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# Assessment of Livestock Production Constraints and Technology Need Identification in Dasenech District of South Omo Zone, Ethiopia

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**ABSTRACT**

In Southern Nation Nationality and peoples Region of Ethiopia, agriculture is the first and the most dominant sector that employs more than 85 percent of the total population. The production system of the region is characterized by crop production, crop-livestock mixed farming and livestock farming including cattle, sheep, goats, and poultry, equines (horse, donkey, and camel). In pastoral and agro–pastoral production systems, which are found in arid and semi-arid agro-ecological zones, livestock are kept by nearly all pastoralists. This production system is associated with the purely livestock based nomadic and transhumance pastoral production systems based largely on range, primarily using natural vegetation. Livestock has a great role in the livelihood of the Dasenech district since they use pastoral farming system. The low productivity of pastoral herds/flocks result from poor reproduction rates (low fertility), heavy losses, low and delayed offtake, slow growth rates and poor yields (milk and meat). These factors are affected by the climate and its secondary effects (availability of pasture, water and animal disease), and genetic of the animals. The major problems cited as perceived by the community in their order of importance; feed shortages particularly in the rainy and dry season, lack of improved genotypes which can thrive best in the environment and bring desirable characteristics, disease problems associated with inadequate veterinary services, there is not accesses to market chain and free market exchange. Introduction of improved forages and animal breed which suits the areas; and technologies related to feed and feeding are the main technology need to be introduced in the area.

**Keywords:** Dasenech, Ethiopia, Livestock Production, Production Constraint, South Omo, Technology Identification.

## INTRODUCTION

Agriculture in Ethiopia is caught in a low input-low output trap, due in part to low levels of investment, low technology application, and low capacity (Kusse and Kassu, 2019). The solution needs to involve a structural change, for which major capacity development is needed, including a quantum change in human capacity, input supply, technology adoption, and provision

of infrastructure. Specially, in order to increase the production and productivity of agricultural output, the use of modern agricultural technologies are vital, out of which fertilizer and high yielding variety of crops are the most important technologies to increase the level of crop production (Kusse and Kassu, 2019).

Ethiopia has one of the largest livestock resources in Africa with a national herds/flocks estimated to be 59.5 million cattle, 30.70 million Sheep and 30.20 million Goat (CSA, 2017). Livestock production is one of the primary agrarian activities which directly or indirectly employ a large section of the society especially those residing in the rural areas (Demerew et al., 2019; Ayeneshet *et al*., 2017). Several studies have indicated that the overall productivity of the livestock does not commensurate with their population (Abera, 2018). This may be because of low per unit productivity of the animals themselves and that their management is mostly up to the market. Management of the animals should change with the agro climate and the prevailing diseases and parasites (Berhane, 2017). As the agro climate of a region is changing over time and the natural resources are getting strained due to geo political and anthropogenic causes therefore it is imperative to amend the management of the livestock coextensive with the changes (Berhane, 2017).

In the lowlands of Ethiopia, livestock is comprised of large flocks and herds of sheep, goats and cattle. Extensive livestock keeping is the backbone of the economies of the lowlands. The traditional pastoral strategies of keeping a mixture of animals' nevertheless represent an attempt to maximize production and productivity of the animals with the means of available. Different species have different environmental tolerance and have different production and work capacities. Although their performance has been poor the productivity potential of pastoral livestock is promising. Concerning that of large and small ruminants, their fertility could be increased, their mortality reduced, their maturity brought about earlier and their production (milk and meat) increased if health control and nutrition are improved. Better nutrition would also allow introduction of genotypes having good productivity.

In the process of baseline data collection pastoralist are asked to list all the limiting factors of livestock production and productivity. The major problems listed by the community in their order of importance; feed shortages particularly in the rainy and dry season, lack of improved genotypes which can thrive best in the environment and bring desirable characteristics, disease problems associated with inadequate veterinary services, there is not accesses to market chain and free market exchange.

