

Assessment of Factors Affecting the Efficiency and Effectiveness of Synchronization Based Breed Improvement Schemes

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Abstract

The research was undertaken to assess factors affecting efficiency and effectiveness of synchronization based breed improvement schemes: threats, opportunities and the way forward. A total of 112 questionnaires were filled at Kaffa and Bench Maji zones of south west of Ethiopia's estrous synchronization stations. The objectives of the research were to understand prevalence of reproductive disease and its loss, to forward appropriate intervention strategy to alleviate losses and to create awareness about management activities. In the study area Cattle are reared mainly for milk and meat production, as saving and for draft purpose respectively. Cattle are mainly milked twice per day that is 94.7% and only 5.3% cattle are milked thrice per day for the first 2-3 weeks but the amount of milk milked during afternoon was under a liter. Milk yield were 55.7% higher in the range of 1-2 l/day than >3 l/day for local breed and 3.5% higher for 2-5 l/day than > 8 l/day for cross breed. In both local and cross breed calving interval in the year between 1-2yr was the dominant calving interval range. In this area tethering in grazing land, let to graze in grazing land, indoor feed and combination of all type feeding practice were 59.3%, 15.9%, 8.8% and 15.9% respectively was feeding practices in the study area. Major type of improved forage in the area on a small piece of land were desho, elephant grass and sesbania sesban respectively. Totally, 162 ES serviced sampled cows were taken and analyzed data showed that 33.5% were gave birth which indicate that there is poor conception rate. Major diseases that affect reproductive and productive performance of cattle in the study area were abortion, retained placenta, anthrax, hypocalcaemia, skin diseases, black leg, mastitis Bovine pastorellosis and FMD.

Keywords: Estrous Synchronization, conception rate, cow, disease, Artificial Insemination

Introduction

Ethiopia is believed to have the largest livestock population in Africa. This livestock sector has been contributing considerable portion to the economy of the country, and still promising to rally round the economic development of the country (CSA, 2013/14). Total cattle population for the country is estimated to be about 55.03 million. Out of this total cattle population, the female cattle constitute about 55.38 percent and the remaining 44.62 percent are male cattle. About 27.35 million sheep are estimated to be found in the country, out of which about 72.72 percent are females and about 27.28 percent are males. According to the survey result, the number of goats reported in the country is estimated to be about 28.16 million. Out of these total goats, 70.98 percent are females and about 29.02 percent are males (CSA, 2013/14). Southwest of SNNPR (South Nation Nationalities and People's Region) has abundant all type of livestock population like Cattle, small ruminant, poultry, honeybee and equines. Livestock populations in mandate area of Bonga Agricultural Research Center was 137,517 cattle, 66,844 sheep and 18,341 goat for Sheka zone, 926,881 cattle, 437,879 sheep and 256,817 goat for Kaffa zone and 321,980 cattle 124,093 sheep and 75,719 goat for Bench Maji zone (CSA, 2013/14).

Improving fertility is a common goal for many dairy herds or livestock owners. Getting cows pregnant in a timely manner is important in maintaining a profitable dairy business. Reproductive performance in dairy cows has declined over the last 25 years in dairy cows, with an increased number of days open and decreased conception rates (Silvia, 1998).

Estrous synchronization gives many beef cattle producers the opportunity to capture the economic benefits of artificial insemination (AI). Because AI involves a substantial investment of labor and time, most commercial farms or ranches will not utilize this technology unless this investment can be confined to a period of less than 5 to 7 days (R.L. Larson, 1996).

Management and environmental factors influence conception rates. Environmental factors account for 96% of the variation in conception rates. Herd differences in nutrition, metabolic disorders, reproductive health, heat detection, insemination practices and climate can result in significant differences in conception rates (Kathy Lee, 2004). The remaining 4% of variation in conception rates is due to genetic factors with 3% for the cow and 1% for the service bull (Kathy Lee, 2004). These small values indicate that improvement in conception rates due to genetic selection will occur at a relatively slow rate.

