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Crossbreeding challenges and its effect on dairy cattle performances in Amhara region, Ethiopia.

Getu A, Guadu T, Addisu Sh, Asefa A, Birhan M, Mogese N, Chanie M, Bogale B, Alebie A, Feresebhate A, Fantahun T, Mitiku T.

Online J. Anim. Feed Res., 6(5): 96-102, 2016; pii: S222877011600013-6

Abstract

At the beginning, purposive sampling techniques were conducted to select dairy potential zones with the aim of identifying dairy cattle genetic improvement trends in Amhara region which was initiated by the university of Gondar, Ethiopia. Following that north Gondar, south Gondar and west Gojam zones were selected for the study in 2016. A systematic simple random sampling method was considered to select market oriented dairy owners. Primary and secondary data was generated from owners and experts using semi structured questioner, respectively. Therefore the result indicated that the local animals have better in test and odder of their product. However, the productivity is the current challenge to afford the demand driven by the society. According to the data obtained from the interview, cross breeding is an alternative option to respond for the demand grown even if the breeding strategy was at random. According to the respondents' saying, the bench mark for the blood level of the improved genetic resource under our production system is 75:25 local to exotics than 50:50 (under dominant hetrosis) in different aspects like productivity even external body condition and appearances. Mean age at first female sexual maturity was 3.9+1.5, 2.6+0.23, 2.6+0.23, 3.14+1.5, 2.4+0.52 years with average mean age of 3.01±0.94 years and as well as first male sexual maturity was 4.2±0.28, 3.12±0.05, 2.65±0.25 and 2.10±0.11 with average mean age of 3.02±017 years in local, F1, F1x Local and F1x Exotics cattle, respectively. Whereas the blood level of exotic one is increased, the environmental interaction effect is over than the traits governed by the genotype. Disease, feed, drug, liquid nitrogen and market are the great challenge of dairy production with the weighted index value of 0.25, 0.12, 0.31, 0.20 and 0.12, respectively. Therefore, the result from this survey was indicative and brought supportive information.

Key Words: Cattle, Crossing, Effect, Improvement, Local, Performance, Ethiopia

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Case Report

Therapeutical management of tetanus in Kundhi buffalo calf at Hyderabad, Sindh.

Yousaf A, Abbas M, Laghari RA, Kachiwal AB, Jamil T, Abbas U.

Online J. Anim. Feed Res., 6(5): 103-106, 2016; pii: S222877011600014-6

Abstract

The study was going to evaluate the therapeutic management of kundhi buffalo calf suffering from tetanus in Sindh (Pakistan). It was caused by a specific neurotoxin produced by Clostridium tetani in necrotic tissue. Tetanus was diagnosed in Kundhi buffalo calf on the basis of their clinical signs, high temperature, contracting of whole body muscles and arduousness of hind legs that is developed into the whole body of an animal. Positive rods shaped Clostridium tetani were present in the blood of the diseased animal. Treatment was recommended with anti-tetanus serum, Penicillin G Procaine, Meloxicam, Chlorpromazine, Dexamethasone and Dextrose 5%. Feeding to the calf through the stomach tube and the urinary catheter was administered to ease out the problem of urine retention. After treatment for 10 days animal complete recover to the healthy condition.

Key Words: Kundhi Buffalo Calf, Clostridium Tetani, Clinical Manifestation, Treatment, Management

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Research Paper

Crop residue quality loss and forage conservation strategy in Mecha districts of Amahara Region, Ethiopia.

Birhan M, Mekuriaw Y, Asefa A, Addisu Sh, Getu A.

Online J. Anim. Feed Res., 6(5): 107-112, 2016; pii: S222877011600015-6

Abstract

A cross-sectional survey was employed during the first phase of the research to collect primary facts on major crop residues growing in the four peasant associations (PA's) of Mecha district West part of Amahara region. The objectives of the research were; to investigate the average harvesting time and conservation techniques of crop residues in the study area and to fill the gaps in the skill of improved forage harvesting and conservation techniques of the farmer. A semi structured questioner was employed to interview the farmers in each respective peasant association (PA's). Data collected from the survey was administered in excel spread sheet for further process and analyzed using SPSS version 21. The research findings 159 (99.3%) of the respondents have the experience of harvesting the crop residue for animal feed, while 1 (0.7%) was not practiced for harvesting of the residues may be the animal grazed by cattle as stand feeding. The other findings on collecting and transporting of the crop residue (CR) to their home was 154 (97.3%) which depicts to their home for dry period feeding of their livestock, while other 6 (2.7%) was not used for harvesting and transport the CR at all, this may be due to the residues consumed as stand feeding. The research result also significantly showed that (73.7%) of which 11.3 and 22.7% used the residues improvement mechanism by urea treatment and chopping mechanism respectively. Whereas 44.49 (26.3) were not used any improvement mechanism. The feeding of the CR for oxen, milking cow and heifer were fed to their animal about 68.8, 62.7 and 42.2 respectively. Again the research significantly showed that, 149 (93.9%) of the interviewers have showed communal grazing land in their vicinity whereas, 11 (6.1%) do not have communal grazing land in the respective area. Since, the CR is very paramount important for

animal feed and one of the drought escape feeding strategy. Therefore, CR quality loss in each harvesting stages and further laboratory analysis should also be done.
Keywords: CR, Quality Loss, Conservation, Strategy, Amahara Region, Ethiopia.
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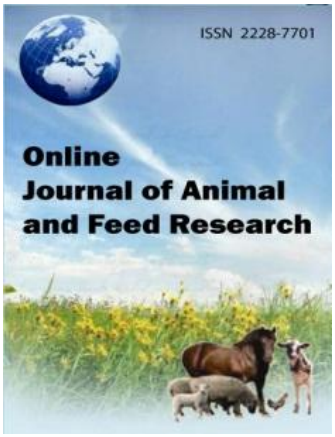

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CROSSBREEDING CHALLENGES AND ITS EFFECT ON DAIRY CATTLE PERFORMANCES IN AMHARA REGION, ETHIOPIA

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ABSTRACT: At the beginning, purposive sampling techniques were conducted to select dairy potential zones with the aim of identifying dairy cattle genetic improvement trends in Amhara region which was initiated by the university of Gondar, Ethiopia. Following that north Gondar, south Gondar and west Gojam zones were selected for the study in 2016. A systematic simple random sampling method was considered to select market oriented dairy owners. Primary and secondary data was generated from owners and experts using semi structured questioner, respectively. Therefore the result indicated that the local animals have better in test and odder of their product. However, the productivity is the current challenge to afford the demand driven by the society. According to the data obtained from the interview, cross breeding is an alternative option to respond for the demand grown even if the breeding strategy was at random. According to the respondents' saying, the bench mark for the blood level of the improved genetic resource under our production system is 75:25 local to exotics than 50:50 (under dominant hetrosis) in different aspects like productivity even external body condition and appearances. Mean age at first female sexual maturity was 3.9+1.5, 2.6+0.23, 2.6+0.23, 3.14+1.5, 2.4+0.52 years with average mean age of 3.01±0.94 years and as well as first male sexual maturity was 4.2±0.28, 3.12±0.05, 2.65±0.25 and 2.10±0.11 with average mean age of 3.02±017 years in local, F1, F1x Local and F1x Exotics cattle, respectively. Whereas the blood level of exotic one is increased, the environmental interaction effect is over than the traits governed by the genotype. Disease, feed, drug, liquid nitrogen and market are the great challenge of dairy production with the weighted index value of 0.25, 0.12, 0.31, 0.20 and 0.12, respectively. Therefore, the result from this survey was indicative and brought supportive information.