Over the last five decades, researchers and extension have put much effort to generate improved agricultural production technologies and deliver to the users (Wondwesen *et al*., 2015). Despite that several technologies have been developed, the conventional agricultural research and innovation pursued in the past have not been very successful to deliver appropriate technologies to the end users (Wondwesen *et al*., 2015). As a result very few technologies developed previously are adapted by the end users and considerable numbers of technologies are shelfed or kept in laboratory without significant contribution to the objective they are designed for. Currently the regional government has recognized the needs move away from the existing research approach so as to generate and adapt problem solving appropriate technologies centering the real needs of farming community (Wondwesen *et al*., 2015). The assessment study is take off for the subsequent research and extension activities and meant to identify pastoralist livestock production constraints and technology needs of the farming community. Hence, this study was conducted in Dasenech district, with the following objectives.

- To describe the nature of the livestock farming system, and production practices,
- To analyze and priories the major constraints that hinders the development of livestock production,
- To identify the main technology constraints and needs
- To identify the opportunities of livestock production in the study area,
- To avail information to researchers and development workers

**General Information of the Study Area**

Dasenech district is one of the 8 districts found in South Omo Zone SNNPRS region located around 234 kms far from the zonal town jinka and $5.14^0$N latitude, $36.44^0$E longitudinal and has a human population of 66,230. The district is divided into 40 rural PAs and 1 urban. Generally, the altitude of the woreda ranges 350 - 400 m a.s.l. The district has only one agro-ecology arid. Rainfall pattern in the area is monomial. The mean annual rainfall ranges 250-400 mm and the

mean annual temperature ranges 20 - 45 $^{o}$c (SOFEDB, 2014).

Dasenech district is bordering with from; east to Hammer district and Borena zone of Oromia regional state, North: Hammer and Ngangatom districts, west: South Sudan and Ngangatom districts, and from south to Turkana state of Kenya. The district is mainly plate land area, with only one permanent river, the Omo River, everything to them. Livestock has a great role in the livelihood of the area since they use pastoral farming system. In Dasenech pastoral area the main livestock species are Cattle, Sheep, Goats, Poultry, Donkeys, and Camel while Sorghum, Maize and Haricot bean are the major crops in recessional cultivation the area, though irrigation maize, tomato, onion and seasoning. The average land holding of the area ranges from o.25 to 0.75 ha. Non-farm activities of the district are charcoal selling, daily laboring and fishing (SOFEDB, 2014).

**METHODOLOGY**

The study was conducted by a multidisciplinary team of researchers and development workers comprising of animal breeder, animal heath, socio-economist, veterinarians, animal experts and development workers, district experts from Dasenech Agricultural and rural development office. The study was conducted within two kebeles of the district namly Delegnmure and lobit. The identification of livestock owners and kebeles were selected purposively because of they were known to have a reasonably high density of cattle populations, accessible through all weather, road, security concerns and the cooperation of the residents.

Before we engaged too, the study team held short discussions with the respected District of Dasenech agricultural and rural development offices on the importance of the study, assignment of district expert to the study team, selection of PAs, representative DAs of the PA, selection of pastoralists and awareness creation to the selected pastoralists to represented PA administration and development agents.

After short discussions, a total of 25-30 pastoral informants from each PA with the mix of variable ages and sexes are selected in collaboration with the PA's administration and development agents. Following the selection, primary data were collected through focus group discussions after that key informants were also interviewed and recorded carefully through the guidance of the checklist (Figure 1). Basic secondary data's were collected from PA, Agricultural and Rural development office. Finally, after group discussion and key informant interviewed, information particularly animal production and productivity related constraints was identified and summarized and ranked the problems thought consensus in order of their importance.

**DELEGNMURE KEBELE**

**Herd composition**

Delegnmure is one the PAs found in Dasenech district 7 km far from the district town, Omorate. The pastoral community only kept local breeds of all species except some very handful Boran breeds which introduced by some NGOs and Agricultural and pastoral development offices. But the pastoral community is aware of the production difference between the local, Boran and other exotic breeds as the Boran and exotic breeds are butter in milk and meat production.

**Purpose of keeping livestock**

Livestock production plays an important role in day to day life of Dasenech District and Delegnmure pastoralist.