This assessment study was mainly targeted to understand determining prevalence of major reproductive health problems in the study areas, to identify the level of reproductive loss in cattle due to various reproductive health problems, to design and forward appropriate intervention strategy to alleviate losses due to reproductive health problem, to create awareness on livestock owners on managing dams during pregnancy and

at parturition to reduce reproductive losses due to management and to create awareness on the public health hazards of cattle reproductive health problems.

Methodology

A total of 112 questionnaires were filled that collected from farmers of two zones in Kaffa (Tello woreda Odda site, chena woreda shishinda site and Gimbo woreda shomba site) and Bench Maji (North Bench woreda Temenja Yaz & Genja sites and South Bench woreda Debrework site) zones and also Extension workers and woredas agricultural offices are participated as informal discussion. The data is collected by using purposive sampling to select Estrous Synchronization station and randomly sampling method for farmers from each Estrous Synchronization (ES) station. From the selected woredas of each zone 50% kebles/the Estrus synchronization (ES) stations was included from total stations. From the selected keble/ES stations 10-20% Households was included in the survey. The questioners were included mainly number of livestock, purpose of keeping cattle, production performance of cattle, breeding system of cattle, parities of best calf growth, type of feed and feeding practice, means of handling for pregnant cow and new born calf, criteria to select cows for AI/ES, number of calves born by ES, major types of reproductive disease both for cows and their calves, strategy to prevent and control disease and availability of veterinary service. All the data collected from the farmers were analyzed. Data were analyzed to detect the efficiency of Synchronization for individual parameter using MS excel and SPSS data analysis software package.

Result and Discussion

Number of livestock

From 112 sampled farmers they had 625 cattle, 187 sheep and 68 goats: on average 5.58 cattle, 1.66 Sheep and 0.6 goats per household for participants. Result of this study have slight difference with other literature like Getahun (2012) reports that the average cattle owned by household range from 1.91 to 3.46 and the number of sheep and goat owned by participant were 0.90 and 1.43 respectively which is due to difference in size of coverage area or sample size. In the study area Cattle are reared mainly for milk and meat production, as saving and for draft purpose respectively.

Production rate and Breeding performance of cattle

In south west of SNNPR indigenous local zebu cattle are the dominant Cattle Breed and few cross/exotic Holstein Frisian and Jersey breeds are available with in or around the town. Similarly, 2013/14 CSA reported that 98.71 percent of the total cattle in the country are local breeds. The remaining are hybrid and exotic breeds that accounted for about 1.15 percent and 0.14 percent, respectively. As various literatures expressed these indigenous breed are characterized by low in production.

Milk yield

Cattles are mainly milked twice per day which is 94.7% and only 5.3% cattle are milked thrice per day for the first 2-3 weeks under a liter of milk. And also milk yield of the indigenous breed in the study area is <1 L/day, 1-2 l/day, 2-3 l/day and > 3 l/day were 31%, 56.6%, 11.5% and 0.9% respectively. Whereas few cross/pure exotic breed provide 2-5 l/day, 5-8 l/day and > 8 l/day were 5.3%, 1.8% and 1.8% but up to 91.2% respondents had no improved breeds. Milk yield were 55.7% higher in the range of 1-2 l/day than >3 l/day for local breed and 3.5% higher for 2-5 l/day than > 8 l/day for cross breed. Similarly CSA 2013/14 reported that average lactation period per cow at country level is estimated to be about six months, and average milk yield per cow per day is about 1.37 liters.

Calving interval

In the study area calving interval were similar both for local and cross breeds. Analyzed data showed that 1-2 yr, 2-3 yr and >3 yr were 90.3%, 8.8% and 0.9% for local breed respectively and 1-2 yr were 8.8%, 2-3yr were 0.9% and 90.3% respondent had no cross breed. In both cases calving interval in the year between 1-2yr was the dominant calving interval range.

Age of first mating

It refers that the period of time that heifers are serviced for the first time. This study indicated that those heifers with age of 2.5-3yr, 3-3.5yr, 3.5-4yr, 4- 4.5yr and >4.5yr were 27.4%, 26.5%, 31%, 8% and 7.1% respectively for local breed. This quantitative data indicates their major age of first mating was the range between 3.5 – 4yr. Similarly for cross cattle 2.5-3yr was 8%, 3-3.5 yr was 0.9% and up to 91.2% respondents had no cross breed. This shows that 2.5-3yr was the major age of first mating for cross cattle in study area.

