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Productive and reproductive performance of cross-bred cows and murrah buffaloes in different herd size groups

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Abstract

A study entitled "Productive and reproductive performance of cross-bred cows and murrah buffaloes in different herd size groups" viz. small, medium and large was carried out and found that the productive performance of cross-bred cows was significantly ($p \leq 0.01$) much better than that of Murrah buffaloes in all herd size groups. Herd size had significant effect on milk production of these ruminants. Greater milk production was found in small as well as medium herd size groups in both ruminants. Lactation length of cross-bred cows was significantly ($p \leq 0.05$) higher than murrah buffaloes but dry period was shorter. Effect of herd size on lactation period was insignificant in cross-bred cows and murrah buffaloes but it was significant on dry period and intercalving period in both animals.

Key words : Murrah buffaloes, cross-bred cows, lactation, dry period, Herd size, Milk production.

Introduction

Animal husbandry is the most important economic activity in rural areas nearest to agriculture. These activities provide employment and income to the vast majority of rural population. India's status in dairying is characterized by the fact that this country owns one of the largest livestock population in the world (Economic Survey, 2011-2012).

In 2011-12, the value of livestock output at 459051 crores (INR) was higher than food grain output. Among the livestock output, milk output was highest at 305484 crore, constituting 66.55 percent of the livestock output. The importance of livestock as a source of food in general and milk in particular is on the rise (CSO, 2013).

India is blessed with huge bovine population of 199.10 million cattle and 105.30 million buffalo accounting 16.24 percent and 56.90 percent, respectively in world bovine population and stand first in the world in number of bovine population. (Livestock census 2007 GOI). Before independence, milk production in India was below 20 million tones and quality was also very poor, owing to the white revolution, India has emerged highest milk producer in the world i.e. 112.5 million tones with per capita availability of 263 gm/day. (Tanwar and Kumar 2014).

The lactation length affects the total milk production as well as income from lactating animals. Dry period is the unproductive period of the animal when the farmer has to feed and take care of the animals from his own pocket without getting any income from the animal. Therefore, a shorter dry period in mulch animals could put the farmer at a clear advantage from an economic point of view. The length of lactation and dry period of each species of animal are among intrinsic characteristic which are also affected to some extent by the managerial conditions. The exotic breeds of cattle are bestowed with a longer lactation but a shorter dry period because of inherent genetic potentialities. Cross-breeding of cows with these exotic breeds imparts these potentialities to the corss-breds which results in a longer lactation period and a diminished dry period. The present study communicate data on milk production as well as length of lactation, dry period and intercalving period affected by different herd size groups.

Materials and Methods

The present investigation was conducted in ten villages of C.D. Block, Bichpuri which is located close to Agra city. The demand for milk and milk products for this vast consuming centre is met mainly by the milk producers of the neighboring villages. After selection of villages, a list of families having cross-bred cows and murrah buffaloes was prepared. In all, 95 dairy farms were selected for this study. There were a total of 170 animals, out of which 90 were cross-bred cows and remaining 80 murrah buffaloes,

which belonged to different herd size groups. Herd size groups was divided in to 3 groups, viz:

(i) Small - having one animal
(ii) Medium - having two animals
(iii) Large - having more than two animals.

From each of the selected milk producers, detailed information regarding milk yield per lactation, lactation length, dry period and intercalving period were collected. The information on all aspects of production and reproduction were collected through the records maintained by producers and personal interview. Thus obtained were subjected to statistical analysis and tested at 1 & 5% level of significance. The data pertained to year 2013-14.

Results and Discussion

It is evident from Table 1 that the lactation milk yield of cross-bred cows in different herd size groups viz: small, medium and large was found to be 2791±68, 2699±75 and 2406±71 litre, respectively. In case of Murrah buffaloes it was 2380±49, 2287±62 and 2002±56 litre in small, medium and large herd size, respectively. The overall milk production of cross-bred cows and murrah buffaloes in above herd size groups were 2585±72 and 2235±54 litres, respectively. These results revealed that the cross-bred cows elicited significantly greater milk production than murrah buffaloes during different herd size groups. The milk production of cross-bred cows as well as murrah buffaloes tended to decrease from small to large herd size groups; the herd size had significant effect on milk production of these animals. These observations indicated that small herd size in case of cross-bred cows as well as murrah buffaloes is more effective from the stand point of feeding and better