Key Words: Cattle, Crossing, Effect, Improvement, Local, Performance, Ethiopia

ORIGINAL ARTICLE

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INTRODUCTION

Ethiopia boasts the largest livestock population in Africa. The livestock sector currently contributed 13-16 % GDP and comprises about 53 million head of cattle, almost all of which are local breeds. The sector plays an important role in economic development which contributing about 12% of the Gross Domestic Product (GDP). The female stock (comprising 55% of the total cattle population) and produces an estimated 3.2 and 0.82 billion liters of milk per year in Ethiopia and in the region, respectively (FAO 2005; CSA, 2012). The average lactation milk production for the indigenous cows ranges from 494–850 liters per 1.5 years under traditional management systems which are translated into 1.54 liters per cow per day (CSA, 2008).

The above report indicated that the productive and reproductive potentials of Zebu cattle are relatively low. Therefore, crossbreeding with *B. Taurus* (which combines additive, dominance and epistatic effects of the two genotypes) is recommended to ensure better productive and reproductive performance production of the hybrids. Consequently, in Ethiopian history, domestication and the use of conventional livestock breeding techniques for genetic improvement of dairy cattle to enhance milk production of local breeds is over about six decades (Leakey, 2009). It also appears important to estimate the expected level of hetrosis for traits of economic interest in dairy cattle in order to evaluate the profitability of crossbreeding (Mauro et al., 2009). This program was launched during the invention of Ethiopia by Italy with importation of exotic dairy cattle breeds. Later on, the first livestock development project (1958-1963) created the Dairy Development Agency (DDA) that was concerned mainly with the development of commercial dairy farms in Addis Ababa (Fekadu, 1990). Following this Chilalo Agricultural

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Development Project (CADU), an integrated project established jointly by the Ethiopian and Swedish Governments, in Arsi region initiated intensive small scale dairy development in Ethiopia in 1967/68 was established (Kiwuwa et al., 1983). This was followed by the Wolaita Agricultural Development Project (WADU) that was established in 1971 and funded by the World Bank, applied the CADU program (Haile mariam, 1994). The focus of the program was on increasing the milk productivity of local breeds through crossbreeding and distribution of F_1 heifers to farmers (Ethiopian Agricultural Research Organization, 2001).

Crossbreeding has resulted in good improvements in production of milk especially when supplemented with adequate management levels in terms of nutrition and disease controls. In spite of, the presence of large and diverse animal genetic resources, the productivity of livestock remains low in many regions of the country (Fikre, 2007). Artificial Insemination (AI) practicing as cattle genetic improvement program is coming with little success. The most important constraints associated with were loss of structural linkage between AI Center and service giving units, absence of collaboration and regular communication between National Artificial Insemination Center (NAIC) and stakeholders, lack of breeding policy and herd recording system, inadequate resource in terms of inputs and facilities, and absence of incentives and rewards to motivate AI technicians (Desalegn, 2008). However, lack of quantified information on the overall genetic improvement and supportive academicians, other activities and impact of germoplasms interventions on the diversity of indigenous farm AnGR (animal genetic resource) of Ethiopia in general and in the region in particular is the major problem. Therefore, the extents of exotic genotypes have been diffused into the indigenous populations, significance importance on dairy genetic improvement, and its progress and the level of dilution is not independently assessed. Therefore the study was carried out with the aim of quantifying the significant importance of cattle genetic improvement practices and its challenges in Amhara region, Ethiopia

MATERIAL AND METHODS

Description of the Study Area

The study was conducted in three zones and 9 districts of Amhara regional state starting end of 2015 to 2018. Amhara National Regional State (ANRS) is located in the north-western part of Ethiopia (fig 8.1). Geographically, it is situated between latitude 9°–13°45'N and longitude 36°–40°30'E. It is bounded by the Afar, Benishangul, Oromiya and Tigray regions in the east, south-west, south and north, respectively, and by Sudan in the west. The total area of the region is estimated at 170,152 km^2, which is about one-sixth of the country's total area (Abegaz, 1995). The region ranges from 600 m a.s.l. at Metema and 4520 m a.s.l. at Ras Dashen, North Gondar, which is also Ethiopia's highest point. The wide range of altitude is a major factor in determining the temperature range of the region. Generally, lowland areas (<1500 m a.s.l.) experience hot temperatures, while highland areas (>1500 m a.s.l.) experience relatively cooler temperatures. For example, in the hot to warm sub moist agro-ecological zone, where the altitude ranges from 600 to 1400 m a.s.l., the mean annual temperature range is 21–27°C while in the cold to very cold moist zone, where the altitude ranges from 2800 to 4200 m a.s.l., the mean annual temperature varies from 7.5°C to 16°C (BoA, 1991).

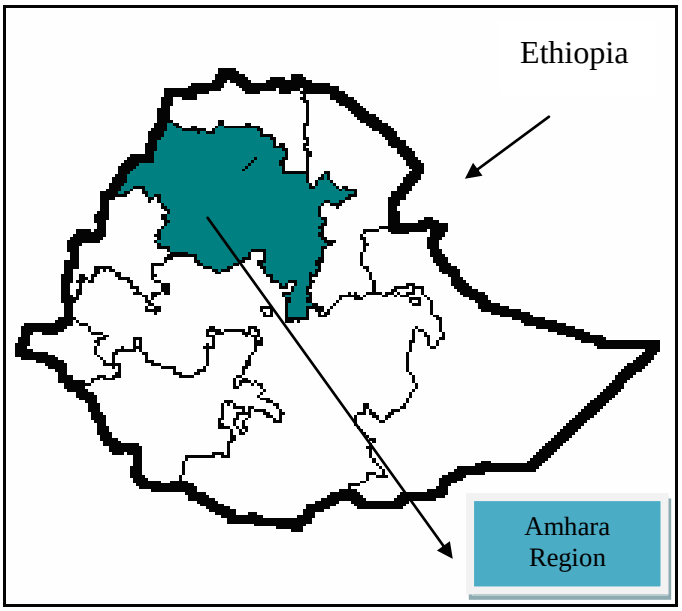

Figure 1: Map of Ethiopia showing green color where dairy improvements practices trends were evaluated

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Sampling Framework

First exploratory field survey was conducted in different parts of the region before the main data collection work were conducted to know the potential area for dairy genetic improvement practices have been conducted earlier. Potential genetic improvement practices area that have been conducted earlier like cross breeding trend, AI status, performance, problems, genetic progresses, population diversity change and proportion were documented from the selected three zones (nine districts).

Sampling Size and Techniques

Accordingly in the 3 representative zones a total of 9 districts and 27 PAs (3 per district) were considered. For semi-structured questionnaires n = 3456 owner respondents were randomly selected and interviewed.

Data Types

Data from questionnaire on productive and reproductive performances like milk yield, lactation length, puberty, age at first service, age at first calving, calving interval etc ability of each blood levels dairy cattle and managements aspects such as husbandry practices, major constraints and other related activities of respondents were documented through semi-structured questionnaires in the nearest two digital techniques adopted from livestock characterization research system manual (FAO, 2011).

Data Collection Procedures and Methods

Single rapid exploratory field observation and study area determination was carried out in the first year. Participatory rural appraisal (PRA), multi-stage and systematic simple random sampling technique, semi-structured questionnaires, trait characterizations were employed to dig up the required in formations. Therefore, purposively representative zones were selected with key informants and livestock experts based on dominant cattle crossing potential.

Data Management

Data was managed both in hard and softcopies. Therefore errors and confused records were corrected back immediately and physically verifying to the respondents, house. All collected data was entered and managed using Microsoft Excel computer programme and run into SAS several times to test its significance.

Statistical Technique

Data from focus group discussion was briefly summarized and synthesized and simple descriptive statistics for performance data, socio-economic characteristics and flock size was used and imported to (SAS, 2002) for windows. Tukey comparison test was used to compare sub factor means separately that was brought significant difference.