System of mating/Breeding

Breeding systems may be natural or artificial. In Ethiopian level major type of breeding system is natural mating. In this study the respondents were replied that most of the time their local breeds are bred by using natural system where as their cross breed use AI (Artificial Insemination) through ES (Estrous Synchronization) to get better productive calf. The study indicated that natural mating, AI, AI through ES and combined or alternative form for local breed were 61.1%, 1.8%, 14.2% and 23%. For cross breeds percentage of breeding system were

1.8% natural mating, 1.8% AI, 8.8% AI through ES and 1.8% combined or alternative form but up to 85.8% respondents had no breeding cross /exotic breeds.

Source of breeding for natural mating system bulls are reared at home or from neighbor whereas for AI service was obtained from bureau of Agriculture (BOA). They used their cross breed male for breeding purpose rather than traction or selling at early age.

Parities of better calf growth

In the study area maximum cattle's parity extended up to 10-12 in their life time but calf growth was poor when increasing parities number. The respondents explained that calf born at later parity is characterized by retarded growth rate, have less strength, poor disease prevention ability and small in size. From analyzed data 61.1% respondents replied 1-2 parities is better for calf growth, 38.1% respondent 3-5 parities and 0.9% respondent > 5 parities.

Feeding system

In Ethiopia cattle feed is mainly related with rain fall. During wet season there is ample feed resource but during dry season shortage of feed is major problem for livestock owners. Likewise, SNNPR is endowed for livestock but shortage of feed and feeding management problem is common. South west of SNNPR major part is mid land and highland which is characterized by high rain fall within a year.

There were knowledge gap about feed treatment and production of improved forage. Grass, straw, residue, fagulo and furshica were major type of indoor feed by purchasing or from the house.

Major respondents replied that their feeding practice is not depending on physiological status of the animal. Up to 63.7% respondents was not fed separately but the remaining 36.3% respondents were did that. This feeding system was mainly affects younger animals, pregnant cow, lactating cow and poor conditioned animal which doesn't compete with the other animals. Some farmers were applied separate feeding for pregnant cow at late pregnancy period and during for the first parturition period.

In the area more than 81% farmers has private grazing land but the remaining 19% respondents were use communal grazing land or sharing their relatives grazing land. Communal grazing land is not common because the area is covered by protected forest land or it may be cultivated. Size of private grazing land for each farmer mainly was < 1 ha. And cattle were grazed 5-10hrs on average.

Major type of improved forage in the area were desho, elephant grass and sesbania sesban respectively. Few farmers used these forage type within little size of land but major livestock owners were not adapted forage development. Major reasons that why they didn't develop improved forage were no awareness, shortage of land and shortage of improved forage seed.

Calf management

Calves are very sensitive for different disease because their immunity system is not developed. Also physical injuries or disorder may be happen at pregnancy period. As a result, they require great care starting during pregnancy period of cow up to parturition and well developed stage of calf. In the study area 49.6% respondents had separate parturition barn but 50.4% had no partition barn rather they used their common barn. All respondents replied that they cleaned their barn whether separate parturition barn or common barn regularly that is very crucial to protect infection for their calves and for other livestock.

Like other parts of Ethiopian regions in SNNPR of south west area calves birth weight recording was not common. In this area cattle house construction is not that much developed which leads 82.3% respondents had no separate pen for their calves rather they keep either near the dam's or mixed with adult cattle.

Major respondents up to 85% farmers replied that they feed colostrums with in the first 1-6hrs which is very important to develop immunity of calves but the remaining 15% respondents didn't provide it because they think that it causes for diarrhea which indicates that further awareness creation is very necessary for those farmers. Those colostrums provided farmers explained that it is used for strength, growth and as feed. Calves suckled thrice per day up to one month as 85% respondent's explanation but after a month they suckle twice per day and provide additional feed.



