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### RESEARCH PAPER

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## Assessment of Productive and Reproductive Performances of Cross Breed Dairy cows in Debre Tabor Town

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### ABSTRACT

*The study was carried the overall objective to assess the productive and reproductive performances of crossbreed dairy cows in five small holder farm in Debre tabor town. Data were gathered by interviewed the owners of the farms. A descriptive statically tools was used to analyze the data. As 80% of the respondent reviled those cows were producing milk more than 10iitters per day and a lactation length average of 9 months. Furthermore, 60%of the respondents reviled that the calving interval for their cows were between 1.0-1.3 years and also 40%of the respondents reviled that their cows came to heat 2-3months post calving.80%of the respondents was reviled that age at first calving was 2.5-3 years. Whereas 20%of the respondents respond that their cows have calved up to 2.1 year. Based on the result obtained it is recommended that awareness about Artificial insemination should be created, in addition to management to improve reproduction and production performance of dairy cows.*

*Key words: Dairy Cows, Productive Performance and Reproductive Performance.*

## INTRODUCTION

Cattle play an important role in the economy of sub-Saharan Africa, providing traction power, milk and meat, transport, manure for crop production, cash income from sales of cattle products and a safety net of capital assets to face risks and misfortunes in harsh environment (Giday, 2001). Ethiopia, being one of the developing countries, is endowed with the highest Cattle population in Africa which serves as one of the most important source of food and cash income. Cattle production system in Ethiopia is mainly small holder substance farming, with animals having multipurpose use and as such no specialized and systematic breeding is used (Giday, 2001).

Even if Ethiopia has a large cattle population the reproductive performance and the productivity of the indigenous cattle breed is low. Usually, cows do not produce their first calves earlier than 35-53 months of age and calving interval is about two years (Cheraet et al., 1999). Cross breeding is an acceptable procedure for profitable live stock production. It widely used in the world in order to enhance production of milk, meat, particularly at Commercial farms. Significant heterosis values are usually obtained under optimum conditions by combining indigenous and exotic (Abejehu et al., 2002). This study may have a multiple purpose. Primarily it provides for a meaning full understanding on the performance of cross breeds of dairy animals in the study area. It will also gives some information to those who needs to future investigate the situation by serving as a base line data on the reproductive and productive performances of these cross breed dairy cows. It also serves the government and private extension organizations to make a necessary adjustment in improving or sustaining the situation.

Generally, in the present study reproductive and productive performance of cross breed dairy cows will be studied with the objectives.

- To assess productive performance of cross breed dairy cows in Debre Tabor town
- To assess reproductive performance of cross breed dairy cows in Debre Tabor town

## MATERIALS AND METHODS

### Description of the Study Area

The study was conducted in Debretabor town. Debretabor is located in south Gonder zone of Amhara region .The town is for about 100 km from south east of Gonder and 50 km east of Lake Tana. This historic town has altitude and longitude of 11 51 N 38 1 E/11 850 N 38 057 E respectively with an elevation of 2706 meters above sea level, and the average annual temperature this town is 9 oC–25 oC, and the rainfall 1599 ml (agriculture office of Farta woreda, 2006). According to agricultural office of Farta woreda. Debre Tabor town has a total population of 242,181 and total land area of 107,076.57 hectare. Also this town is well known in large number of live stock population; total number of cattle 157,971 sheep and goat 186,810 equine 33,793 poultry 89,496 and it has about 95,572 of honey bee.

### Data Collection

The study was carried out by selecting five small holder farms purposely, which engaged by cross breed dairy activity at least for two years in Debre tabor town. Data was collected about the reproductive and productive performance of cross breed (fogera cross holistian fresian) dairy cows by means of primary data collection that means by interviews the owner of the farms.

### Data Analysis

The collected data was processed and analyzed by using descriptive statistical tools of means and percentage then presented in table.