**Figure 1: Focus group discussions (left) and key informants interview (right) during survey assessment**

Cattle are used as source of food, indication of wealth and income generation for household purposes. Main livestock products include milk, cheese, butter, and beef which used as home conception and marketing Hide is used as bedding and traditional cloth apart this purpose hide would not sell out for marketing. Small ruminants are source of income due to their higher reproductive efficiency and meat source and their skin is used as bag to carry food, flour, "*Borda*" (favorite drink in the area), clothing and other items.

Equine are not native species to the pastoral community in the area except, donkey. Donkeys are used to carry heavy loads of crop and other materials to transport from place to place, but the pastoral community highly respects the animal welfare through avoiding loading extra loads. They used the donkey as common property with neighbored. Whereas horse and mule are not still domesticated by the community so they know nothing about these equine species.

**Breeding management**

Reproductive technologies that help to improve the local breeds of the community are not introduced yet, so the pastoral community faces grate challenge with the low production and productivity of the local breeds. Mating was practiced naturally through local available bull without control. The community has some knowledge and interest related to the Boran breed but the access to get the Boran breed is limited. Age at first calving of heifers is affected by different factors like availability of feed, water and genetic difference but they widely accepted it is from 3.5- 4 years. Lactating period lasts about 4-5 months. Age at first kidding and lambing is one year. The pastoral community is still limited to reproductive technologies like bull service, artificial insemination, selection and introduction of exotic animals.

**Livestock husbandry practices**

Almost all pastoralist livestock owners follow traditional production system and extensive management systems.

***Feed and feeding***

Feed is very crucial raw materials to keep animals alive and productive. The main source of feed in the area is rangeland grazing thought traveling long distance place to place in search of feed. Crop residues like maize also helps to fulfill animals feed requirements in very rare circumstances by some pastoralists; In addition hay making is not practiced and known in the area. The main water source of the area is Omo River, but most of the pastoralists are due to far from the river they face the challenge of water shortage for their animals and livelihood in general. So the main question of the pastoralist is government should take all possible measures to make the constructed irrigation canal functional, so it gives them an opportunity to use irrigation for developing improved forage and cropping practice, generally this can help them to secure water shortage.

Shortage of feed becomes severe between Januarys to March. In these months the pastoralist travels long distance seeking feed for their animals. Large and small ruminants stay in adjacent to Omo River and near the Iceland of Turkana Lake. There is no supplementation practice during pre-weaning and lactation period due to scarcity of feed and lack of awareness, but in very rare circumstances the PA pastoralists practice improved forage supplementation only for sick animals, lactating cow and for fattening. In addition there are no supplementation practices for calves, kids and lambs at any age. Beside improved forage Varieties are not widely introduced except panicum grass introduced by different NGOs and Dasenech Agricultural and pastoral development office. But the supply of improved forage seed does not satisfy the requirement and need of the pastoralist so, it needs extra effort to introduce other improved forage species and full fill the supply.

**Gender Role:** Men are mainly responsible for keeping and feeding livestock, make decisions on the use and disposal of live animals and animal byproducts. Whereas women is responsible to sold animal byproduct (milk, butter and yoghurt, egg) and chickens. Sometimes crop residues like maize are provided only for milking cow and fattening animals. Technologies of crop residue treatments like molasses and urea treatment are not introduced and practiced yet by the PA pastoral community.

***Housing***

Housing of livestock is one of the primordial features pertaining to good husbandry practices. Proper housing not only assists the livestock but also overcome the vagaries of nature and protects them against the predators and thieves. Pastoralists does not have permanent location and house for their Owen and their livestock they move from place to place, season to season that in search of available feed and

water for their animals. Therefore, all livestock species are remain in the field/outdoor though out the year without any properly constructed shelter. So, provision of suitable shelter during the adverse environmental conditions will buffer the extremes of climatic conditions and reduce the peak stress on the animals that possibly helps the production and productivity.

***Livestock health***

Livestock diseases are the main problems which hamper production and productivity by causing high morbidity and mortality in the pastoral areas of Dasenech district. The existing health problems in the PA are very wide and too diversified.

