farmers, producer organizations, private and public service providers, market agents, processors, regulatory agencies, development organizations, finance institutions, research institutes and policy makers) came together to jointly diagnose problems, identify opportunities and find ways to achieve their goals.

The first round of discussions were very broad and general in which participants identified constraints and suggested broad areas for improvement (Table 1). In the second round, discussions were more specific to help develop business cases for goat production, buck production, last mile service delivery, fodder production and small scale processing.

Table 1: Constraints and actions identified by value chain actors and supporters

Value chain actors and supporters	Constraints identified	Actions identified
Goat and sheep producers	High mortality (30%) Inadequate feeds Low access to govt. schemes Low bargaining power	Intensive disease control Programs and timely action with dedicated staff Doorstep service delivery Feed supplements, improvement of grazing land Farmer meetings at district level by all agency meet Farmer collectivization
Village traders	Unhealthy animals	Preventive health care and timely treatment Control of ecto-parasites
Big traders	Police harassment No credit facility	Follow the norms for animal movement Linking credit institutions
Mandi wholesale traders	No proper place for selling	Government and private sector to set up market yards
Mandi retail traders	No proper place for selling	Government and private sector to set up market yards

1. Innovation Platforms are spaces for learning and change. They comprise individuals (who often represent organizations) with different backgrounds and interests, who come together to diagnose problems, identify opportunities and find ways to achieve their goals. They may design and implement activities as a platform, or coordinate activities by individual members.

Value chain actors and supporters	Constraints identified	Actions identified
Butchers	Weight loss after purchase No facility and knowledge on modern slaughtering practice	Training
Consumers	High meat prices Mutton and chevon mixing Dead animal carcasses No guarantee on quality	Awareness creation Training and certification of butchers Small scale abattoirs Compulsory meat inspection
Buck service providers	No knowledge and support for buck selection	Promote private buck producers with training and technical supervision
Feed suppliers	No demand	Awareness creation of farmers Subsidy for feed supplements for reducing grazing hours Loan subsidy in kind to farmers Training of feed producers
Health service providers	Lack of availability of vaccine Lack of cold chain facility Initial start-up grants absent or insufficient Lack of support from local veterinarians	Timely supplies of vaccines Investment support for cold chain Arrangement with Department for training and backstopping
Credit service providers	No takers for commercial ventures Defaulting customers	Promotion and marketing Loans through farmer organizations
Insurance service providers	Fraudulent claims	Community insurance with re-finance

Based on the IP interactions and on related ILRI studies and project experiences, this note provides practical recommendations for BMGF, IFAD and other people keen to invest in small ruminant development to transform the sub sector in India.



Context

There is a noticeable shift in the dietary habits of people in Bihar, Odisha and Uttar Pradesh and the country as a whole towards non-vegetarian diets.

This, apart from increasing population and urbanization, is reflected in a strong and growing demand for goat and sheep meat in both domestic and export markets. Small ruminant meat accounts for 15% (0.95 million tons) of the 6.3 million tons of meat produced each year in India. A recent prediction by FAO shows a 294% growth in demand for this meat between 2009 and 2030, reaching two million tons by 2030. This increasing demand for goat meat offers real opportunities to goat producers.

Due to taste preference for goat meat, its importance in traditional dishes and for sacrifice at major festivals and religious practices that limit beef consumption, chevon has become more popular in local markets. While goat meat (chevon) is more preferred in the Indian domestic market, produced as fresh meat and sold daily, sheep meat (mutton) is preferred for export as frozen meat. As India is at a good central location to the Gulf and Far East countries and Indian mutton/chevon is preferred by these countries, there is good scope to develop business models for small ruminant meat production, processing and marketing.

Since goats provide food and nutritional security to millions of landless farmers, women and agricultural labourers (compared to sheep which are in the hands of specific pastoral communities and in large flocks), improvement in the goat sector has more far-reaching impact on the poor and women than sheep sector.