Fig.1 calf born by AI with synchronization from local breed

Starter and graze starting age of calves in the area was <1month, 1-2 month and > 2 month were 15%, 61.9% and 23% respectively. It indicates grazing started age was found within the range of 1-2 month but they used starter in the house before a month. These calves mainly grazed separately with other cattle but some respondents keep them mixed with adult cattle. Diarrhea, internal and external parasites, skin disease and Black leg were major disease for calves in the area. Little attention is given for vaccinating calves when compared with other livestock.

Estrous synchronization and Cow health management

In the study area Estrous synchronization is started from 2013 G.C/ 2005 e.c but artificial insemination (AI) was started beyond this period. Analyzed data showed that criteria to select cows for AI/ES were Younger age, short calving interval & milking capacity, large body size & good body conformation and improved breed but some farmers had no criteria to select their cattle. According to respondent farmers large body size and good conformation was the main criteria to select cows for AI/ES purpose, which accounts 72.6%, and farmers who had no criteria for selection were followed that is 8.8%.

Table 1 Criteria to select cow for AI/ES

selection criteria	Frequency	Percent
no criteria	10	8.8
young age	9	8.0
short calving interval & milking capacity	9	8.0
large body size & good conformation	82	72.6
improved breed	3	2.7
Total	113	100.0



Fig.2 calf born by AI with synchronization from cross breed

Analyzed data showed that a comparison of calf crop with serviced cows which is ES with AI were 0 from 1 was 32.7%, 0 from 2 was 9.7%, 1 from 1 was 21.2%, 1 from 2 was 15.9%, 2 from 2 was 0.9% and 19.5% respondents had no serviced cow.

Table 2 number of calf crop By ES with AI in 2006

	Frequency	Percent
0 from 1	37	32.7
0 from 2	11	9.7
1 from 1	24	21.2
1 from 2	18	15.9
2 from 2	1	.9
no serviced cow	22	19.5
Total	113	100.0

Generally, 162 ES followed by AI serviced sampled cows were taken and analyzed data showed that 33.5% were gave birth. This result showed that there is poor conception for major percentage of serviced cow. Many estrus synchronization protocols can induce 75 to 90% of the cycling animals to display estrus within a 5 day period. Additionally, many protocols can induce a fertile heat in as much as 50% of the anestrus cows. Thus, it is typical for many of these synchronization protocols to result in 45 to 55% of the animals being pregnant by the end of the first week of the breeding period (Mel Dejarnette, 2004).

Different factors are available for low rate of conception. These includes undermining proper time of insemination, inseminating after three days of injecting even if cows not show heat, improper selecting criteria of cows for ES service, poor PD (pregnancy Diagnosis) result, underestimating body weight, heart girth, age, parity and BCS and no attention given regarding with disseminating improved forages before synchronization.

Disease affecting reproductive and productive performance of cow

Disease prevalence is one of the problems in dairy business. These diseases may be metabolic, bacterial, fungal, protozoan or viral. Summary of collected data showed that 69% respondents replied that there was no reproductive and productive disease but 31% respondent farmers explained various diseases were available. These include abortion, retained placenta, anthrax, hypocalcaemia, black leg, skin diseases, mastitis, Bovine pastrollosis and FMD.

To control those prevalence diseases farmers take their own strategies like cleaning barn, vaccinating, isolating diseased animals and taking to clinic if they observed any sign of disease. Major type of vaccination given to cow in the study area was Black Leg and Bovine Pastrollosis.

In the study area as 3.5% respondent's explanation abortion was available before the first 6 month due to physical injuries. These physical injuries include fighting, jumping, load (serviced by bulls even if she is pregnant) and poor barn.

Source of disease for cow were from other neigh boring herds, newly introduced animal in the herd and transmission from other animals with in the herd especially like mastitis and anthrax.

Threats and opportunities of synchronization in the study area

Skill gap for both AI technician and farmers and equipment shortage were major threats of synchronization where as high number of cattle, ample feed resource, interest of livestock owners, supporting of administrative body, shrinking of grazing land which enables to focus on productive cattle and production demand were major opportunities of synchronization in the study area.

