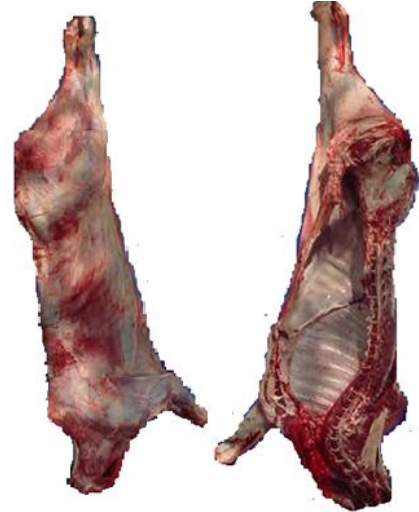


Study of common services activities, technological intervention and environmental interventions requirement for Beef fattening and Dairy farm Sub-sector



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Sustainable Enterprise Project (SEP)



April 2020

Executive Summary

Education, occupation, income and expenditures are major indicators of socio-economic status of HH families. From this survey it was revealed that highest about 29.65% respondents had completed primary education and about 5.75% of them were illiterate. The analysis for education level of all categories farmers imply that 94.25% respondents were literate including those who were capable to sign read and write. The main occupations of the HH farmers were investigated during the survey which revealed that maximum of about 56.89% of the total farmers was involved in livestock farming as their main occupation. The income and expenditure of the family is associated with asset, occupation, family size, education of the children etc. The average family size of dairy, fattening and buffalo farmers in different survey areas was found as 5.45 members per family.

In the rural communities, livestock farmers mostly earn from agricultural outputs like crop, livestock and fisheries. Besides, other than agriculture, they also earn from non-agricultural activities like labour, shopkeeper, business, service etc. The amount of monthly income depends on number of earning members in a HH family. Monthly income and expenditure of dairy farmers are higher than fattening and buffalo farmers. This picture indicates that the earning from dairy farming is higher than other twos. Irrespective of farmer category, overall monthly income and expenditure of the surveyed HH families were BDT. 71784 and 44169. This figure says that a HH family can save money of about BDT. 27615 in a month.

Farm registration is very essential for livestock improvement, as it enables to estimate the numbers of animal keepers, animal population and to identify the needs of feeds and fodder, vaccines, medicines and so on in the particular areas. About 64.16% HH farmers had not registered their farm from any of the agencies (GO and NGO). Only 3.98% HHs farmers were registered with government agency (Upazila or District livestock office) and about 33% HH families were registered with NGOs.

At the moment of financial crisis, farmers often seek loans from different sources. From this survey it was found that about 60.18% HH family had taken loan for investment of their farm with average money of BDT 197125 per HH family. Dairy farmers take more loans (65.91%) than fattening (63.73%) and buffalo farmers (32.26%). The highest of 78.52% HH farmers get loan from NGOs.

Training builds the knowledge and capacity of the farmers and MEs. About 41.40% HHs attended livestock related training program and they attended 1.96 times training with average duration of 6.30 days. Buffalo keeper farmers got more training (93.75%) than dairy (37.65%) and fattening farmers (27.55%).

Feeds incur major cost in livestock production which drives profitability of the farm. However, production of feeds and fodder reduces cost of production for the farmers. The observation of this work revealed that about 36.59% HH family cultivated fodders (both local and HYV fodder) with an average land used for cultivation was 21.65 decimals. Among the survey HH family,

67.18% of them supply green grass to their animals. Napier was cultivated by more farmers (76.92%) followed by German (35.58%), local (14.67%), Jumbo (12.05%) and maize (1.33%). About 14.52% farmers sell fodders with monthly earning of BDT 8496 from 2520 kg. 68.42% farmers said that cultivated fodder had high demand in the market. The demand of fodder was high in winter season reported by 57.97% farmers. This is due to scarcity of green grass in dry period seen in winter. Money spend in a month by farmers due to fodder purchase was estimated BDT 3050 from an average of 762 Kg grass per HH. In the survey there were 6 farmers who earned money of BDT 992 by selling 412 kg rice straw in a month. On the other hand, there were a total of 137 farmers who spend monthly average money of BDT 2496 by purchasing monthly average 693 kg rice straw per HH in a month. Among the ready cattle feed user farmers, 52.08% of them purchased dairy feed and 47.92% purchased fattening feed.