RESULT AND DISCUSSION

Socio-Economic Characteristics of the Respondents

The household characteristics of interviewed respondents are presented in Figure 2. About 25, 20.1, and 20% of the interviewed owners were females from north Gondar, west Gojam and south Gondar zones, respectively. While the majority of the respondents about 75% were fully involved in rural small scale mixed crop-livestock, the per urban and urban types crop-livestock production systems and used cattle as source of income for immediate expenses such as purchasing salt, coffee, clothe and animals' medicine. Most of the cows held on rural small scale farms were lactating during the study period, while higher percentages of dry cows were observed on peri urban and urban farms. Milking, processing, cleaning and selling of dairy products such as milk and butter was performed by adult males and females Most of the information was generated from males which indicated that mainly men were responsible for rearing of dairy cows. Moreover, about 22.5 % of the average interviewed farmers were illiterate while 50.7 % were read and write and 10.7% and 2.7% were literate respondents who had gone through primary first cycle (1-4) and primary second cycle (5-8), accordingly (Figure 2). Finally illiterate, read and write educational status of the interviewed farmers in the recent study was slightly similar to southern Ethiopia of 67.8 % and 18.9 % (Alemayehu, 2002). Thus, lower educational background obtained in the study area might have negative impact for technologies transfer.

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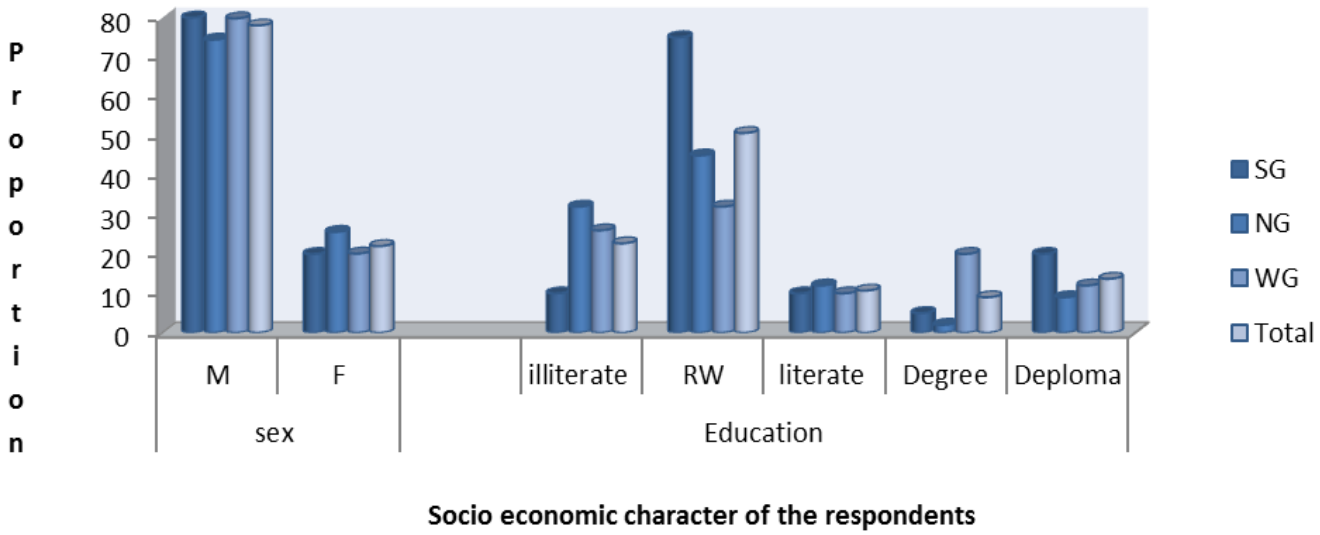

Figure 2. Education status and sex of the respondents in the study area
NG= north Gondar, SG= south Gondar, WG= west Gojam, RW= Read and write

Blood Based Cattle Size and Structures

The dominant breed structure of dairy cattle in the study area was hybrid followed by local. Indicating that overall average cattle size kept per household was 2.6±0.59, 0.60±0.26 and 3.22±0.15 for local, exotics and hybrid, respectively with a total herd size of 2.11±0.92. The same number of herd sizes observed in different districts might be because of potential based sampling technique. Finally, the respondents noted that herd size is not always the same mainly due to cattle used as source of immediate farmers' expense, occurrence of diseases and parasite. The lower proportion of the pure exotics and local one within the total herd population were observed. Thus, small numbers had given the fact that due to exotic adaptation problem and poor local performances which generate immediate expense.

Table: 1. Cattle structures and size (Least squire mean ± SE)

Breed	Cow	Ox	Bull	Calves	Heifer	Total
Local	2.71±0.28	1.90±0.22	1.02±0.22	2.10±0.77	0.22±0.20	2.6±0.59
F1	1.11±0.51	NA	1.22±0.89	1.01±0.22	NA	0.69±0.31
F1x Local	0.66±0.20	NA	NA	0.25±0.01	NA	0.45±0.01
F1x Exotics	1.20±0.81	NA	0.95±0.12	0.23±0.80	NA	0.80±0.58
Over all	1.42±0.45	1.90±0.22	1.06±0.41	0.89±0.42	0.22±0.20	2.11±0.92

NA= not available

Cattle Crossbreeding Trends and Its Effect

Data from questioner indicated that the average productive and reproductive performances effect of cross breeding was characterized under semi intensive production systems conducting through semi structured questionnaires. Almost all respondents and their replacement stocks for dairy production were obtained in the form of purchased and produced from their own herd. According to the respondents' point of view good performance of hybrid could be attributed to both genetic and supplementary feeds. The present finding discovered that mean age at first female sexual maturity was 3.9+1.5, 2.6+0.23, 2.6+0.23, 3.14+1.5, 2.4+0.52 years with average mean age of 3.01±0.94 years and as well as first male sexual maturity was 4.2±0.28, 3.12±0.05, 2.65±0.25 and 2.10±0.11 with average mean age of 3.02±017 years in local, F1, F1x Local and F1x Exotics cattle, respectively. Average productive and reproductive performances and their significant difference were estimated under existing farmers' management condition (Table 2). In this result average age at first female sexual maturity was almost similar to 3.17 and 2.58 year for local and F1 heifers, respectively (Belete, 2006). This indicated that the better performance of and existence of variability in production could be an indication of the potential for genetic improvement through

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cross breeding is appreciative. In the surveyed result average mean milk production was about 6.50±0.52 liters of milk produced per day per household out of which 22 % of milk was used for consumption, 67% of milk for processing and 14 % of milk for marketing so that the marketable amount was the smallest portion of the daily production and the production objective was inline and performance was not agreed with others like Zewdu (2004) and Belete (2006) with average milk of 2.8 litter per day per cow.

Table 2. Performance aspect of cattle in different blood levels (Lsm±SE) without the interaction effects of sites

Parameters	Blood Level				Over All Mean
	Local	F1	F1x Local	F1x Exotics	
ARLL Cattle	12.11±0.05^{a}	9.12±0.52^{b}	10.02±0.47^{b}	8.17±0.18^{c}	9.86±0.30
AAFFSM	3.9+1.5^{a}	2.6+0.23^{b}	3.14+1.5^{a}	2.4+0.52^{b}	3.01±0.94
AAFMSM	4.2±0.28^{a}	3.12±0.05^{b}	2.65±0.25^{bc}	2.10±0.11^{c}	3.02±017
Milk Yield	2.06±0.89^{d}	7.22±0.74^{b}	5.90+0.22^{bc}	10.8+0.15^{a}	6.50±0.52

ARLLC = Average reproductive life of local cow, AAFMSM = age at first male sexual maturity, AAFFSM = age at first female sexual maturity, a, b, c, list square mean with different superscript within a raw are significantly different (P < 0.05).

Marketing systems in the Study Area

Market value differences are a good indicator to evaluate the cross breeding effect on the difference blood levels of animals on the performances associated to current market prices. During data collection the communities were sold the live cattle, milk and butter from the ordinary day (Table 3). Respondents underlined that the prices are influenced by blood level of cattle, seasons and holidays. In the usual market the owners get better prices from matured male and female animals with the average prices of 28000.00, 14111.11±2.24, 20250.00±2.76, 22111.11±1.74 and 21888.89±1.74 from exotic cow, local ox, f1 cow, f1x local and f1x exotic cows, respectively. The prices obtained in this finding was significantly higher compared to blood level for matured animal resources with sub effects of blood levels up to 50% and F1 x local based on the current farmer production systems of the study area.