Conclusion and Recommendation

In this study conception rate of estrous synchronized cows were 33.5% and different type of disease were available like metabolic disease including retained placenta hypocalcaemia and abortion and also B. pastrollosis, Black Leg, skin disease, mastitis, anthrax and FMD were available in the area. These disease results a lot loss due to death of cow or calf and result unexpected cost for treatment. To improve effectiveness of estrous synchronization and to prevent loss due to disease the following activities should be done:-

- ✓ Improve vaccination program by studying type of each disease and severity of season.
- ✓ Improve cattle management activities like house construction , develop improved forage, separate feeding of animals based on their physiological status
- ✓ Create awareness about cow selecting criteria for estrous synchronization and AI.
- ✓ Cows should be kept to deposit semen until she comes into heat after injection.
- ✓ Training of AI technicians to improve their skill.
- ✓ Provide available equipments for AI technician.
- ✓ Create awareness about feed treatment technology

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Appendices

SOUTHERN AGRICULTURAL RESEARCH INSTITITE LIVESTOCK RESEARCH DIRETORATE

Questionnaires for the study factors affecting efficiency and effectiveness of Estrus synchronization in SNNPR

Section I

General Information

1. Date-----
2. Region-----
3. Zone-----
4. Woreda-----
5. PA'S name-----
6. Name of respondent-----7. Sex-----8. Age-----
7. Educational status
 - A. Illiterate -----
 - B. Read and write only-----
 - C. Primary school-----
 - D. Junior Secondary School-----
 - E. Secondary School-----
 - F. Above Secondary School-----
8. Livestock production

Cattle herd structure

Type of animal	Total	Local	Cross bred	Total
1. cattle				
Milking cows				
Dry cows				
Oxen				
Calves male				
Calves female				
Heifers				
Bulls				
2. Sheep and goats				
Ewe				
Ram				
Lamb				
Does				
Bucks				
Kids				

9. Purpose of keeping cattle

- a. Traction, yes-----, no-----
- b. Milk, yes-----, no-----
- c. Both traction and milk, yes----- no,-----
- d. Savings, yes----- no,-----
- e. Other (specify) -----

Section II.

Dairy cattle Production and Reproduction

1. For how long did you involve in dairying?
 - a. Last 10 years
 - b. Last five years
 - c. Last two years
2. What is the total number of milking cows do you have currently?
 - a. Local cows(____)
 - b. Cross breed(____)
 - c. pure exotic breed(____)
3. Milking frequency per day
 - a. local cows :- a) once per day b) twice per day c) thrice per day
 - b. crossbred cows:- a) once per day b) twice per day c) thrice per day
 - c. Pure exotic cows:- a) once per day b) twice per day c) thrice per day
4. Milking times
 - a. local cows :- a) Morning b. early afternoon c. evening
 - b. crossbred cows:- a) Morning b. early afternoon c. evening
 - c. Pure exotic cows:- a) Morning b. early afternoon c. evening
5. What is the total amount of milk yield per day?
 - a. local cows-----.(liter/day/cow)
 - b. crossbred cows-----.(liter/day/cow)
 - c. Pure exotic cows-----.(liter/day/cow)
6. Calving interval for local bred cows-----months/year
7. Calving interval for crossbred (pure exotic bred) cows-----months/year
8. Maximum number of Parity for local cows-----
9. Maximum number of Parity for crossbred (pure bred) cows-----
10. What is the age of first mating for local bred heifers? -----years
11. What is the age of first mating for crossbred (pure bred) heifers? -----years
12. How do you breed your dairy animals?
 - A. using natural mating (breeding bulls)
 - b. AI
 - c. AI through synchronization
13. If natural mating is used where is the source of the breeding bull?
 - A. Reared at home
 - b. Purchased
 - c. Offices of Agriculture and agricultural research
14. At what parity do you expect better calf growth?
 - A. Between 1 and 2 parities
 - b. Between 3-5 parities
 - c. ≥6 parities.
15. For what purpose do you use crossbred (purebred exotic) male calves?

A.breeding B.selling at early age C.slaughtered at early age D.for traction

16. Where did you get dairy cows initially?

- A. bought from market
- B. obtained from the respective agricultural offices
- C. bred at homefrom AI service
- D. other (specify)-----

Section III

Feeding management of animals

1. How do you feed your dairy animals?

- A. indoor feeding (confined in a house) using individual feeding system
- B. in a collection yard using group feeding
- C. let to graze in a grazing land
- D. tethering in a grazing land
- E. other specify

2. Do you feed pregnant animal separately? a. Yes b. No

If yes, at which time of pregnancy?