The information regarding preventive and health care management taken by dairy, fattening and buffalo keeper farmers and prevalence of diseases and treatment service are so much important task of farmers. About 59.30% dairy farmers, 70.71% fattening farmers and 35.29% buffalo keeper farmers vaccinated their animals regularly. Vaccinate and de-worm at a time for all animals in the herd is most effective for health management. The average frequency of de-worming in a year for dairy, fattening and buffalo was 2.43, 2.17 and 1.56 times, respectively. About 52.33% dairy farmers vaccinate their animals by themselves. In case of fattening animals, highest of 42.42% farmers conducted vaccination by the help of quack and 52.94% buffalo keeper farmers do it by the help of local service provider (LSP).

The contribution of animal treatment service provided by different service providers is important for farmers. In case of dairy and fattening animals, more treatment service was provided by quack (55.17 and 58.16%, respectively). However, in buffalo treatment LSP contributed more (48.57%) services than quack (42.86%) and govt. vet service providers (5.71%). 58.54% dairy farmers and 76.04% fattening farmers told their opinion that quality of treatment service provided by the treatment service providers were good and 63.64% buffalo farmers thought it to be moderate. 65.48% dairy and 81.44% fattening farmers expressed that treatment service was availed within 1-2 hours of showing diseases.

Quarantine of animal is a necessary part in animal health management. It was followed by 44.0% dairy, 54.26% fattening and 18.92% buffalo farmers. The statistical information of dairy, fattening and buffalo died in different diseases in last one year. According to the information taken by the survey there were 57.95% dairy, 23.30% fattening and 57.14% farmers who had lost their animals due to death of diseases with average numbers of 2.24, 2.00 and 2.85 animals per HH family, respectively.

Good farm environment ensures animals in comfort and also reduces disease prevalence in the farm. 27.27% dairy and 19.42% fattening farmers provide good ventilation, while in case of buffalo it was 50.0%. On the other hand, about 24.42% dairy, 18.63% fattening and 25.0% buffalo farmers had good drainage system in their animal houses.

Good floor condition is essential for good farm management. Good floor helps to clean floor clearly as well as to reduce heavy load of organism remain on the floor. Both about 48% floors of dairy and fattening houses were made of brick (concrete) and 21% floors of buffalo houses were made of brick.

Ceiling fan makes animals comfortable in hot weather, especially needed for crossbred cattle. About 68% dairy, 69% fattening and 20.00% buffalo farmers had ceiling fan in their animal houses. Further, about 80% dairy, 67% fattening and 33% buffalo farmers had provided lighting facility in their animal houses. It was observed that about 9% dairy farmers and about 11% fattening farmers kept varieties of species in the same animal house, which is not recommended as to prevent disease transmission. On the other hand, about 15% dairy farmers, 22% fattening farmers and 8% buffalo farmers usually keep household materials (like chopping woods for fuel, jutes, jute stick etc.) in their animal houses which make house dirty and also favor for insects and rodents. Regular cleaning of animal house and manger is very much essential to remove microorganism remain in the surface of floor and manger. About 88% dairy, 94% fattening and 67% buffalo farmers cleaned their floor and manger in animal house regularly. The rainy season was mostly difficult season for farm management experienced by the farmers in the studied areas. This is due to scarcity of green grasses, muddy condition in the animal house and roads etc. Mosquitoes create problem to the animals. From this study it was observed that about 74% dairy farmers, 95% fattening farmers and 63% buffalo farmers had used to take necessary steps (by using net, coil, spray, fume, diesel etc.) against mosquito.

Farm waste management is important in the perspective of clean environment and reduction of spreading diseases. Proper disposal of cow dung and other farm excreta in the animal house and premises are not practiced by the farmers, which mostly create environment pollution and outbreak of harmful insects and diseases. About 40% dairy farmers, 34% fattening farmers and 79% buffalo farmers left cow dung very nearer to their animal houses. In most of the cases (47%) cow dung is not utilized by the farmers. Only 21% farmers use it for their land or sell as fuel or manure. About 32% farmers allowed neighbors to take cow dung free of cost. Money earned in a year by selling cow dung is about BDT 10800.00 who sold it. Very few farmers produce biogas and vermin compost from their cow dung. Only about 7.35% farmers use cow dung for preparing vermin compost and 13.67% farmers use it as biogas production. About 31% farmers sell vermin compost who produced it and earned annually BDT 62200. Only 5.56% farmers sell biogas who produced it. Bio slurry, the byproduct of biogas plant is mostly used (56.50%) as manure in the agricultural land of the farmers who has biogas plant.