Current practices

Goats are primarily reared by landless smallholders, particularly women in the rural areas, who are unable to increase their flock size (3–5 goats/household) as they lack space, human resource (to take care of more goats), feed, and access to veterinary and other services. The current goat sector in the three states as discussed in the IP meetings is briefly explained below:

Feeds and fodder: Almost all farmers rear goats under extensive systems using common property resources (CPR) or natural vegetation on common grazing lands and tree lopping. There is no system of feeding purchased inputs such as concentrates (except in commercial farms). As a result, productivity is low. CPRs mainly consist of village pastures belonging to the Panchayats, revenue land (under Revenue Department) and forest land (under Forest Department). It was reported that these CPRs are shrinking gradually due to expansion of agricultural land, encroachment and privatization. This has serious implications on the livelihoods of the marginalized communities. No agency was found to be taking initiatives to improve the feed situation, including development of grazing lands.

Breeding: Though Artificial Insemination is an effective tool for genetic improvement, it has not been used successfully because of low fertilizing capacity of frozen semen and the lack of sufficiently trained people. Through various schemes, bucks are supplied, usually selected based on phenotypic characteristics. The government farms and research institutes produce bucks through genetic selection but are grossly inadequate to meet the requirements. Farmers have been observed selling their better animals (males) for higher prices so the remaining bucks are of low quality. So it can be concluded that no effective breeding service is available to improve genetic quality of animals in the three states.

Health and veterinary services: Mortality in goats is reported to be very high (up to 33%), especially in rural areas. There is a high prevalence of diseases such as Peste des Petite Ruminants (PPR), Enterotoxaemia (ET) and Goat pox. There are also insufficiencies in the cold chain management for vaccines. Veterinary services from the public sector are not found to reach most goat producers, especially the majority living in remote locations. Even though the number of veterinary hospitals, polyclinics and dispensaries in the public sector has increased over the last decade, small ruminant health care still receives low priority due to lack of infrastructure, shortage of trained personnel, non-availability of medicines and vaccines. This is due to the perceived low importance of small ruminants. Veterinary care by the private sector is provided by NGOs (BAIF, PRADAN and Heifer, to name a few) through village based health workers. But there is neither a standard curriculum for their training nor standard levels of services to be provided. In most cases they suffer from financial weaknesses and little technical backing from qualified veterinarians. However, farmers, particularly those in remote locations, do benefit from these services.

Marketing: Small ruminant marketing is mainly in the informal sector and is in the hands of traders, butchers and other middlemen. Village based traders buy goats from farmers based on visual quality and estimated weight. These traders aim to make a trading margin, the maximum possible and in quick time. Distress sales of animals (including diseased animals) by farmers offer them opportunities to cut into the purchase price. Though the middlemen are generally portrayed as 'exploiters', they are also found to provide a set of vital services to farmers including credit. Producer organizations are not found to operate in these areas, though some minor initiatives have been started recently by some NGOs such as Heifer International.

Meat processing: slaughter and marketing of small ruminants take place in the informal sector and slaughtering is done mainly in road side butcherries under doubtful hygienic conditions. Where integrated abattoirs are present, they are mainly used for buffalo meat and sheep meat (hardly 1%). There are various zoonotic diseases and many harmful parasites that could have deleterious effects on people's health and wellbeing.

Consumers are attuned to buy fresh meat and in most cases the animal is cut by butchers in the market according to estimated demand. This means there is usually a calculative risk wherein the butcher is able to sell meat entirely or the leftovers sold to local hotels. These meat buying approaches continue with no significant change or up-grading adopted by either butchers or consumers. There is little or no sensitization of consumers and butchers on potential health risks in the meat value chain nor on modern slaughter practices.



Opportunities to commercialize the sector

Given the scope fueled by growing demand for goat meat, particularly in the domestic market, the smallholder goat segment needs to commercialize with private investment and partnerships with the public sector.

Creating a conducive environment to promote private actors to invest in the sector is a prerequisite of the commercialization process. Vibrant farmer organisations to support production, processing and marketing are needed.

The government and other investors can equip smallholder producers with technology, knowledge, credit and market linkages through farmer-based organizations in a public-private-producer-partnership (4P) mode. These points are elaborated below.