- Inadequate health posts with poor internal facilities to provide basic services.
- inadequate number of trained human resource
- Poor supply of drugs and vaccines
- Poor annual vaccination programs leads to disease out breaks which causes high mortality.

The main cattle diseases that occur frequently in the area in order of importance were *Yefigna ena yehamot mabet* (locally claimed names), *Enamokodo (locally claimed named), samba* (*CBPP), anthrax and Trypanosomiasis.* Besides, the main diseases that affect sheep and Goat are *CCPP, Yefigna ena yehamot mabet* (locally claimed names), mange, mite and other external parasites mainly tick. The main poultry's diseases are Newcastle and external parasite specially lice.

When animals get sick owner always prefer going to animal health posts to be treated and cured rather than treating their animals in a traditional way. Disease out breaks occurs every year related to Omo River flooding in to the range land area and get shrink. The main diseases out breaks in cattle are CBPP, *Yefigna ena yehamot mabet* (locally claimed names), trypanosomiasis and anthrax; in sheep and in goats PPR, CCPP and *Yefigna ena yehamot mabet* (locally claimed names).

Ethno-veterinary practice in dasenech pastoral community is not widely practiced except for bloating. When animals get bloating they treated by "*tumba*" leaf prepared thought drying and grinding then drenching thought mixing with water. As similar as ethno-veterinary traditional treatment practices has not well known but sometimes though feeding butter and ginger using sharp materials around the abdominal part helps in treating bloat. In addition *Yefigna ena yehamot mabet* (local claimed name) disease happens they use to treat branding though hot iron anatomically in symmetry to the organs liver and bladder.

***Marketing of livestock***

The primary market for live animals and livestock products is omorate street market, and then traders and hotel owners are purchased the animals and byproducts. Therefore, the major actors in the market chain are pastoralists, merchants and purchasers. Products like milk, butter and cheese are marketed only in rainy season where the amount of milk production is high, so that in dry season where milk production is very small in quantity even not sufficient to full fills the demand for house consumption selling is occasional. Hide and skin in the pastoral community was not selling out because they used for clothing, house hold material and other cosmetic purposes.

Pastoralists in that area don't have access to market information, permanent market place and time. Generally, the system lacks market orientation which is an important driving force for increased production. Marketing of live animals is taking place in villages with the intervention of brokers and traders which prevent the penetration of legal traders. There are having too few outlets and channels to sell their livestock products. The main milk products are butter, cheese. According to pastoralist, butter is produced in the following steps. Milk is collected and stored in gourd for two days before processing in to butter. Then milk is shuddered for hours; butter separated from the liquid milk by pouring it in wider bowl and cleans hand. Butter is washed with clean water to remove the milk.

Local cheese is prepared by using milk left after butter is taken. The butter milk is heated on fire with dish and cooled for some minutes near the fire. Then heated milk is filtered to separate solid residues from the liquid. This solid residue locally named '***Ayib***' is stored in pot as cheese. Local cheese is favorite food of the pastoralist like other milk products. It is not sold to the market because it is produced in a very small amount. *Yellowish* butter gives more value than *white* butter in local / village market due to its appetizing and tasty nature after it is fermented.

**Gender role:** in sealing and disposal of livestock and products is almost decided by males except selling of

poultry and egg. Livestock and livestock products price has varied from season to season, seasonal i.e. animal products get cheaper during rainy season where the availability of feed and water is much excess (march–June). Live animals also sold with high price during rainy season (November-February), whereas in dry season live animals are so cheap, because the shortage of feed and water forced them to sell out the animals with low price.