So far, a lot of technologies regarding livestock production, farm management and health care management have been developed by livestock scientists, professionals and academicians for the welfare of the farmers and livestock entrepreneurs. However, still now most of the farmers and entrepreneurs are not well acquainted with those technologies. Sometimes those technologies are not implemented by the farmers and entrepreneurs in spite of having familiar of those technologies. Only about 8% fattening and 10% buffalo farmers are adopted with UMS technology. Only 4.0% dairy farmers use calf starter technology. Couple manger is used by 15%, 17% and 22% dairy, fattening and buffalo farmers, respectively. Silage technology is used by 4%

dairy and 3% buffalo farmers. No other technologies are used by the farmers in the surveyed areas.

Due to an agro-based country, most people of Bangladesh live in rural areas. Livestock is intimate part of agriculture. Due to cultural inheritance, most people of rural areas in Bangladesh keep livestock. However, cattle are most integral part in rural community, especially for the farmers who depends on it for their land cultivation. The needs of protein for rural people usually meet up by backyard livestock production. About 82% dairy cattle genotypes reared by the farmers in the survey areas are crossbred types. Among indigenous cattle keepers, a farmer had average 1.65 numbers of indigenous cattle. The average live weight of indigenous cow was found as 227 kg with an average market value of around 60 thousand taka. On the other hand, among crossbred cattle keeper farmers, a farmer had average 2.54 numbers of crossbred cattle. The average live weight of crossbred cow was 393kg with market value of around 160 thousand taka. About 61% indigenous cattle are reared by intensive management system and for crossbred it is 95.81%.

There are two breeding methods; natural breeding and artificial insemination (AI) methods. About 84.44% dairy cattle breeding is conducted artificially that is AI. In case of natural breeding, homebred bulls are used by about 35.00% farmers who follow natural breeding. On the other hand 32.43% semen is used from government source and 61.26% from private source.

100% household supply straw to dairy cattle along with amount per animal per day. All indigenous dairy cattle keeper HHs supply straw with an average quantity of 2.92 kg/animal/day, irrespective of ages and stage of production. On the other hand, about 90.06% crossbred dairy cattle keeper HHs supply straw with an average quantity of 3.72 kg/animal/day, irrespective of ages and stage of production.

100% household supply green grass to dairy cattle along with amount per animal per day. About 88.61% indigenous dairy cattle keeper HHs supply green grass with an average quantity of 11.86 kg/animal/day, irrespective of ages and stage of production. On the other hand, about 93.93% crossbred dairy cattle keeper HHs supply green grass with an average quantity of 16.07 kg/animal/day, irrespective of ages and stage of production.

100% household supply concentrates feeds to dairy cattle along with amount per animal per day. About 93.67% indigenous dairy cattle keeper HHs supply concentrate feeds with an average quantity of 2.14 kg/animal/day, irrespective of ages and stage of production. On the other hand, about 98.62% crossbred dairy cattle keeper HHs supply concentrate feeds with an average quantity of 3.75 kg/animal/day, irrespective of ages and stage of production.

Ready concentrate feed manufactured by different companies are used by 20.25% indigenous dairy cattle keeper HHs with an average daily allowance of 1.50 Kg/animal, irrespective of ages and stage of production. On the other hand, about 12.15% crossbred dairy cattle keeper HHs

supply ready feed with an average daily allowance of 2.18 Kg/animal, irrespective of ages and stage of production. However, most of the farmers supply ready feeds to milking cows and bulls

The reproductive potentials of different dairy cattle genotypes available in Bangladesh have been investigated by taking recent information of the cows farmers were keeping in their house. Lowest number of services per conception was obtained in Sahiwal and highest in Jersey. Prolonged postpartum heat period was found in Sahiwal and shortest in indigenous. However other genotypes showed closer duration of postpartum estrous with Sahiwal. Highest service period was obtained in Jersey cross and lowest in indigenous cows.

Highest peak milk production was found in Friesian cross and lowest in indigenous cows. Highest daily average milk yield was obtained in Jersey cross, which was very similar with Friesian cross and lowest in indigenous cows. Highest lactation period was observed in Friesian cross and lowest in indigenous cows. Due to low genetic potentiality, milk production performance of indigenous cow is lower than other crossbred cows.