Market and road accessibility in particular, phenotypic nature of an animals, seasons and holydays in general play important role for the variations of prices in the study area. The present study showed that price per litter for milk and kilo gram for butter was got the same prices from mixed bloods except local products (Table 3). In the same time, due to lack of marketing access to main road and information during fasting live animal and their products prices were lower than the normal conditions. Odder of animal product and blood levels of an animal is the minimal influenced factor for the prices even if the difference is not this much significant.

Table 3. Mean prices birr of live cattle, milk and butter in ordinary market days (Lsm±SE)

Blood Levels	Heard Structure			By Products	
	Cow	Heifer	Ox	Milk	Butter
Exotic	28000.00±11	18000.00±0.25	17000.00±11	7.05±0.20	120.00±0.78
Local	4955.56±12	3811.11±0.11	14111.11±14	10.33±0.11	131.11±0.55
F1	20250.00±21	15125.00±025	14375.00±0.50	7.50±0.85	128.75±0.71
F1x Local	22111.11±0.85	17000.00±12	15222.22±41	7.78±0.22	134.44±12
F1X Exotic	21888.89±44	15111.11±14	13888.89±0.14	7.78±0.85	131.11±0.97

F1 and F2 is family one and family two, respectively

Major Constraints in dairy Production in the Study Area

Major constraints for dairy production are presented in Table 4. Among the reported constraints on the production which were prioritized by the respondents in the study area were presence of disease, feed, drug availability, lack of liquid nitrogen and marketing problem. Most respondents were frequently mentioned diseases as the first ranked dairy production constraint in all districts whereas liquid nitrogen was the third problems in districts. Market facilities including access to main road and unstable price were the bottleneck of dairy production in all study area where as poor veterinary and lack of extension services were identified as a common limitation in all districts. Constraints were not different from those reported by others in Ethiopia such as Zewdu (2004) and Belete (2006) who reported that the main constraint of dairy production system was disease and shortage of drug availabilities.

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Table 4. Rating of major constraints of dairy production in the study area

Major Constraints	Zones			Weighted value
	SGZ	NGZ	WGZ	
Disease Prevalence	0.18(4)	0.27(2)	0.26(2)	0.25(2)
Feed Shortage	0.11(3)	0.10(4)	0.13(4)	0.12(4)
Drug	0.35(1)	0.28(1)	0.30(1)	0.31(1)
Liquid Nitrogen	0.10(5)	0.26(3)	0.24(3)	0.20(3)
Market Access	0.15(2)	0.09(5)	0.06(5)	0.12(4)

NGS= north Gondar zone, SGZ= south Gondar zone, WGZ= west Gojam zone and ranks of constraints within a column bearing different numbers are different from each other. The importance of constraints was rated based attributed to productions by individual respondents; most important = 1, least important = 5

CONCLUSIONS AND RECOMMENDATIONS

A key informant is found to be a useful individual to identify everything in the area. Exotic, local and hybrid like F_1, F_1x local and F_2 x exotic were characterized from the three zones like north Gondar, south Gondar and west Gojam zones. In addition to reproductive diversity of cattle, marketing price difference which could be a base to estimate the effect and regret of the performances and give the powerful evidence on the general trends of crossbreeding.

When the blood level of exotic one is increased, the environmental interaction effect is over than the traits to be governed by the genotype. Disease, feed, drug, liquid nitrogen and market access are the great challenge of dairy production with the weighted index value of 0.25, 0.12, 0.31, 0.20 and 0.12, respectively. Therefore, constraints, performance regretted point is the main focusing area in addition to monitoring and measurable data from the next round which was bring supportive information on the performance interaction effect of the blood levels with measurable traits of the animals.

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Competing Interests

The competing interest is assured by copy right agreement and there is no computing interest in this research paper.

REFERENCES

Alemayehu Mengistu (2002). Forage Production in Ethiopia: A case study with implications for livestock production, Ethiopian Society of Animal Production (ESAP), Addis Ababa, Ethiopia, 106p.

Azage Tegegne, (2004). Urban livestock production and gender in Addis Ababa, Ethiopia. Urban agriculture magazine (The Netherlands), 12: 31-32.

Belete Anteneh (2006). Studies on Cattle Milk and Meat Production in Fogera Woreda: Production Systems, Constraints and Opportunities for Development.

BoA (Bureau of Agriculture). (1991, Ethiopian calendar). Annual Report (Amharic version). BoA, Bahir Dar, Ethiopia. 238 pp.

CSA (2011). Agricultural sample survey 2010/11, 2: statistical bulletin 505. Report on livestock and livestock characteristics (prevent peasant holdings), Addis Ababa, February 2011, 21.

CSA (2008). The federal democratic republic of Ethiopia central statistical agency and agricultural sample survey 2015 /16 (2008 E.c.) (September – December, 2015) Agricultural Sample Survey Farm Management Report 2015-16 (2008).

Desalegn Gebremedhin, 2008 Assessment of problems/constraints associated with artificial insemination service in Ethiopia. MSc thesis, Addis Ababa University, Ethiopia.

Ethiopian Agricultural Research Organization (EARO), (2001), 1. Back ground paper on developing animal breeding policy working paper. January, 2001, 21pp.

FAO (Food and Agriculture Organization of the United Nations), (2011). Guideline for the In Vivo Conservation of Animal Genetic Resources. Rome (Draft).

FAO (Food and Agriculture Organization of the United Nations). (2005). *Production yearbook*. FAO, Rome, Italy.

Fekadu G, 1990 Pastoral nomadism and rural development. In: Ethiopia: Rural Development Options.

To cite this paper: Getu A, Guadu T, Addisu Sh, Asefa A, Birhan M, Mogese N, Chanie M, Bogale B, Alebie A, Feresebhate A, Fantahun T, Mitiku T. 2016. Crossbreeding challenges and its effect on dairy cattle performances in Amhara region, Ethiopia. *Online J. Anim. Feed Res*., 6(5): 96-102.
Scienceline/Journal homepages: www.science-line.com; www.ojafr.ir

Fikre Lobago, (2007). Reproductive and Lactation Performance of Dairy Cattle in the Oromia Central Highlands of Ethiopia with Special Emphasis on Pregnancy Period. Doctoral thesis, Swedish University of Agricultural Sciences, Uppsala.

Hailemariam Mekonnin, (1994). Genetic analysis of Boran, Friesian and crossbred cattle in Ethiopia. A PhD thesis submitted to the Swedish University of Agricultural Sciences, Department of Animal Breeding and Genetics, Sweeden.

Kiwuwa GH, Trail JCM, Kurtu MY, Getachew W, Anderson MF, Durkin J. (1983). Crossbred dairy productivity in Arsi Region, Ethiopia. ILCA Research Report No. 11, ILCA, Addis Ababa,

Leakey R, (2009) Impacts of AKST (Agricultural Knowledge Science and Technology) on development and sustainability goals. In Agriculture at a crossroads (eds B. D. McIntyre, H. R. Herren, J. Wakhungu& R. T. Watson), pp. 145–253. Washington.

Mauro Penasa, Riccardo Dal Zotto, Nicolás López-Villalobos and Martino Cassandro, (2009). Crossbreeding effects in dairy cattle; PhD Dissertation: Genetica, Biodiversità, Biostatistica E Biotecnologie Ciclo XXI, UniversitàDegliStudi Di Padova.

SAS (2002). Statistical Analysis System (SAS), SAS Users‟ Guide, Version 9.1, (SAS Institute Inc, North Carolina).