Institutional strengthening through farmers' organizations

Farmer organizations with both social and business purposes are called social enterprises. Although they have a social purpose, they are enterprises and therefore follow profitable business models with effective forward-backward linkages and profits ploughed back to the key participating stakeholders or producers. This is one important way by which the unorganized goat producers in Bihar, Odisha and UP can be organized.

It is recommended to have one goat federation for each region with 1–3 potential districts identified by the project (Gaya region in Bihar, Mayurbhanj region in Odisha and Bundelkhand region in Uttar Pradesh). As smallholder farmers may struggle to run business enterprises, initially a development agency (with professional competence) can be given the responsibility to set up, manage and stabilize the business with farmers as the main development partners. The organization can formulate a byelaw indicating the purpose, area of operation, activities, profit sharing, resource mobilization etc. They can directly support member farmers in the villages in accessing inputs, services, markets, credit and knowledge. As this organization will not have assets (other than equity shares) to leverage for credit, they should be funded by banks (state government to act as guarantor) or initially by the project. The legality of the organization (Producer Cooperative, Producer Company, Producer Association) can even be considered later in consultation with experts after 1–2 years of working.

All public and private support agencies can use these goat federations as entry points to provide input/output and research/extension services to the goat producers.

Privatizing buck production

To produce sufficient numbers of bucks of genetically superior quality, buck production has to be promoted through private actors. Farmers and entrepreneurs interested to invest in buck production may be identified as “buck producers” and incentivized to rear bucks on a continuing basis. They can be supported to develop an enclosure to keep the foundation stock of bucklings (procured from the field based on initial weight and type of birth) and provide supplementary feed at subsidized price. Selection shall be done at 6 months and 9 months of age based on daily

weight gain and at 12 months based on libido and Brucella test. Culled animals should be castrated to prevent entry into the breeding cycle. The selected (certified) bucks should be purchased by the farmer organization and sold to goat groups for breeding purposes. One of the farmers in the goat group can be given the responsibility to keep the buck ("buck keeper") and provide services to female does in the village based on a service charge. All stray bucks in the project villages have to be castrated. The farmer organization has to create awareness among goat producers on the importance of selected bucks for breeding. The buck producer has to continue procurement of male kids from the same goat groups (where the selected buck was given) and bucklings reared for up to six (F1–F6) generations to have a genetic progress of five to six percentage points. The number of buck producers or entrepreneurs in each federation area to be selected can be decided based on the population of adult female goats and the requirement of bucks (1:20) in the area. ILRI experience shows that a goat unit of 25+2 (female : male) can produce 10 bucks a year to serve 2000 does.

A competent organization with domain knowledge should support the goat federations to technically guide them on Field Performance Recording (FPR), selection etc. as per the existing state/national breeding policy. The duration of such genetic improvement is long (>6 years) and requires sufficient funds and strong institutional support.

Promoting entrepreneurs for fodder production

To improve productivity and transform goat rearing from subsistence to a market oriented systems, the feed issue should be addressed in different ways in different contexts:

In irrigated areas or in areas where land and water are available, medium to large farmers or entrepreneurs can be selected and incentivized to cultivate and produce quality fodder with balanced proportion of grasses (Napier, Cenchrus) legumes (Stylosanthes, Lablab) and cereals (maize, sorghum) in mash/baled form for sale in the lean season (in the other seasons when there is good vegetation, farmers may continue grazing animals in the open or forest land). These entrepreneurs should be supported with technology (chopping, grinding, drying, mixing, baling) and credit (purchase of machinery). The goat federations can support these fodder producers in selling their product to commercial goat producers and other members through credit facilities. Calculations show that such fodder producers can earn a better income from the fodder business than with food grain crops during the same season. The same fodder entrepreneurs can double their income if they also rear goats (commercial goat producers) and use the fodder produced to feed their animals.