About 82.88% farmers milk their cows at the same place where they keep their animals. However, 89.47% farmers clean that place before milking. 88.50% farmers clean the udder of the milking cows prior to milking. In about 66.67% cases, the milkers clean their hands prior to milking. After milking, 62.07% farmers sell milk to milkman (Goala). Irrespective of locations, average prices of milk of indigenous and crossbred cows are BDT 42.65 and BDT 50.47.

On an average a HH family sells about 2.64 numbers of indigenous dairy animals (including different ages and types) in a year with an average price of BDT 55000 per animal. On the other hand, a crossbred cow keeper HH family sells about 2.12 numbers of crossbred dairy animals (including different ages and types) in a year with an average price of BDT 76000 per animal. A HH family need around BDT 60000 as variable cost of production per dairy cow in a year (without cost of animals). The proportionate production cost which shows that 70.20% of the total production cost is incurred for feeding cows and 18.66% for labor (wage of family labor is also included). From the cost profit analysis, a dairy cow keeper farmer can earn a net profit of around BDT 85 thousands in a year from rearing a single cow.

The contribution on employment generation in dairy farming: about 100% male farmers are engaged in their dairy cattle farm as a par-time basis with an average number of male farmers per HH is 1.26. The working hours of male members within family involved part-time works is about 0.34 Man-day. On the other hand, 95.45% female farmers are engaged in their dairy cattle farm as a par-time basis with an average number of female farmers per HH is 1.25. The working hours of female members within family involved part-time works is about 0.36 Man-day. Male employee (workers) recruited by 17 farmers for full time works was about 19.32% with an average number of 2.18 per HH. No female employees (workers) were recruited by any of the farmers. The average monthly salary of recruited male workers is BDT 11000.

Both indigenous and crossbred cattle are fattened by the farmers. About 50.70% farmers fatten indigenous cattle and others fatten crossbred cattle. The average numbers of indigenous and crossbred animals fattened by the farmers are 3.36 and 2.83 per HH family.

Almost all farmers rear fattening animal with intensive management system. About 96.92% indigenous fattening cattle are reared in intensive management system. On the other hand, about 98.44% crossbred fattening cattle are reared by intensive management system

About 94.03% indigenous fattening cattle keeper HHs supply straw with an average quantity of 3.71 kg/animal/day, irrespective of ages and types of fattening animals. On the other hand, about 94.44% crossbred fattening cattle keeper HHs supply straw with an average quantity of 4.47 kg/animal/day, irrespective of ages and types of fattening animals.

About 89.55% farmers supply green grasses with an average quantity of 17.38 kg/animal/day, irrespective of ages and types of animals who keep indigenous fattening cattle. On the other hand, about 79.63% crossbred fattening cattle keeper HHs supply green grasses with an average quantity of 15.86 kg/animal/day, irrespective of ages and types of fattening animals.

All indigenous fattening cattle keeper HHs supply concentrate feeds with an average quantity of 4.19 kg/animal/day, irrespective of ages and types. On the other hand, about 98.15% crossbred fattening cattle keeper HHs supply concentrate feeds with an average quantity of 4.40 kg/animal/day, irrespective of ages and types. About 36% farmers provide ready feed manufactured by feed companies with daily allowance of 1.29 kg/animal for indigenous fattening cattle. On the other hand about 24% farmers provide ready feed with daily 2.0 kg/animals for crossbred fattening cattle.

About 35.56% fattening farmers had experience on fattening over 10 years and 33.33% had up to 5 years. However, most of the farmers (about 36.56%) fatten animals once in a year specially by targeting at Eid-UI-Azha (Fig. 5.4.2). Average numbers of animals fatten by the farmers are 5.67 for indigenous animals and 4.08 for crossbred animals. About 56.60% farmers sell their fattening animals from their house to animal broker. On average, differences between purchasing and selling values are BDT 48413 for indigenous animals and BDT 56522 for crossbred animals.

Irrespective of genotypes, a HH family need around BDT 27802 as variable cost (without cost of animal purchase) of production per animal per cycle (for around 6 months). About 50.17% of the total production cost is incurred for feeding cows and 42.16% for labor (wage of family labor is also included). The cost-profit estimate revealed that a farmer can easily earn a net profit of around BDT 25 thousands from a single fattening animal per cycle (about 6 months).