SPSS (2008). Statistical Package for Social Sciences. SPSS 16.0 for Windows. Chicago, SPSS Inc

Zewdu Wuletaw, (2004). Indigenous Cattle Genetic Resource, their Husbandry Practices and Breeding Objectives in Northwestern Ethiopia, MSc Thesis (unpublished), Alemaya, Ethiopia.

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THERAPEUTICAL MANAGEMENT OF TETANUS IN KUNDHI BUFFALO CALF AT HYDERABAD, SINDH

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ABSTRACT: The study was going to evaluate the therapeutic management of kundhi buffalo calf suffering from tetanus in Sindh (Pakistan). It was caused by a specific neurotoxin produced by *Clostridium tetani* in necrotic tissue. Tetanus was diagnosed in Kundhi buffalo calf on the basis of their clinical signs, high temperature, contracting of whole body muscles and arduousness of hind legs that is developed into the whole body of an animal. Positive rods shaped Clostridium tetani were present in the blood of the diseased animal. Treatment was recommended with anti-tetanus serum, Penicillin G Procaine, Meloxicam, Chlorpromazine, Dexamethasone and Dextrose 5%. Feeding to the calf through the stomach tube and the urinary catheter was administered to ease out the problem of urine retention. After treatment for 10 days animal complete recover to the healthy condition.

Key Words: Kundhi Buffalo Calf, Clostridium Tetani, Clinical Manifestation, Treatment, Management

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INTRODUCTION

The causative agent of tetanus in cattle's is bacterial gram positive microorganism *Clostridium tetani* which are a similar family of organisms which caused blacklegs (Bizzini et al., 1986). It is also called Lock Jaw disease (Bizzini et al., 1986). This microorganism can serve for several years as in spores form in the soil. This bacterial microorganism can enter the body of animals via injury of skin and access to deep tissue through the blood which had drumsticks appearance in the blood smear. These spores of this organism are very resistance to disinfectants, for example, acidified phenols take about 2 hours to kill them. The Injuries they may happen through many ways such as castration of animal, dehorning, tattooing, hoof trimming, docking, injection of medicines, surgery intervention, vaccination, insertion of item sand bacterial contamination during parturition the infection of this disease is due to rough sanitary condition of animals (Upadhyay et al., 2013).

Tetanus is the sporadic and ubiquitous disease that occur worldwide (Smith, 2002). Contaminated soil spores are attached to a wound of animals and go inside the body. Satisfactory circumstances of development for such microorganism happen that minor quantity of soil or an external item reasons to inner deep tissue necrosis. The organism remains in the unique position of contamination and reproduces and as result from the localized necrosis in deep tissue of muscle. Autolysis of bacterial cell occurs and thus they release neurotoxin. The neurotoxin is a zinc- binding protease which producing reserve for broadcast desires by stopping the discharge of neurotransmitters (Montecucco et al., 1995). Other clinical signs include twitching and tremors of the muscles, firmly fixed jaws (Lockjaw), protrusion of the third eyelid, and lameness with alert expressions, hyperesthesia, erected ears and dilated nostrils. Bloat can also, occur because the rumen stops working. In young calf from tetanus due to umbilicus contamination during parturition (Suleman, 1982). The mortality rate is low in adult ruminants while in young it may go up to 80% (Radostits et al., 2000). Treatment is not significance it in cattle with fully developed tetanus (Radostits et al., 2007). As concentrate giving in feeding to diseases animals also cause the production of toxin in the wound of jaws of the gastrointestinal tract where theses organism are the ordinary resident.

CASE PRESENTATION

Kundhi buffalo calf of 03 months old was presented at Department of Veterinary Medicine Clinic which was suffering from high fever with lock jaw having anorexia. The animal was not to be able to take food; On the other

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hand, there was the problem with mastication and urination. Additional signs exhibited by the animal included dilation of nostrils, hyperesthesia, drooling of saliva from mouth and urine retention.

Figure 1 - The hind limb stuck out stiffly behind and the forelegs forward.

Figure 2 - Sawhorse Posture

HISTORY AND CLINICAL OBSERVATION

According to the owner that it was injected with used and old needle by which inflammation and swelling occur at the site of injection. Initials treatment given as such as, diclofenac sodium 5cc, penicillin G procaine antibiotic 30000 IU per kg of body weight was given intramuscularly 10cc. At the time the animal feels better. While On next day, the rectal temperature of the calf was persistent at 107^{0}F, and the calf was depressed and anorexic. There was stiffness of the neck and jaw muscles, both the ears were erected with alert and anxious expressions. After that, boost spasm of spontaneous body muscles seemed with the fierce irregular association in head and neck area. Progressively the head and neck were stretched spinal region with bendy of the collar (Singh et al., 2009). The jaws of animals are lock and animal are not able to take food. Watery saliva was continued going out from the mouth of an animal. Legs of animals will be lengthy. Due to arduousness, ear and tail will be straight. Quick association of the third eyelid. Additional signs exhibited by the animal included dilation of nostrils, hyperesthesia, drooling of saliva from mouth and urine retention. The pretentious Kundhi buffalo calf had not given vaccine against the tetanus particular previously.

DIAGNOSIS

For the necessary blood test, the sample was collected through disposable syringe from jugular vein with anticoagulant was taken for laboratory test. The wound area was palpated and there was some pus containing swelling. A smear collected from the location of injection was collected for the documentation of diseases microorganism. The tissue sample from the same site was also, taken for culture and isolation of *Clostridium tetani*.

Smear Preparation

To prepare a fresh smear, a sterilized glass slide was taken and touched with the deep tissues of the site. The slide was then immersed in absolute alcohol to fix and then air dried at room temperature (Congera et al., 2009)

Graham's staining technique

The prepared slide was flooded with basic crystal violet for a minute and washed with tap water. Then Graham's iodine was applied for one minute and washed with tap water. After decolorized of the slide with alcohol for 15 seconds and washed with tap water. At last, the counter stain "safranin" was applied for 30 minutes, washed with tap water and dried. Using the compound microscope the slide was examined under oil immersion lens (100×) as used by (Khan et al., 2016). After the comprehensive assessment of the slide under the microscope, a violet colure Graham positive rod shaped bacteria has appeared like drumsticks.

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TREATMENT

Shifted the affected animal into isolated room and cotton plugs were applied in both ears to reduce hyperesthesia then treatment of affected Kundhi buffalo calf was continued as documented by (Radostits et al., 2000), such as first administrated the multivitamin and Dextrose 1,500 IU I/V to reduce the weakness and dehydration intravenously in jugular vein for first 8 days. Then administrated sedatives such as diazepam as 0.3 mg/kg I/M of live animal body weight. After that give broad spectrum antibiotic such as penicillin G Procaine @ 30,000 IU per kg of body weight I/M every day for 10days. The affected calf was kept in dark room to escape from hyperesthesia (Boora et al., 2013). An I/V injection of ATS (anti-tetanus serum) @ 1,500 IU is recommended also administrated extra injection in the inflamed area of diseased animals to low the toxicity of the microorganism in the body of the animal (Bhikane et al., 2005). Dexamethasone used as lifesaving drugs and to relax the muscles stiffness. Chlorpromazine for deep body muscle relaxation, as well as escape suffocation, was used @ 50 mg/ kg I/M and Meloxicam *(Diclostar)* @ 0.6 mg/kg bwt used to reduce pain and inflammation. For rehydration and neutralization of going toxin, intravenous fluid therapy (Intalyteb) @ 30 ml/kg b.w.t. I/V was used for five days. Vitamin B complex (TribivetB) 10 ml, AnistaminB 5 ml as antihistaminic I/M was used for 10 days. The feed was given through a stomach tube and urinary catheter was administered to ease out the problem of urine retention. After continues treatment and care of the animals, it can be capable for stand after 4 days, whereas it completely recovered after 10 days.