In dryland areas or areas where crop residues (straw/stover) are available, selected farmers and entrepreneurs can be incentivized to make complete feed by mixing crop residues (after manual/machine chopping) with concentrates in defined proportions (50:50) to sell in the market or to commercial goat producers in mash/baled form. ILRI experiences in India show that feeding residue based complete feeds in mash form increases daily weight gain by at least 30%. As in the former case, the same farmers and fodder entrepreneurs can act as commercial goat producers and increase their profit by using the complete feed they produce, apart from selling in the market or through the goat federations.

In grazing areas, where landless and smallholders depend on CPR/forest land for grazing, pasture and silvipastoral activities can be promoted through collective action. Here, Innovation Platforms (IP) can be formed with the line department (AHD), forest department, Gramasabha, MNREGA, DRDA, goat federations and other key stakeholders with a view to promote solutions for improving fodder availability and quality and its sustainable use. Controlled or stratified grazing in CPR through community controlled customary rationing mechanism is a must for sustainable use of the resource base generated. Social norms and codes of conduct should be fixed by the communities for rotational grazing and controlled use. Since the poor do not have any financial or political capital to develop the CPR and the returns will be available only after 4–5 years, the initial investment required should be provided by external agencies. Promoting semi-stall feeding in these areas with supplementary feeds as an incentive to reduce grazing hours can also be tried. It will also help the landless and poor in preparing them to face the future challenges in respect of the shrinking feed resource base. The goat federations can be adequately supported to lead these activities with the

involvement of all relevant actors. One can also look for funds available for “environmental services” paid based on vegetation and land use change, which helps in sequestering carbon in trees and soil, thus preventing from its release to the atmosphere contributing to global warming.

In all of the above three activities a resource organization should provide technical support in implementing the program using research results and good agricultural practice.

Encouraging private animal health care service providers

To effectively deliver preventive health care services (defined under “Minor Veterinary Services”) and provide advisory/ extension support to goat producers on feeding, management and health/hygiene, the human resource can be developed in the villages (where public veterinary care is not available) by selecting, training and positioning private ‘animal health workers’, preferably women called “*Pashu Sakhis*”.

While the goat federation can do the selection, trainers from the Animal Health Department, Krishi Vigyan Kendras (KVKs) and competent NGOs should provide training to the *Pashu Sakhis* based on a curriculum prepared by the Department as per Minor Veterinary Service notification. The trained persons can work for the federation based on performance-based incentives and provide services to goat producers covering an area of 2–3 km or 2000 goats. They can source required inputs (medicines, vaccines, mineral supplements etc.) from veterinary hospitals for supply to farmers. There should be technical and oversight/monitoring support from the local veterinarian by linking them with the district veterinary system, mobile veterinary clinics, digital systems, referral services, kisan call centers etc. The *Pashu Sakhis* may be allowed to charge farmers for their service based on norms decided by the communities/group. More importantly, to get sufficient income, they can be given a goat unit (5+1), which will help them earn about Rs 10,000 /year. The *Pashu Sakhis* system will help to target resource-poor goat keepers and women in marginal areas.

Thermo-stabilization of goat vaccines

It is well-understood that in the remote and inaccessible places more than the quality and availability of vaccine, maintenance of cold chains in the field is a critical factor deciding disease prevention. Frequent power failures, non-motorable roads and remoteness create problems for safe storage and transport of vaccines. In this context, production of thermostable vaccines (PPR, Goat pox, FMD) by mixing vaccine with inert chemical stabilizers such as lactalbumin hydrolysate and sucrose and subjecting the mixture to freeze drying or lyophilisation, followed by stabilization can be done. This will greatly contribute to protection of goat health in the regions. This can be done by working with certified vaccine manufacturers in India such as Indian Immunologicals Ltd. under PPP mode with Heister, Galvmed etc. (ILRI has experience in producing thermo-stable rinderpest vaccine for bovines; Mariner et al. 1990a; Mariner et al, 1990b) and recently peste des petits ruminants (PPR) vaccine in East Africa (Mariner et al, 2013).