The contribution on employment generation in fattening cattle: about 57.28% male farmers are engaged in their fattening farm as a par-time basis work with an average number of male farmers per HH is 1.20. The working hours of male members within family involved part-time works in fattening is about 0.31 Man-day. On the other hand, 56.31% female farmers are

engaged in their fattening farm as a par-time basis work with an average number of female farmers per HH is 1.33. The working hours of female members within family involved part-time works is about 0.35 Man-day. Male employees (workers) recruited by 8 farmers for full time basis works was about 7.77% with an average number of 1.25 per HH. No female employees (workers) were recruited by any of the fattening farmers. The average monthly salary of full time basis recruited male workers is BDT 10150.

The populations of buffaloes are not well distributed across the country. In Bangladesh, buffaloes are reared in particular regions. The average numbers of indigenous buffaloes including all types and ages reared per HH family is 4.40. However, crossbred buffaloes were not found, except only one farmer who kept 2 crossbred buffalo.

Feeding to buffalo according to different types: straw, green grass and concentrate are supplied by 94.94%, 46.84% and 17.72%, respectively with average quantities per animal (all types) per day are 6.11 Kg, 20.11 Kg and 2.63 Kg. The amount of straw, green grass and concentrate feeds supplied to milking buffalo are 8.11, 28.89 and 2.88 kg/day/animal, respectively.

About 61.76% buffalo farmers bred buffalo cows with their own buffalo bulls. On an average a buffalo breeding bull is used to bred in the herd/bathan for about 4.10 years. Numbers of buffalo cows bred by a buffalo breeding bull in a month is around 34.15 by natural mating. Sex ratio (M:F) maintained in the bathan for breeding purpose of buffalo is 1:49. However, no buffalo farmers keep breeding records in their herds. Most of the cases (about 71%) milking of buffalo is performed by the buffalo owners and only 3% milking is conducted by goala (milkman). The average price of buffalo milk sold by the buffalo keepers is around BDT 86 per ltr. The average daily milk yield of indigenous buffalo was observed 2.38 ltrs with average lactation period of about 7 month. The peak milk production of buffalo in a day was observed around 6.0 ltrs. However, at the time of ending lactation, milk yield exist to around 1.0 ltr. Based on the reproductive information on buffalo disclosed by the farmers, it was found that buffalo heifer reached sexual maturity at about 36 month of age, but at the age of around 38 months, they conceive first time in their life. Number of natural services required per conception was 1.32 which is within the normal range of expectation. Postpartum heat of buffalo cow shows 3.63 months after calving. Buffalo cows give births with average intervals of 15.58 month which need to be reduced by providing good management and nutrition.

A buffalo keeping HH family need around BDT 34484 as variable cost (without cost of animal purchase) of production per animal in a year. The proportionate production cost which shows that 55.15% of the total production cost is incurred for labor (wage of family labor is also included) and 30.05% for feeding to buffalo. On an average, a buffalo HH family sells around 3 buffaloes in a year including all types.

The contribution on employment generation in buffalo farming: 91.43% male farmers are engaged in their buffalo farm as a par-time basis work with an average number of male farmers per buffalo HH is 1.31. The working hours of male members within family involved part-time works in buffalo farming is about 0.47 Man-day. On the other hand, only 2.86% female farmers

are engaged in their buffalo farm as a par-time basis work with an average number of female farmers per buffalo HH is 1.0. The working hours of female members within family involved part-time works in buffalo farming is about 0.25 Man-day. Male employees (workers) recruited by 18 farmers for full time basis works in buffalo farming was about 51.43% with an average number of 1.08 per buffalo HH. No female employees (workers) were recruited by any of the buffalo farmers. The average monthly salary of full time basis recruited male workers for buffalo farm is BDT 13735.

The education levels of LSP, vet pharmacist, feed seller and animal transporter: higher education levels found in LSP (21.43%) were more than those of veterinary medicine sellers (18.52%). However, most of the LSP, veterinary medicine sellers and feed sellers had education level of SSC (35.71, 37.04 and 32.0%, respectively). 61.54% transport drivers were primary educated.

Family size (number of family members per HH family) and monthly income of LSP, vet pharmacist, feed seller and animal transporter are given in Table 1.2. LSP had lowest family size and others are very closely similar. The highest monthly income was found in feed seller and lowest in animal transport driver.