RESULT AND DISCUSSION

In the current diseases animal, bacterial microorganism *C. tetani* inside in tissues throughout the use of unhygienic old used injection. The organism developed them will start to produce neurotoxins, which directly affect CNS (Radostits et al., 2007). Patient in the present case was completely anorexic; therefore the calf was fed through the stomach tube, which is fully in line with that of (Lombar et al., 2013). A continue and use of high dose treatment we succeed fully to save the life of young kundhi buffalo calf. Use of high dose of ATS, as a result of that toxin, are neutralized with antitoxin and circulated in the blood which can't cross the BBB (blood brain barrier) (Coetzer et al., 2004). The Meloxicam provided relief from pain and inflammation (Khan et al., 2016). Use of diazepam as sedative and dexamethasone which relaxes the muscles as well as internal organ such as the diaphragm, and give wide relief to continue the normal respiration. Meloxicam used for the painkiller and Antipatriotic. Dextrose and multivitamins are used due to lock jaws that animal was not capable due to feeding orally.

CONCLUSION

From the current case, it is concluded that it is necessary for tetanus to take the full history about urination and nutrition status of the animals from the owner. If the animal has urine problem for a long time, then the urinary catheter should be used to relieve out the problem of urine retention. Also, stomach tube should be used in case of firmly fixed jaws for the feeding of the animals to avoid debility.

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Authors' contribution

Dr. Adnan Yousaf was main author of the study carried out. Dr. Riaz Ahmed Laghari was supervisor, Muhammad Abbas and Tahseen Jamil assisted in results analysis, Dr. Allah Bux Kachiwal was main advisor in treatment line and Dr. Jameel Ahmad Gandahi and Uzma Abbas helped in proposal making.

Competing interests

The authors declare that they have no competing interests.

REFERENCES

Bhikane AU, Yadav GU, Karpe AG and Ambore BN (2005). Tetanus in a deoni calf - A case report. IntasPolivet 6: 42-43.

To cite this paper: Yousaf A, Abbas M, Laghari RA, Kachiwal AB, Jamil T, Abbas U. 2016. Therapeutical management of tetanus in Kundhi buffalo calf at Hyderabad, Sindh. *Online J. Anim. Feed Res.*, 6(5): 103-106.
Scienceline/Journal homepages: www.science-line.com; www.ojafr.ir

Bizzini B (1986). Clostridium tetani In: Pathogenesis of bacterial infection of animals. Gayles, C.L. and Theon C.O, (Eds) Ames: Iowa State University Press.

Boora AK, Yadav S, Jain VK, Rana N, Singh KP and Balhara AK (2013) Puerperal Tetanus in Water Buffalo – A Case Report. *Journal of Buffalo Science* 2: 53-55

Coetzer JAW and Tustin RC (2004). Infectious Diseases of Livestock. 2nd Edn. Vol. 3.

Congera AD and Lucile MF (2009). A Quick-Freeze Method for Making Smear Slides Permanent. Stain Technology, 28 (6): 281-283.

Khan A, Abbas Raza SH, Saeed M, Arain MA, Shoaib M, Babazadeh D, Abbasi IHR, Muhammad Zakaria H, Ali Siyal F and Nawaz Soomro R (2016). Diagnosis and Therapeutic Management of Tetanus in Female Buffalo Calf at Tandojam, Sindh, Pakistan. *World Vet. J.* 6(2): 66-69.

Lombar R and Zadnik T (2013). Tetanus-three cases in calves. XII Middle European Buiatrics Congress, Belgrade, Serbia, 5-8 June. Faculty of Veterinary Medicine, University of Belgrade and Servian Buiatrics Association. Pp 35-45.

Montecucco C and Schiavo G. (1995). Structure and function of tetanus and botulism neurotoxins. Quarterly Review of Biophysics 28:423-27

Radostits OM, Gay CC, Hinchcliff KW, and Constable PD (2007). A Text Book of the Diseases of Cattle, Horses, Sheep, Pigs and Goats. 10th end. Book power.

Radostits OM, Gay CC, Hinchcliff KW, Constable PD (2000), Veterinary Medicine, Saunders, Elsevier, 822 - 824.

Upadhyay, Hussain K and Singh R (2013). Bovine Neonatal Tetanus: A Case Report Buffalo Bulletin. 32-1

Singh SK, Dimri and Kumar A (2009). Therapeutic management of tetanus in Buffalo calves. IntasPolivet. 10: 286-88.

Smith MO (2002). Tetanus (Lockjaw). In: Large Animal Internal Medicine, 3rd Edition. Pp 995 - 998.

Suleman O (1982). Mortality from tetanus neonatorum in Punjab (Pakistan). Pak Pediatr J. 6 (2-3): 152-83.

To cite this paper: Yousaf A, Abbas M, Laghari RA, Kachiwal AB, Jamil T, Abbas U. 2016. Therapeutical management of tetanus in Kundhi buffalo calf at Hyderabad, Sindh. *Online J. Anim. Feed Res*., 6(5): 103-106.
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CROP RESIDUE QUALITY LOSS AND FORAGE CONSERVATION STRATEGY IN MECHA DISTRICTS OF AMAHARA REGION, ETHIOPIA

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ABSTRACT: A cross-sectional survey was employed during the first phase of the research to collect primary facts on major crop residues growing in the four peasant associations (PA's) of Mecha district West part of Amahara region. The objectives of the research were; to investigate the average harvesting time and conservation techniques of crop residues in the study area and to fill the gaps in the skill of improved forage harvesting and conservation techniques of the farmer. A semi structured questioner was employed to interview the farmers in each respective peasant association (PA's). Data collected from the survey was administered in excel spread sheet for further process and analyzed using SPSS version 21. The research findings 159 (99.3%) of the respondents have the experience of harvesting the crop residue for animal feed, while 1 (0.7%) was not practiced for harvesting of the residues may be the animal grazed by cattle as stand feeding. The other findings on collecting and transporting of the crop residue (CR) to their home was 154 (97.3%) which depicts to their home for dry period feeding of their livestock, while other 6 (2.7%) was not used for harvesting and transport the CR at all, this may be due to the residues consumed as stand feeding. The research result also significantly showed that (73.7%) of which 11.3 and 22.7% used the residues improvement mechanism by urea treatment and chopping mechanism respectively. Whereas 44.49 (26.3) were not used any improvement mechanism. The feeding of the CR for oxen, milking cow and heifer were fed to their animal about 68.8, 62.7 and 42.2 respectively. Again the research significantly showed that, 149 (93.9%) of the interviewers have showed communal grazing land in their vicinity whereas, 11 (6.1%) do not have communal grazing land in the respective area. Since, the CR is very paramount important for animal feed and one of the drought escape feeding strategy. Therefore, CR quality loss in each harvesting stages and further laboratory analysis should also be done.

Keywords: CR, Quality Loss, Conservation, Strategy, Amahara Region, Ethiopia.

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INTRODUCTION

Ethiopia is known for having large livestock populations of which 80% are found in the highlands where intensive mixed crop farming is the predominant activity using ox traction (Hurissa and Eshetu, 2002). Crop residues, particularly cereal residues are the major livestock feed mainly in the dry seasons of the year, providing 40-50% of the total annual livestock feed consumption (Malede and Mastewal, 2012). Evaluation of nutritional value of crop residues shows that they are generally low in digestibility, protein content as well as the energy value Lulseged et al. (2003). Crop residues are fibrous by-products which result deferred from grain cultivation so as to include leaves, leaf sheath and stems. The availability of crop residues at the farm level depends not just on production levels but also on a variety of social and economic factors Smith et al. (1990). Crop-livestock integrated farming is complex and dynamic with many interacting biophysical resources and socio-economic factors De Leeuw and Nyambaka (2005).

Ethiopia having huge livestock population couldn't meet the demand in animal origin food for the increasing human population mainly due to poor animal productivity due to poor nutrition, disease and genetic makeup (Duguma et al., 2012). A long history of animal nutrition research, feed assessment and development interventions that promote improved feeding technologies for smallholders, has given scanty returns and increasing domestic and export demand for livestock products, particularly for meat, is an important opportunity for Ethiopia's smallholders to improve their livelihoods Tolera et al. (2012).