Promoting commercial goat farms

To respond to the increasing demand for goat meat in the domestic market, to reduce the demand supply gap and to develop the goat sector as a whole, special attention should be given to promote commercial goat farms. Progressive farmers, entrepreneurs and educated youth showing interest to invest in goat business can be identified and provided with infrastructure support and production incentives to rear goats as a commercial business enterprises. It is ideal for the new entrants to start with small flock sizes of up to 50 goats and gradually increase to more than 200 animals after gaining experience. These farmers should be provided with low cost credit, knowledge and market intelligence. The initial investment towards housing, breeding stock etc. should also be supported to attract investors in the sector.

Though the breed of choice are Black Bengal (Bihar, Odisha) and Barbari (Uttar Pradesh), one can also try for large sized breeds such as Sirohi and Jamnapari to make the business more productive. Continuous production of slaughter

kids of F1 crosses of Boer with Sirohi can also be attempted to see how they perform in terms of profit maximization. But this is more of a research interest.

In commercial goat farms, feed costs are the largest share of total expenses. A goat with 15 kg body weight requires 600 g (4% of live weight) of dry matter per day. This can be provided by 50% green fodder, 30% dry fodder and 20% concentrates. While goats can be reared completely under stall feeding with purchased feed inputs, the expenses can be reduced significantly if fodder is produced on farm. On average, one hectare can produce high quality green fodder to support 70 goats for 8 months. During the surplus season when fodder is available at cheaper costs, fodder should be procured and stored. In lean seasons, destocking can be done to match feed availability.

As a rule of thumb, 100 adult females can produce 240 kids per year under excellent management conditions considering 60% twinning, 40% single and three kiddings in two years. After adjusting for mortality, if 100 males can be sold in a year in festival markets (castrated males in Eid market /uncastrated males in Dussehra or other Hindu festival markets) either in local or remote (Kolkata, Delhi) locations, considerable profit can be generated for investors.

Calculations by ILRI show that it is more profitable to buy, fatten and sell male kids instead of rearing does, producing kids and selling fattened goats as one can save the costs of maintaining the does throughout the year.

Piloting dairy goat production and products for niche markets

Dairy goat farming is slowly gaining momentum in India. Reports suggest there is a growing niche market in India for goat milk for ayurvedic medicinal preparations, cheese production and for lactose intolerant people. Compositional similarity with human milk and benefits in terms of lesser allergenicity and better digestibility make it a suitable feeding option for infants. It is considered as a natural functional food because of a higher amount of lactose-derived oligosaccharides, short and medium chain fatty acids (MCFA), richness in conjugated and branched chain fatty acids, higher calcium, zinc and vitamin A levels. Recent research findings indicate that there is a great potential to use goat milk to produce novel dairy products and ingredients such as flavored milk, probiotic yoghurt, cheeses, ice-cream and bioactive peptides. The demand for fermented milk including cheeses is on the increase in India, mainly due to the health benefits associated with them. Health benefits of goat milk can be further enhanced by its conversion into fermented products, as it leads to better digestibility, higher availability of micronutrients, presence of viable lactic bacteria and production of certain bioactive peptides

Though there are no milch goat breeds in India, Jamnapari and Jakhrana are found to be good milk yielders. Of these, Jakhrana performs better considering adaptability. The exotic breed 'Saanen' is also found to be extensively reared (in Maharashtra) for milk production as they are high milk yielders and their care and management is very easy. It is also noticed that cheese has become an item in the food basket of people in the Indian metros and some urban cities across India. Amul sells cheeses in India for the last 15 years and their market is reported to be growing. Some entrepreneurs in India are also found producing cheese from goat milk. Considering the increasing awareness among consumers, there is substantial scope to develop goat milk based value added products. This niche area is worth exploring for the benefit of smallholder farmers and the sector as a whole.

Marketing live animals through goat federations

The goat federations can play the role of aggregators. Federation members can be asked to sell their animals to the butchers and traders through their federation based on mutually-agreed transparent mechanisms (live weight, body condition score etc.) of selling and buying. The federation can retain a small margin while selling goats to help run the federation and if a surplus is generated it can be paid back to members as a bonus. The federations can use electronic platforms to sell goats in festivals and to cater to the requirement of other high value customers in urban areas. They can also access information on market prices, margins, cost of operations, market dynamics, standards, quality, preferences etc. of local and distant markets, inform their member farmers and negotiate with market agents.