**Livestock production constraints and opportunities**

The main problem / challenge of the livestock production and productivity in order of importance are listed as follows:

- Feed shortage and poor availability of improved forages
- Unavailability of improved livestock breeds that fit/adapt to the environment
- Shortage of water due to absence of water pipe to divert from Omo River
- livestock diseases ( poor disease control and prevention programs)
- Poor livestock market chain with no common marketing system (there is not fixed market places and date)

**Opportunity for livestock production**

- Enough fertile and vast land for forage development
- Enough livestock number
- Easy access of water (Omo River)

**Poultry production**

Chicken have important value as a source of egg and meat for home consumption and to generate income after selling eggs and live chicken. There are local chicken breeds in the area. Owner prepare small house for their chicken from locally available materials. In scarcity, crops such as maize, wheat is gridding in to small particles and provided to chicken as supplementation. The main problems of poultry production in the PAs are diseases, predators and low productivity of local chickens. The major diseases in order of importance are Newcastle and chicken pox. Predators that attack chicken in the PA are wild cat, skunks, monkey and larger scavenging birds. One local chicken lays in average 8-13 eggs in one clutch and the number of times the hen hatches in a year in average is estimated to be 4-5 times and less than half of the total number will survive and grow to adulthood because of disease and predators. Extension services related to poultry production and productivity has been given to the pastoralists. The main purpose of raring poultry was they are easy to reproduction, need less space and feed and covers small house hold prices. The main post-harvest product handling and storage constraints are poor storage, hot weather condition which lead to spoilage of the eggs which also indirectly reduce the quality.

**Gender Role:** women are responsible to sold out chicken and their products rather the decision to sell was made by males.

**Apiculture**

Apiculture production in delegnmure PA pastoral community is totally unknown and never practiced.

**Fishing**

Omo-Turkana Ethiopia is one of the richest in its fish diversity in the country. Omo River system is more species rich than Lake Turkana but poorer in abundance (Mulugeta, 2016). Fisheries potential was high in lower Omo River near the delta and in the Ethiopian part of Lake Turkana with considerable socioeconomic returns for the local people. However, the amount of fisheries productions, the type and quantity of fishing gears and boats, and their socioeconomic contributions as well as conservation and fisheries management status are not known (Mulugeta, 2016). Fisheries of lower Omo River and the Ethiopian part of Lake Turkana contributed to livelihood, income and employment opportunities of the local inhabitants (Mulugeta, 2016).

In Dasenech district fishing is not widely practiced but the district has endowed with untapped potential for fish farming because they are is near Turkana Lake and Omo River which are very large water bodies and suitable for fish habitats. 31different fish species are believed to be found in Tukana and Omo River water bodies among them only 8 species i.e. Lates (The Nile Purch), Clarias, Barbou, Protoptereus, Hitrotis, Histichodous, Labeo and Tilapia) the most demanded in the market.

***General constraints of fishing in the area***

- Economic problems of the community
- Conflict between different ethnic groups including from Kenyan pastoralist
- Environmental problems
- Lack of cooperatives
- Lack of skilled personals

**LOBIT KEBELLE**

**Herd composition**

Livestock has a great role in the livelihood of the area since they use pastoral farming system. The pastoral community kept only local breeds of all species except some introduced Boran breeds but the community already understands the difference of production and productivity between local and Boran breeds.

**Purpose of keeping livestock**

Livestock production plays an important role in day to day life of Dasenech pastoralist. Cattle are used as source of food, indication of wealth and income generation for household purposes. Main livestock products include milk, cheese, butter, egg and beef which used as home conception and marketing. Hide is used as bedding and traditional cloth apart this purpose hide is not sell out for marketing. Small ruminants are source of income due to their higher reproductive efficiency and meat source and their skin is used as bag to carry food, flour, "*Borda*", clothing and other items. Donkeys are used to carry heavy loads of crop and other materials to transport from place to place, but the pastoral community highly respects the animal welfare they never loaded extra lode. They used the donkey as common property with neighbored. Whereas horse and mule are not still domesticated by the community so they know nothing about these equine species.

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**Livestock production constraints and opportunities**

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- livestock diseases ( poor disease control and prevention programs)
- Poor livestock market chain with no common marketing system (there is not fixed market places and date )

**Opportunity for livestock production**

- Enough fertile and vast land for forage development
- Enough livestock number
- Easy access of water (Omo River)

**Poultry production**

***Chicken Breeds***

Chicken have important value as a source of egg and meat for home consumption and to generate income after selling eggs and live chicken. There are local chicken breeds in the area. Owner prepare small house for their chicken from locally available materials. In scarcity and crops such as maize, wheat is gridding in to small particles and provided to chicken as supplementation. The main problems of poultry production in the PAs are diseases, predators and low productivity of local chickens. The major diseases in order of importance as Newcastle, cocciodiosis named the disease *'OH!'* and chicken pox. Predators that attack chicken in the PA are wild cat, skunks, monkey and larger scavenging birds. One local chicken lays in average 8-13 eggs in one clutch and the number of times the hen hatches in a year in average is estimated to be 4-5 times and less than half of the total number will survive and grow to adulthood because of disease and predators.