- A. at early pregnancy
- B. at late pregnancy
- C. at time of parturition.
- D. at late pregnancy and time of parturition.

3. If your cows are fed indoor, can you list the major types of feed you have provided to them?

4. Do you have access to grazing land? 1. Yes 2. No

If yes, what type of grazing land

- a. private b. communal c. both

5. If you let your dairy cows to graze, for how long do they graze per day? ----- hours

6. What is the size of your grazing land? -----private-----communal------(ha)

7. do you plant and use improved forages? 1. Yes. 2. No

If yes, what species of forage you planted and using

- a. Forage type ----- land coverage -----
- b. Forage type ----- land coverage -----
- c. Forage type ----- land coverage -----
- d. Forage type ----- land coverage -----

If you do not plant improved forage crops, what is your reason?

- a) shortage of land
- b) shortage of capital
- c) shortage of improved forage seeds
- d) difficulttopography
- e) poor soil fertility and drainage
- f) no awareness about it
- g) I have no interest
- g)others (specify)-----

Section IV. Calf management

1. Do you have parturition barn for late pregnant cows? a) yes b) no

2. Do you clean the barn regularly? a) yes b) no

3. Do you record the birth weight of the calf?a) yes b) no

4. Do you have separate pen for your Calves?a) yes b) no

5. Do feed colostrum to your calves?a) yes b) no

If your answer is Yes, why? _____

If no, why? _____

6. If you have practice of feeding colostrum to your calve, at which time range after parturition?

- a. immediately after the calf is born(1-6)hrs
- b. 6-24 hrs after parturition c.After 24 hrs.

7. The frequency of calf suckling (መጥባት) per a day?

- a. once per a day b.Twice per a day c.Three times per a day

8. At what age after parturition the calf starting grazing

- a. Within 1 day b. After 2 days. C. After 3 days d. After 6 days
- 9. What is your calf grazing habit?
 - a. Separately grazing b. Zero grazing
 - b. Graze mixed with others species c. Graze mixed with adult cows

Section IV. COW/DAM HEALTH MANAGEMENT

1. What are your criteria of selecting a cow for Artificial Insemination (AI) /Estrus synchronization (ES) breeding?
 - a. _____
 - b. _____
 - c. _____
 - b. _____
2. What is the level of conception (getting pregnant) in your cows by conventional AI & ES?
 - a. _____ cows form _____ cows inseminated in 2004 by AI only
 - b. _____ cows form _____ cows inseminated in 2005 by AI only
 - c. _____ cows form _____ cows inseminated in 2006 by AI only
 - d. _____ cows form _____ cows inseminated in 2004 by AI with ES
 - e. _____ cows form _____ cows inseminated in 2005 by AI with ES
 - f. _____ cows form _____ cows inseminated in 2006 by AI with ES
3. Do you know there are diseases affecting the reproductive performance of your cows?
 - a. Yes, b. No, If yes, what disease
 - i. _____
 - ii. _____
 - iii. _____
4. Do you considered the diseases as criteria for not selecting cows for breeding purposes during the current AI/ES interventions? a. Yes, b. No,
If yes, for what disease
 - i. _____
 - ii. _____
 - iii. _____
5. Do you experience abortion in your herd in general in last two years? a. Yes, b. No,
If yes, what do you suspect as the cause of abortion?
 - A. Mechanical abortion; In ___ cows/ _____ herd size (population of cows)
 - B. Due to different diseases; In ___ cows/ _____ herd size (population of cows)
6. At what stage of gestation does the abortion occurred in your herd during the last two years period?
 - a. Before 3 months of gestation
 - b. Between 3 and 6 months of gestation
 - c. After 6 months of gestation
7. What are the common history/signs of the common reproductive diseases affecting your cows during the last two years?

Disease 1: _____

- a) Signs that you see before the animals are clinically very ill/before abortion is occurred?