Supporting infrastructure for sanitary and hygienic meat production

As far as meat processing is concerned, in rural areas and small towns, existing butchers can be supported (by public or private agencies) to set up or upgrade small slaughtering facilities (one for 2–4 villages) to slaughter animals, prepare meat and sell it fresh. These should have separate facilities for offal collection, blood collection, hide storage and storage of other products and a facility to dispose waste. Such a facility would be mandatorily (legislatively) used by the butchers for a small fee. This requires a complete ban on open slaughter of live animals through state or local panchayat legislation. The focus should be to upgrade butchery activities with financial support and training. The live animals aggregated for slaughter should be certified and issued health certificates by competent authorities.

In urban centers, either existing slaughter houses owned by the government, if any, can be modernized or joint ventures by government (Municipal Corporation) may be initiated to set up slaughter houses that can handle not less than 1000 goats/sheep per day under Build Own and Transfer (BoT) mode.

Since most customers are not alerted about meat quality, awareness should be created among consumers about clean meat (by competent agencies such as the Food Safety Standards Authority of India /FSSAI with the support of the federations). They will be taught on the local, systemic and parasitic diseases in animals and the effect on their health if meat from a diseased or affected animal is consumed. If the consumers are also empowered with this information and knowledge, they will readily accept the common facility by butchers which stands on equal benefit both for the butchers and consumers.

Policy challenges

Minor veterinary services: As per the Veterinary Council of India Act, each state is required to have a definition of the “Minor Veterinary Services” along with the skills and qualifications required for persons to deliver the services. According to this, the standards of the jobs and tasks involved in performing the notified Minor Veterinary Services (under the supervision of a registered veterinary practitioner) have to be described, which would form the basis for appropriate skill development. The basic (entry level) educational background, requisite to undergo the required skill training and competency development also have to be specified and notified. It may be further inferred that the individuals permitted to perform such notified Minor Veterinary Services shall be provided with an appropriate knowledge, skills and attitudes through a systematic teaching learning process before he/she is conferred the certificate.

Definition of minor veterinary services will help in promoting private animal health care service providers (*Pashu Sakhis*) under a legal framework. The government of the Odisha has already done it. The other state governments may also do this following the lines of the Odisha government. Apart from defining the Minor Veterinary Services, the government should also play an active role in training, certification, technical backstopping and monitoring of *Pashu Sakhis* for effective delivery of services. This should also form part of the policy.

Thermo-stabilization of goat vaccines: Policy decisions are required to start producing thermo-stabilized vaccines against small ruminant diseases by working with private institutes under Public-Private-Partnership mode. Necessary allocation of funds would also be required to initiate the work.

Privatization of breeding services: Currently the production of breeding bucks is confined to government farms and research institutes. The number of quality bucks produced is totally disproportionate to the requirement. To address this issue, the government may take a policy decision to engage private actors to produce bucks following scientific selection procedure stipulated by the government. The selected bucks would be finally certified by the government. The private farmers may be provided with incentives to produce bucks of desired quality and assure market through a buy back arrangement.

Grazing policies: At present, feed improvement for goats and sheep is not part of the activities of the Animal Husbandry Department. Government should take a policy decision to delegate to the Animal Husbandry Department the responsibility of taking the lead role to facilitate with relevant departments (Forest Department, Panchayat and Gramasabhas, NGOs, Farmer Organizations, watershed associations etc.) for developing the CPRs through planting of valuable traditional fodder tree species in the forests, common lands, around tanks etc. with community participation by using various funds available such as MNREGA, DRDA. The facilitation will also help in ensuring customary rights of small ruminant producers to graze in CPRs and for sustainably using the CPRs with a long term perspective.