**Gender role:** Women are responsible to sold out chicken and their products rather the decision to sell was made by males. Extension services related to poultry production and productivity has been given to the pastoralists. The main purpose of raring poultry was they are easy to reproduction; need less space and feed and covers small house hold prices. The main post-harvest product handling and storage constraints are poor storage, hot weather condition which lead to spoilage of the eggs which also indirectly reduce the quality.

**Apiculture**

Dominantly there are two types of bee races in the PA. The first is blackish bee race and the second one is reddish bee races. The distributions of these two bee races are not equal. The black race is distributed more than red bee races. Black bee race is more aggressive and produce more honey than red races. Red bee race is more defensive than black race. The tendencies of swarming in both bee races are seldom.

Absconding behavior is similar in both species when there is a shortage of feed and water. New technologies related to honey bees are not well introduced yet in the PA except one modern hives in one house hold pastoralist. There is no use and production of wax in the pastoral community due to lack of awareness and training. Honey bee management experience (colony multiplication, queen rearing and bee feeding), supplementation are not practiced. The average honey yield from one traditional hive is 2-3 kilogram/year. Generally honey bee and related technologies in Dasenech is very scant.

**Table 1: livestock species, major constraints and Suggested research options/technological interventions in Delegnemur Kebele**

| No. | Livestock Species/ discipline | Priority commodity | Major constraints | Priority / rank | Suggested research options/ technological interventions in priority |
|---|---|---|---|---|---|
| 1 | cattle | Milk | Feed, diseases, Improved breed | Ranked | ➢ introduction of improved forages and animal breed which suits the area<br>➢ devising possible control and prevention methods, annual vaccination program |
| | | Beef | Feed, diseases, Improved breed | Ranked | ➢ introduction of improved forages and animal breed which suits the area<br>➢ devising possible control and prevention methods, annual vaccination program |
| 2 | Sheep | Meat | diseases, market | Ranked | ➢ devising possible control and prevention methods, annual vaccination program |

| No. | Livestock Species/ discipline | Priority commodity | Major constraints | Priority / rank | Suggested research options/ technological interventions in priority |
|---|---|---|---|---|---|
| | | | | | ➢ permanent market place and time schedule should be known<br>➢ illegal traders and broker should be banned |
| 3 | Goats | Meat | Diseases, market | Ranked | ➢ devising possible control and prevention methods, annual vaccination program<br>➢ permanent market place and time schedule should be known<br>➢ illegal traders and broker should be banned |
| | | Milk | Poor production | Ranked | ➢ Introduction of improved milk type goat breed |
| 4 | Poultry | Egg and meat | Diseases, predator | Ranked | ➢ Identify type of diseases occurred in the area<br>➢ devising possible control and prevention methods, annual vaccination program<br>➢ Good housing systemcan prevents night predators |
| 5 | Animal health | Cattle | Yfigna ena hamot mabet, Enamokodo,CBPP, anthrax,Trypanosomosis, | Ranked | ➢ Locally named diseases should be identified and designing possible prevention and control system<br>➢ Annual vaccination program for identified disease |
| | | Sheep | Yfigna hamot mabet, ectoparasite (*ekkek*) | | ➢ Locally named diseases should be identified and designing possible prevention and control system<br>➢ Ectoparsite control program should be implemented |
| | | Goats | CCPP, Yfigna hamot mabet, ecto-parasite (*ekkek*) | | ➢ Locally named diseases should be identified and designing possible prevention and control system<br>➢ Ectoparsite control program should be implemented |
| | | Poultry | Newcastle, Ecto-parasite(lice), coccidosis | | ➢ Further studies need to be conducted to identify occurring diseases and designing possible prevention and control system<br>➢ Housing system need to be improved |
| 6 | Feeds & nutrition | Cattle | Feed and feeding, Improved forage, supplementation | | ➢ Feeding system should be improved, improved forages need to be introduced<br>➢ Technologies related to feed and feeding need to be introduced |
| | | Sheep | Feed and feeding, Improved forage, supplementation | | ➢ Feeding system should be improved, improved forages need to be introduced<br>➢ Technologies related to feed and feeding need to be introduced |
| | | Goats | Feed and feeding, Improved forage, supplementation | | ➢ Feeding system should be improved, improved forages need to be introduced<br>➢ Technologies related to feed and |