Table 1: Productive and reproductive performance of cross-bred cows and murrah buffaloes in different herd size groups

Herd size	Cross bred cows	Murrah buffaloes	Test of significance
Milk Production/lactation/animal in (lit.).			
Small	2791±68(22)	2380±49(28)	2.32^{+}
Medium	2699±75(26)	2287±62(24)	2.61^{+}
Large	2406±71(42)	2002±56(28)	2.07^{+}
Average	2585±72(90)	2235±54(80)	
F- Value	3.41^{++}	3.62^{++}	
CD	84.33	87.68	
Lactation production in days			
Small	340±8.2(22)	318±6.1(28)	4.39^{++}
Medium	344±6.6(26)	326±5.7(24)	4.21^{++}
Large	349±11.3(42)	329±5.9(28)	5.32^{++}
Average	345±9.1(90)	324±5.8(80)	
F- Value	0.68^{NS}	0.92^{NS}	
CD	10.8	14.2	
Dry production in days			
Small	71±2.6(22)	111±3.6(28)	8.26^{++}
Medium	83±3.2(26)	122±4.2(24)	9.12^{++}
Large	104±3.4(42)	143±4.8(28)	8.72^{++}
Average	90±3.3(90)	125±4.3(80)	
F- Value	3.82^{++}	3.11^{++}	
CD	9.6	10.2	
Inter- calving production in days			
Small	411±9.6	429±10.2	4.02^{++}
Medium	427±10.2	448±11.7	3.98^{++}
Large	449±11.6	472±12.2	4.26^{++}
Average	435±11.0	449±11.6	
F- Value	3.49^{++}	4.63^{++}	
CD	13.6	16.3	

Note : Figure in parentheses indicate number of animals.
NS = Non-significant + = Significant pd"0.05 ++ = Significant pd"0.01

management by village families for augmenting milk production. With the increasing herd size it appears difficult to feed and manage these animals properly and consequently the level of milk production decreased. The milk production performance of murrah buffaloes under field conditions of study was found to be better than those already reported (Rao et. al. 2000)

The reproductive quality of cross-bred cows and murrah buffaloes in respect to lactation length, dry period and inter-calving period under different herd size groups was determined (Table-1) and found that the lactation length of cross-bred cows and murrah buffaloes in small, medium and large herd size groups was found to be 340±8.2 and 318±6.1, 3.44±6.6 and 326±5.7 and 349±11.3 and 329±5.9 days, respectively. The cross-bred cows have longer lactation period than murrah buffaloes in all herd size groups, significantly (pd•0.01). These results compared favourably with the results of Kumar and Gupta (1992) & Prasad et.al (1991). Further, it is evident that the length of lactation in cross-bred cows and murrah buffaloes was not influenced by herd size of animals. The dry period of cross-bred cows and murrah buffaloes in small, medium and large herd size groups were 71±2.6 and 111±3.6, 83±3.2 and 122±4.2 and 104±3.4 and 143±4.8 days, respectively. The present study explicit indicated that the dry period of cross-bred cows was significantly much shorter than that of murrah buffaloes in various herd size groups.

The table further revealed that the herd size had significant effect on dry period of cross-bred cows as well as murrah buffaloes. The dry period was increase with increase in herd size of both ruminants. The managemental conditions play vital role in influencing the dry period of cross-bred cows and murrah buffaloes. Since the farmer families pay greater heed to the smaller herds of animals; because it is difficult for them to manage a large herd size of animals, which is difficult to manage. The intercalving period of cross-bred cows and murrah buffaloes in above herd size groups were found to be 411±9.6 and 429±10.2, 427±10.2 and 448±11.7 and 449±11.6 and 472±12.2 days, respectively. The intercalving period of cross-bred cows was significantly shorter than murrah buffaloes in all herd size groups. The table further revealed that the herd size had significant effect on the intercalving period of both animals. The table further revealed that intercalving period was increased with increase in herd size of cross-bred cows as well as murrah buffaloes in all herd size groups. Hence, it could be inferred from present study that upkeep of cross-bred cows is more profitable proposition than murrah buffaloes. The study further suggested that upkeep of small herd size is better for both type of milch animals.

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