Improving the management and use of the vast communal grazing land and crop residues, could contribute significantly alleviate the problem of feed shortage in the country Gebremedhin et al. (2009). This feed requirement would not be convene under any climatic condition (Ministry of Agriculture and ILRI, 2015). There is therefore a

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need for forage conservation and introducing fodder trees in lowland areas and enhancing the quality of crop residues and reduce loses during grain harvesting in the highlands of the country (Sarkunas et al., 2004). But little is known about the appropriate conservation practice of crop residues and the acceptability of highland areas so that enhancement of crop residues practices in the highlands of the country (Lukuyu et al., 2009).

Statements of the problem

The need to improve utilization of crop residues in developing nation has received considerable attention in recent years, but there have been few studies on the quality and quantity lost the crop residue, the availability of crop residues is closely related to the farming system, the crop produced and the intensity of cultivation. The potential for use of crop residues as livestock feed is greatest in integrated crop/livestock farming systems of the country. Where crop and livestock production are segregated, most crop residues are wasted. Crop residues are also wasted or used for non-feed purposes in many smallholder crop/livestock systems in developing countries which are used for fire wood and other small house construction purposes. Therefore; crop residue is the major animal feed in highlands and central highlands of Ethiopia which feeds mostly for ruminant animal in the dry period of the year. Crop residues from major cereals crop (straw, hulls, husks, cobs, awns, chaff etc.) are the most important livestock feed.

Therefore, the aim of this research was to investigate the average harvesting time and fill the gaps in the skill of improved forage harvesting and conservation techniques in the study area

MATERIALS AND METHODS

Description of the study area

The study was conducted in Mecha district of West Gojam zone of Amahara region. Mecha district has the total land mass of 156027 hectare of which the actual and potential cultivated land is 72138 and 14418.88 respectively and the grazing land, forest and bush land becomes 14723 and 21553.5 hectare correspondingly and 6512 hectare is used for construction. The land escape of the Mecha district is flat, mountains and gorge which accounts 75%, 8% and 4% respectively. The annual average rainfall (2500mm), altitude range (1800-2500), soil type (93% red and 4% brown in color) and average temperature is 26 ^{0}C (CSA, 2011).

Research design and sampling procedure

In the districts four peasant associations (PA's) were selected and from each PA's 40 respondents were also used to collect primary data. All the research area were purposively selected based on the major crop grown and use of crop residue for animal feed and the presence of relatively high livestock population and its accessibility to conducted the research.

A cross sectional survey was conducted in six purposively selected districts of four peasant association (smallest administrative area in the district) in each districts. A total of 4 and 160 peasant association and farmers were participated in each respective district respectively. In each district, the selected peasant association, 40 modest farmers were selected to participate during the interview process for collecting the primary data and a total of 160 farmers were actively participated and interviewed during the research process.

RESULT AND DISCUSSION

Socio-demographic characteristics of the respondents

Age distribution of the repondants iwere varied beteewn 20 to 80 years of old while the mean age of the respondants was showed with value found 44.99 years of old and the standard devation (std) was also showed 9.99 during the research process.

The sex of the respondant was found 136 (88.9%) was showed male while, 17 (11.1%) was found female participants with the missing value 1 and 6 for female and male respectivelly. The education level of the respondants was found 23 (16 %), 88 (61.1 %) 32 (22.2 %) and 1 (0.7%) were found to be literate, iliterate, compeleted elementary school and compeleted high school respectively and 6.5 % was the misining value in which intervier may missed the required parameters during the interview process.

The major problems of the grazing land in the study area 105 (68.2%) was shifting of the grazing area in to crop land which could be either by illegal or by legal ordered by any government officials to resolve the shortage of youth people in the research area. the other constraints of the grazing land found to be 9 (5.8%) used the land for forest land as woodlots may be initiated by the government or by any individual farmers since if the any individual used the grazing land as a forest land the pressure in the side of any higher official is very minimal or may be

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enraged. the other problems which could not be known accounted about 29 (18.8%) as most important problem in the grazing land (Hatchson, 2006).

Livestock population varies from a single animal of cattle and equines and 16 to 67 populations of cattle and chicken respectively with the range from 2 which is donkey and 15 and 66 of cattle and chicken were found respectively in the study area.

Harvesting length of the crop residue may vary from a week up to more than three weeks that represented in the table above. In the table above, 55 (35.7%), 41 (26.6%), 26 (16.9%), and 21 (13.6%) of the of the crop residue were harvested after one week, after two week, three and above three weeks of cutting the grain correspondingly, whereas, 11 (7.1%) of the respondent may not have any information or idea about the various stages of cutting the CR as a whole, which has a similar result with (Daniel, 2005). During the harvesting stages of the crop residues, it perceptibly that, there is significant loss of nutritional quality due to over dried and lignifications process of the feed, the findings showed in agreement with the study (Nordblom, 2015).

Table 1 - Sex distribution of the respondants in the study area

Sex Items		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	139	88.3	88.9	88.9
	Female	20	11.0	11.1	100.0
	Total	159	99.4	100.0	
	Missing	1	.6	-	
Total		160	100.0	-	-

Table 2 - Educational level of the respondants in the study area

Education level		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Literate	27	14.9	16	16
	Iterate	92	57.1	61.1	77.1
	CES	36	20.8	22.2	99.3
	HSC	5	0.6	0.7	100
	Total	166	93.5	100	-

CES= Complete elementary school, HSC= High school complete

Table 3 - Major constraints of the Grazing land in the study area

Shifting Items		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Shifting of the grazing land into crop land	109	68.2	72.9	72.9
	Shifting of the grazing land into forest land	13	5.8	6.3	79.2
	Shifting of the grazing land into investment	5	0.6	0.7	79.9
	Any other	33	18.8	20.1	100.0
Total		160	100.0	–	–

Table 4 - Livestock population in the different area the research

Type of animal	N	Range	Minimum	Maximum	Std.
Cattle	152	15.00	1.00	16.00	2.98363
Sheep	56	14.00	1.00	15.00	2.57201
Goat	16	11.00	1.00	12.00	2.87228
Donkey	61	2.00	1.00	3.00	0.47102
Mules	37	0.00	1.00	1.00	0.00000
Horse	2	0.00	1.00	1.00	0.00000
Chicken	137	66.00	1.00	67.00	11.28170

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Table 5 - Length of time waited in the different stages of cutting of the residue

Items		Frequency	Percent	Std. Dev.	Std. Err of Mean
Valid	One week	59	35.7	0.497	0.046
	Two weeks	45	26.6	0.470	0.098
	Three weeks	30	16.9	0.447	0.200
	Above three weeks	25	13.6	0.577	0.333
	Total	160	92.9	0.501	0.041
Total		160	100.0	–	–

CR = crop residue, HRC, harvesting of crop residue, CCR, collecting of crop residue, UT, urea treatment, CGL, communal grazing land

Table 6 - Crop residue as basal feed and grazed by livestock

Different uses of CR	Yes		No		Total	
	Count/n	Row N %	Count/n	Row N %	Mean	SD
HCR	146	99.30%	4	2.70%	1.03	0.16
CTR	143	97.30%	1	0.70%	1.01	0.08
Chopping/Cutting	34	22.70%	116	77.30%	1.77	0.42
Urea Treatment	17	11.30%	133	88.70%	1.89	0.32
Adding Salt	73	48.70%	77	51.30%	1.51	0.5

CR, crop residue, HCR, harvesting of crop residue, CCR, collecting of crop residue, UT, urea treatment, CGL, communal grazing land, CTR, collect and transport the residues

Table 7 - Feeding strategies of crop residue in the study area

Type of animal	Count/n	Row N %	Count/n	Row N %	Mean differ	St.dv	CI (0.5)
Milking Cow	94	62.70%	56	37.30%	1.37	0.49	1.29
Ox	119	78.80%	32	21.20%	1.21	0.41	1.14
Heifers	63	42.30%	86	57.70%	1.58	0.50	1.49
sheep	13	8.70%	136	91.30%	1.91	0.28	1.21
Communal grazing land	139	93.90%	9	6.10%	1.06	0.24	1.22