| No. | Livestock Species/ discipline | Priority commodity | Major constraints | Priority / rank | Suggested research options/ technological interventions in priority |
|---|---|---|---|---|---|
| | | | | | feeding need to be introduced |
| 7 | Apiculture | Honey | Low production | | ➢ Honey bee raring technologies need to be introduced widely |
| | | Wax | unknown | | |
| 8 | Post-harvest handling | Dairy | Processing materials | | ➢ Technologies related to processing Dairy products need to be introduced |
| | | Meat | | | |
| | | Honey | No production | | ➢ Technologies related to honey bee raring and enhancing honey bee production need to be introduced |
| | | Egg | storage | | ➢ Need to sell out as fast as possible in short period of time |
| 9 | Marketing | cattle | No common and permanent market, illegal traders and brokers, market information | ranked | ➢ Common and permanent market place need to be constructed, market outlets need to be increased in number<br>➢ illegal traders and brokers control system need to be implemented<br>➢ Total market chain needs to be improved |
| | | Sheep | No common and permanent market, illegal traders and brokers, market information | ranked | ➢ Common and permanent market place need to be constructed, market outlets need to be increased in number<br>➢ illegal traders and brokers control system need to be implemented<br>➢ Total market chain needs to be improved |
| | | Goats | No common and permanent market, illegal traders and brokers, market information | ranked | ➢ Common and permanent market place need to be constructed, market outlets need to be increased in number<br>➢ illegal traders and brokers control system need to be implemented<br>➢ Total market chain needs to be improved |
| | | Milk, butter | Low quality | | ➢ Product quality control and quality improvement need to be enhanced |
| | | Egg | spoilage | | ➢ Need to sell out as fast as possible in short period of time |

## CONCLUSION

Generally, for defective livestock farming implementation is lack of modern technological inputs and facilities are the main causes. The fundamental problems that still remaining as an obstacle for the fulfillment of this technological aspects are lack of access to new technology, spread of animal diseases and poor feeding management could affecting the overall livestock production. Due to the above-mentioned constraints livestock production was not yet developed so, to come up with higher development in the livestock production sector the point that listed above must be put in to consideration.

## RECOMMENDATION

Based on the overall survey of the areas are the following possible recommendations are being suggested: -

- ✓ Change the mind of the communities/pastoralists and able to show the livestock production as one of the major opportunities for development of the country,
- ✓ An efficient animal health services: is a prerequisite for rational animal production. Therefore, Control diseases and related factors by supplying necessary material from government to reducing the expanded diseases through effective animal vaccination and treatments,
- ✓ Improved animal nutrition: is the most critical factor in the area to increasing livestock productivity. Virtually all productivity constraints other than those associated with animal health and livestock marketing services result from inadequate feeding of animals. Research should focus on the effective adaptation of improved forage on the possibilities for dry season feeding reserves,
- ✓ Designing policy towards using modern livestock technologies and introduction of improved/ potential breeds that can survive and adapt to the area,
- ✓ Motivate the young, create awareness to the peoples to enter modified production system
- ✓ Developing infrastructural facilities especially transportation and communication network,
- ✓ provision of suitable shelter during the adverse environmental conditions will buffer the extremes of climatic conditions and reduce the peak stress on the animals that possibly helps the production and productivity
- ✓ Information flow system and communication, exchange of information and access to scientific are requisites for effective technology development.

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**Conflict of Interest**

The author declares that there is no conflict of interest.

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