- i. _____
- ii. _____
- iii. _____

- b) Signs that you see after death/abortion has occurred?

- b.1. In cows aborted
 - i. _____
 - ii. _____
 - iii. _____
- b.2. In aborted fetus
 - i. _____
 - ii. _____
 - iii. _____

Disease 2: _____

- a) Signs that you see before the animals are clinically very ill/before abortion is occurred?

- i. _____
- ii. _____

b) Signs that you see after death/abortion has occurred?

b.1. In cows aborted

- i. _____
- ii. _____
- iii. _____

b.2. In aborted fetus

- i. _____
- ii. _____
- iii. _____

Disease 3: _____

a) Signs that you see before the animals are clinically very ill/before abortion is occurred?

- i. _____
- ii. _____
- iii. _____

b) Signs that you see after death/abortion has occurred?

b.1. In cows aborted

- i. _____
- ii. _____
- iii. _____

b.2. In aborted fetus

- i. _____
- ii. _____
- iii. _____

8. What do you suspect as a possible source of infection to your animals

- a) Newly introduced animal to your herd
- b) Transmission from other animals with in the herd
- c) Transmission from other neighboring herd
- d) If other, Please mention _____

9. Is the diagnosis of the diseases confirmed? yes No

if yes, Who did the confirmation: _____
What was the result _____

10. What have been done as a reproductive diseases prevention and control strategy in your area for different diseases if available?

- a. _____
- b. _____
- c. _____

11. Does your animals are vaccinated for diseases during last two years? A. yes, B. No

12. What are the commonly applied vaccinations for your herd in general? And what is the frequency of vaccination for different vaccines during last two years?

- a. Vaccination against _____ frequency it is done _____
- b. Vaccination against _____ frequency it is done _____
- c. Vaccination against _____ frequency it is done _____

Section V. CALF HEALTH MANAGEMENT

- 1. Do you separate pen for cave housing a. yes b. no
- 2. If yes, for Question 1, what type of house is it?
a. Concrete wall b. earthen wall c. aside to dam's barn d. other, specify _____
- 3. When does clave feed colostrum
a. Within first 3 hours b. within first 6 hours c. within first 12 hours d. after 12 hours
- 4. Do your calve experience diarrhea when feed colostrum for first time? A. yes b. no
- 5. If yes, for the above question above, what do you do?
a. Stop suckling b. continue suckling c. give local treatment d. give modern treatment
- 6. Do you know vaccines are available for calves to protect from diseases? A. yes b. no
- 7. Do you give/make your calves get vaccination A. yes b. no
- 8. If no for question above, why not?
a. No access b. expensive c. professionals are not around d. other, specify _____
- 9. If yes, for question number 7, What vaccines are given to calves and where is the source
a. Vaccine _____ source _____
b. Vaccine _____ source _____

- c. Vaccine _____ source _____
d. Vaccine _____ source _____
10. Do you know dam (cows) should be vaccinated to common diseases to protect the calf health? A. yes b. no
11. Do your dam (cows) vaccinated for common diseases to protect calf health?
a. Vaccine _____ source _____
b. Vaccine _____ source _____
c. Vaccine _____ source _____
12. What are common diseases affecting your calf?
a. Disease _____ affected age _____
b. Disease _____ affected age _____
c. Disease _____ affected age _____
d. Disease _____ affected age _____
13. What do you do when your calves are diseased?
a. Treat myself b. take animal health post c. take to clinic d. not treated
14. Are your calves respond to treatments (cured from disease) made to diseases? A. yes b. no
15. At what distance do the veterinary service available to your home?
a. Below 500m b. 500m-2kms c. between 2-10kms d. above 10 kms
16. How many calve are diseased due to different diseases in your herd during last two yeras?
_____ calf/calve from _____ total calves in the herd
17. How many calve are diseased due to different diseases in your herd during last two yeras?
_____ calf/calve from _____ total calves in the herd
18. What are the major diseases affected calves during last two years? (in order of their importance from high to low)
a. _____
b. _____
c. _____
d. _____
19. Do you apply any disease prevention and control strategy to reduce or avoid diseases in calves? A. yes
b. no
20. If no for the question above, why?