About 96.43% LSP had training on livestock production and health management (Fig. 7.3.1) taken from government agencies by about 45% LSPs and from NGOs by about 41% LSPs. On an average each LSP provide their services in about 4 unions. The average numbers of trained and untrained livestock service providers in existence of the surveyed areas were found to be 8.48 and 8.64, respectively. About 78.5% LSPs use motorcycle to communicate with farmers for giving their services. Among LSPs, about 23.68% of them give their services for only cattle species and about 50.0% of them give their services for all species of livestock (cattle, buffalo, goat and sheep). In a month an LSP provides their services to about 435 farmers. About 39.29% LSPs had their own veterinary pharmacy and most of them (41.38%) collect medicine from Upazila market. About 71% LSPs does not dispose their disposable materials (vial, syringe, expired medicines) properly. About 56% LSPs had no knowledge about environment pollution that is caused for their ignorance on proper disposal of disposable veterinary materials. On an average about 8.41 cattle and 8.86 buffaloes were died in diseases after giving treatment by each LSP. In that case when LSPs cannot diagnose animal diseases, 78.57% of them refer that case to registered veterinarians.

About 59% of them had professional training. Among veterinary medicine sellers, around 67% of them had drug license. About 26% vet pharmacist prescribed medicine by themselves and about 73% sell medicine without prescription made by the registered veterinarians. About 26% veterinary medicine sellers keep medicines both for human and livestock. 40.74% medicine sellers said that demand of veterinary medicine is seasonal. About 19% medicine sellers were accused by mobile court for unethical use of medicines. About 59% medicine sellers do not dispose their medicines properly when those become expired of date. About 57.70% vet pharmacist has knowledge about environment pollution created from the date expired medicine not properly disposed.

Among the animal feed sellers, about 40% of them sell all types feeds (concentrate ingredients, ready cattle feed, fish feed and poultry feed) and others sell only single item of different types. Among animal feed sellers, 64.0% of them said that demand of feed selling become higher during festivals, especially Eid. 84.0% animal feed sellers claimed that their selling volume was increasing day by day. About 60.0% feed sellers do not dispose their spoiled or date expired feeds properly. Storing feed properly is very important as quality of feed may deteriorate if it is kept in damp floor or room. About 8.0% feed sellers put their feeds on ground floor and others put on wooden floor (48.0%) and concrete floor (44.0%). 96.0% feed sellers said that mice spoil their feeds in the feed storage room. To prevent feed loss and spoilage due to mice attack, most of the feed sellers (about 80%) take necessary steps. About 20.0% feed sellers do not take any step at all to prevent rodents. About 54% feed sellers have knowledge about the condition that if spoilage or date expired feeds are not properly disposed; environment may be polluted for that reason.

About 76% animal transporters had their own vehicle which they drive themselves for animal transportation. Most of the vehicles (about 80.0%) used for transporting animals are made locally named tractor, Nosimon, Korimon, Votvoti, Alam Sadhu etc. and the capacity to carry animal is around 6-7 adult animals /vehicle (7.38 sqft/animal) and around 10-12 small animals/vehicle (4.59 sqft/animal). Among animal transporters, about 62% of them transport animal daily (going to different Hat-Bazar) and others only market day. Among animal transporters, about 23.0% had driving license, 16.0% vehicles had fitness status and 19.23% had road permission for transporting animals. About 4% vehicles those were under the legal allegation and about 8% vehicles had judicial allegation for road accident. The average period of driving of the animal transporters was about 10.19 years and the average experience of them for animal transportation was about 7.30 years. The average number of accident occurred during animal transportation in a year is around 1.92, and in that case about 4.38 animals were injured and 1.19 animals were died in a year.

About 52.38% animal markets (called hat-bazar) are remain open once in a week and others twice in a week. On an average about 2025 animals are taken place at market and 1260 animals (62.22%) are sold at each market day. Among the animal markets, about 33.33% markets had animal loading and unloading facilities (slope bit) and only 9.52% markets had washing and cleaning facilities. About 47.62% markets had separate place in the market for selling animals according to age and type (milking cow, bull, bullock, heifers, calves etc.) of animals. It was also observed that registered veterinarian keep presence in about 9.52% markets at the day of market. There were veterinary pharmacies near the market in about 80.95% animal markets. About 38.10% animal markets are cleaned properly after the end of market day and cow dung and market wastages are properly disposed in only 14.29% markets.