CR= crop residue, HRC, harvesting of crop residue, CCR, collecting of crop residue, UT, urea treatment, CGL, communal grazing land

The use of the CR in the study area were showed in the different peasant association (PA's) found to be 146 (99.3%) have the experience of cutting the CR as animal feed, while 143 (97.3%) of the respondents have also the collecting and storing the CR in the homestead for dry period feeding. moreover, using the mechanism of treating the residue showed 34 (22.7%) of the farmer have the experience of chopping/cutting the residue to increase the intake of the livestock however, 77.3% of the participants were not used this mechanism before giving to their animal. whereas around 17 (11.3%) used to improve the CR by urea treatment while 133 (88.7%) of the farmer have no any experience of using urea treat for increase the quality of CR as a whole in the research area. adding salt in the basal feed 73 (48.7%) of the farmer used to add salt whereas 77 (51.3%) have not used to add salt in the animal feed the result in agreement with the findings Mengistu (2005).

The feeding strategy of the CR 94 (62.7), 119 (78.8), 63 (42.3%) and 13 (8.7%) of the feed were consumed by the cattle (milking cow, oxen, heifer and sheep) respectively and 139 (93.9%) of the community have a communal grazing land in their vicinity of the study area. since, the farmer has their own preference of feeding their animal due to the function of the cattle and first for ploughing of oxen and lactating cows respectively, has similar result with Sintayehu et al. 2008).

Conclusion and Recommendation

This study highlighted about the use of crop residue which is one of the most versatile and basal feed for livestock. Therefore, crop residue is one of the most important to drought season escaping feeding steratgy in the study district. Hence, different stage of harvesting and loss of quality during each respective phases of cutting should be evaluate in its quality loss in the nutritional laboratory.

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Competing interests

The authors declare that they have no competing interests.

REFERENCES

Central Statistics Autherity (2011). Agricultural Sample Survey Statistical bulletin. Report on livestock and Livestock characteristics (prevent peasant holdings), Addis Ababa, pp505.

Daniel K (2005). Role of crop residues as livestock feed in Ethiopian highlands. International livestock research institution. Pastures and Forage Crops. Ministry of Agriculture South-Eastern Zone, Ethiopia.

De Leeuw PN and Nyambaka R (2005). An assessment of maize residues as a source of feed for livestock in smallholder farms in semiarid Kenya.. International Livestock Research Institute (ILRI), Nairobi, Kenya. Feed Resources Newsletter 5 (2): 1-7.

Duguma B, Tegegne A and Hegde BP (2012). Smallholder Livestock Production System in Dandi District, Oromia Regional State, Central Ethiopia. Global Veterinaria 8 (5): 472-479.

Gebremedhin B, Hirpa A and Berhe K (2009). Feed marketing in Ethiopia: Results of rapid market appraisal. Improving Productivity and Market Success (IPMS) of Ethiopian farmers project Working Paper 15. (ILRI) International Livestock Research Institute Nairobi, Kenya, pp. 64.

Hatchson D (2006). Dairy Beef Production Manual. Ethiopian Sanitary and Phytosanitary Energy Agency (IAEA) in Zambia. University of Reading, Reading, United Kingdom.

Hurissa B and Eshetu J (2002). Challenges and opportunities of livestock marketing in Ethiopia. Paper prepared for the 10th annual conference of the Ethiopian Society of Animal Production (EASP), Addis Ababa, Ethiopia, 22–24 August 2002.

Lulseged G and Jamal M (2003). The potential of crop residues, particularly wheat straw, as livestock feed in Ethiopia. (IAR) Institute of Agricultural Research, Addis Ababa, Ethiopia, pp219.

Lukuyu BA, Kitalyi A, Franzel S, Duncan A and Baltenweck I (2009). Constraints and options to enhancing production of high quality feed in dairy production in Kenya, Uganda and Rwanda. ICRAF Working Paper no. 95. Nairobi, Kenya: World Agroforestry Centre, p. 92.

Malede B and Mastewal B (2012). Role of Seeding rates and cutting stages on yield and quality of forage intercropping in the case of North Gondar zone, Ethiopia, Lambert Academy Publishing, Germany, p. 56-73.

Mengistu A. (2005). Animal Feed Resources for Small-scale Livestock Producers. Proceedings of the 2nd PANESA Workshop Held in Nairobi, Kenya, P. 143-162.

Ministry of Agriculture and ILRI (2015). Feed priorities in the Ethiopian livestock master plan. Ethiopia Livestock Master Plan Brief 4. Nairobi, Kenya, PP239.

Nordblom T (2015). The importance of crop residues as feed resources in West Asia and North Africa. processing and marketingsystems of Shashemene–Dilla area, South Ethiopia Producers. Proceedings of the 2nd PANESA Workshop Held in Nairobi, Kenya, P. 65.

Sintayehu Y, Azage T and Gebremedhin AB (2008). Dairy production, processing and marketing systems of Shashemene–Dilla area, South Ethiopia, Report on MoA, Ethiopia, pp89.

Smith T, Manyuchi B and Mikayiri S (1990). Legume supplementation of maize stover. In: Dzowela B H, Said A N, Asrat Wendem-Agenehu and Kategile J A (eds), Utilization of research results on forage and agricultural by product materials as animal feed resources in Africa. Proceedings of the first joint workshop held in Lilongwe, Malawi, 5-9 December 1998. PANESA (Pasture Network for Eastern and Southern Africa)-ARNAB (African Research Network for Agricultural By-Products), ILCA (International Livestock Centre for Africa), Addis Ababa, Ethiopia. pp. 302-320.

Sarkunas M, Nansen P, Hansen J W and Paulikas V (2004). Effects of Mixed Grazing of First- and Second-year Calves on Trichostrongylid Infections in Lithuania. Veterinary Research Communications. 24(2): pp994.

Tolera A, Yami A, Mengistu A, Alemu D, Geleti D, Assefa G, Gizachew L, Bediye S and Woldesemayat Y (2012). Livestock Feed Resources in Ethiopia: Challenges, Opportunities and the Need for Transformation. National Feed Committee Report, Ethiopian Animal Feed Industry Association (EAFIA) and the Ministry of Agriculture and Rural Development (MoARD), Addis Ababa, Ethiopia. pp. 19-21.

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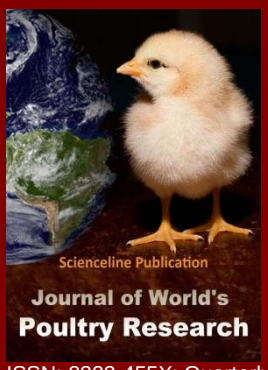

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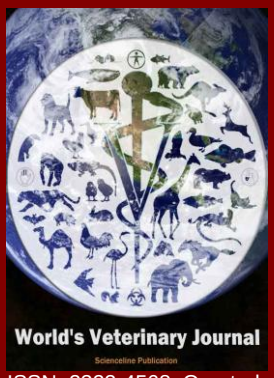

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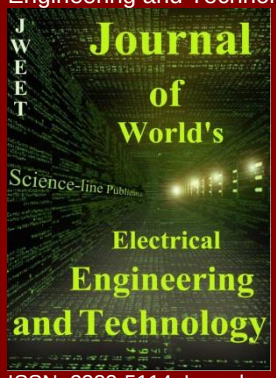

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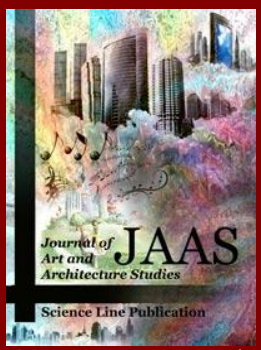

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