## RESULT AND DISCUSSION

### Reproductive Performance

Reproductive performance of crossbred dairy cow is given in table 1. The average age of heifers at first service in present study shows 18.96 month. But about 40% and 60% of respondents revealed that the age at first service was 20-24 months and 15.6-18 months interval respectively. The average mean of age at first service in the present study was 18.96 months which is in agreement with 24.3, 23.2 and 25.6

months which is reported by Belay et al., (2012). The average AFC in the present study was 29.52 months however, 80% of the respondents were revealed that AFC was 2.5-3 years and 20% of the respondents revealed also the AFC was 2.1 year. Furthermore 60% of the respondents revealed that the calving interval for their cows were between 1.0-1.3 years and also 40% of the respondents revealed that their cows came to heat 2-3 months post calving. Additionally, 60% of respondents revealed that, there was repetition in insemination to conceive their animal and remain 40% are revealed that their cows usually conceived once inseminated.

**Table 1. Reproductive performance of crossbred dairy cow.**

Reproductive traits	N = 5					Mean
	N1	N2	N3	N4	N5	
Number of dairy cows	2	3	4	4	3	
NSC (number)	1	2	1.7	1.5	1.6	1.56
CI (days)	365	365	432	365	432	391.8
DO (days)	75	75	105	105	105	93
AFS (month)	15.6	16.8	18	20.4	24	18.96
AFC (month)	25.2	27.6	28.8	31.2	34.8	29.52

N=number of farms, NSC=number of service preconception, CI=Calving interval, AFS=age at service, AFC=age at first calving and DO=day open

**Table 2. Productive performance of crossbred dairy cows.**

Parameters	N = 5 under three stages of lactation															Mean
	N <sub>1</sub>			N <sub>2</sub>			N <sub>3</sub>			N <sub>4</sub>			N <sub>5</sub>			
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	
Milk yield/d (liter)	12	10	8	11.2	9.7	8	12.8	9.25	7.8	12	9.8	8.2	12	10	8	9.91
Milk yield per lactation (liters)	2400			2312			2686.5			3000			3150			2705.43
Lactation length (month)	8			8			9			10			10.5			9.1

N = number of farm

### **Productive Performance**

Milk production of cross breed dairy cow is given in table 2. The milk production performance at different stage of lactation and lactation period of dairy cows in the study area are shown in table2 below. The average milk yield was 12 litter, 9.75litter, and 8 litters for the first, second and third stage of lactations, respectively with an overall average of 9.91litters per day/cows. The milk production was significantly decreased in third than first and second stage of lactation. The milk production was decreased with the advanced of lactation stage. This results were in agreement with Asaminew and Eyasiu (2009) who reported that the average milk production from cross breed cows 7.3, 5.5, and 3.5 litters for first second and third lactations respectively ,with an overall average daily milk production of 5.2 litters. However, the result of this study is slightly greater than Adebabay (2009) who reported 10.96, 9.12 and 5.04 litters for first, second and third lactation respectively. In this study average milk yield per lactation was estimated to be 2757.3litters in lactations period of 273 days.

### **CONCLUSIONS**

Based on the result finding, it was conclude that productive and reproductive performance of crossbred dairy cows was found to be good. However both productive and reproductive performance of cross breed dairy cattle was different. This was associated due to management practiced. They were feeding and watering their cows twice time per day and they use well roofed house which is cleaned twice per day for their crossbred dairy cows. But there are some constraints of management system like, lack of annual vaccination; they vaccinate their cows only there is vaccination program due to

outbreak of disease by animal health center of the town. Also the floor of their house is not concrete which is easily cleaned.

Generally, there are different factors which influences the productive and reproductive performance of the crossbred dairy cows, like:-management system which includes feeding, watering, housing and others like disease management system and also it is highly influenced by breed and age of the animal. The crosses in the study area which are kept under better conditions are performing better. This was clearly indicated that good management besides improving the breed in order to increase the performances of local breeds.

### **RECOMMENDATIONS**

The housing system should be improved by constructing individual pen for each cows and heifers, and also they have to concrete their house floor to make comfortable for their cows. Awareness about AI should be created to improve productive and reproductive performances of crossbred dairy cows. The society in the town has to aware and to have enough information about the importance of research done by the researchers to have positive aspect for them and to respond exact answer for the question they asked.

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