Food safety and meat quality: Though chevon/mutton has a high nutritional value, it can also be among the most important causes of food-borne diseases. Studies elsewhere show that poor slaughtering practices and hygiene can contribute to cross contamination of carcasses with harmful microbes. Inadequate facilities for processing and storage and clean water for washing of equipment and facilities are not often available at the slaughter places. Therefore,

government may take a policy decision to: 1) ban the slaughter of animals in open spaces; 2) certify slaughter facilities based on amenities and adherence of dos and don'ts of slaughtering practices, storage and sale of goat/sheep meat and 3) make budgetary provision to support butchers to upgrade their facilities and for their training.

Commercial farms: As discussed, it is important to develop financial and support instruments to attract interested investors to invest in commercial goat farms. These farmers should be provided with basic infrastructure support, low cost credit and initial investment towards housing, breeding stock, fencing, feed store etc.



Integrating in
Public-Private-Producer Partnership
for small retailers value chain development in India

Innovation Platform Meeting

10th February 2018

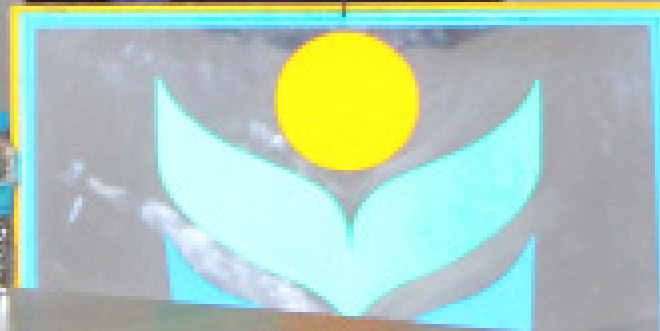


Technical challenges

Selective breeding: Genetic selection in breed improvement is a long term process and expensive. It takes six to seven generations to move the population mean (of mature body weight) by 5–6%. So before starting a breed improvement program, long term funding and strong institutional support should be committed. Since genetically improved animals require improved environment (feeding, management) to express their potential, the attempt is more appropriate in stallfed and semi-stallfed situations and not in low input system.

Generally, breed improvement efforts are centered on mature body size. But from a commercial point of view it will be efficient if we do the selection also for feed conversion efficiency (sometimes mature size can be less but FCR will be high), disease resistance (e.g. against PPR) and reproductive efficiency (e.g. prolificacy in large sized breeds). This also requires long term funding commitment.

Artificial insemination: Generally, the use of bucks is the best method for breeding. But if the herd size is small (for selection), to avoid inbreeding and promote outbreeding, artificial insemination (AI) can be used. This bypasses the buck which normally deposits about 2–3 billion sperm in the doe while AI usually has 100–200 million sperm per dose. Though AI has been tried in India, it is not extensively used due to low conception rates. But considering the difficulties to produce sufficient numbers of quality bucks, AI can be promoted with intensive training of technicians to perform AI efficiently (by depositing semen in mid cervix at the right time /end of oestrus, coinciding with ovulation) for increased conception.



Ways forward

The Innovation Platform meetings organized in the three states gave valuable insights to develop the small ruminant sector, especially the goat sector.

From analysis of the discussions, the potential to improve the sector appears to be considerable in all the three targeted locations.

While partnerships of private actors with public sector policy support is an important aspect, financial instruments to incentivize micro-entrepreneurs would be an ideal complement.

Promoting private actors in buck production, last mile service delivery and fodder production under the aegis of farmer organizations (goat federations) will certainly improve productivity, enhance flock size and help in converting goat production from a subsistence to a market led commercial activity, which will be smallholder inclusive.

Providing financial and infrastructural incentives to entrepreneurs and educated youth/women will help promote and strengthen the commercial segment.

Supporting investment in meat processing would lead to production of meat of good quality free of health risks.

As it is ideal to work collaboratively based on a system and value chain based approach, it is suggested to pool financial resources from donors, private agencies (philanthropic) and public funds into one common fund and use this for a commonly agreed joint action plan by identified public and private actors.

Only then the expected positive impact in the sector in terms of smallholder inclusive commercialization can be achieved.

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