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Prevalence of infertility disorders in Jersey crossbred cows in North- western Himalaya of Himachal Pradesh

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Abstract

The present study investigated a total of 6166 infertile Jersey crossbred cows. Out of the total animals, 4449 were infertile and examined among 7060 cows presented in 347 veterinary camps organized between 1995 to 2008 at different rural locations in 10 districts of Himachal Pradesh (H.P). The remaining 1717 cows were examined in the College Clinical Complex from 1995 to 2000. The past reproductive history, parity, existing clinical signs coupled with gynaeco-clinical examination of each cow were utilized to affirm the type of infertility disorder. In descending order of predominance, true anestrus (40.5%), infantile genitalia (17.9%), endometritis (14.9%) and repeat breeding (14.3%) were the major reasons of infertility in the cattle presented in the veterinary camps, whereas endometritis (46.6%) followed by true anestrus (25.8%) and infantile genitalia (12.5%) were most prevalent in the cows examined in the College Clinics.

Key words: Prevalence, infertility pattern, Himachal Pradesh.

Introduction

To acquire self-sufficiency in milk production, crossbreeding was initiated four decades back in India (Taneja and Birthal, 2005). Low production, however, still remains the key issue in India as the average milk production of the local cows is lowest in the world (Khanna 2007). Moreover, a continuously swelling population census and increased demand of milk / milk based products will further widen the demand-supply gap of milk, thereby jeopardizing the nutritional security of millions of Indians. In Himachal Pradesh (H.P) alone, there is a huge gap in milk yield of around 99 million liters/annum from the existing cattle population and majority of the human population in H.P relies on polypack milk from adjoining States (DOA 2009). Efficient reproduction is a key element to sustain milk production in cattle (Arthur *et al.* 2001). Hence, the present study was conducted to identify the infertility causing reproductive maladies in cattle so that suitable strategies are framed to ensure optimum reproduction.

Materials and Methods

The study was undertaken in a total of 6166 infertile Jersey crossbred cows with varying percentage of exotic inheritance. Out of the total animals, 4449 were examined in 347 veterinary camps organized by DGCN College of Veterinary and Animal Sciences from 1995 to 2008 at different rural locations in 10 districts except Lahaul and Spiti and Kinnaur districts, of Himachal Pradesh (H.P). The total number of cows presented in the veterinary camps was 7060. The remaining 1717 cows were examined in the Teaching and State Referral Veterinary Clinical Complex of the College from 1995 to 2000.

On presentation, the past reproductive history, parity, existing clinical signs coupled with gynaeco-clinical examination of each cow were utilized to affirm the type of infertility disorder as per the norms of Arthur *et al.* (2001).

Results and Discussion

Presence of reproductive disorders in cattle is the major concern of the rural farmers in H.P. This is evinced from the fact that 63% (4449 out of 7060) of the total cows presented in the clinical camps had one or the other reproductive problem, thereby requiring a gynaecological intervention. The extent of infertility in the current study is much higher in H.P. than a previous report indicating 20% infertility in the cows examined during veterinary camps in three districts of Uttar Pradesh (Singh and Sahni 1995). No previous literature is available however, on prevalence of infertility disorder in Himachal Pradesh.

The prevalence of different infertility disorders in the cows examined at different locations is presented in Table 1. In descending order of predominance, true anestrus (40.5%), endometritis (17.9%), infantile genitalia (14.9%) and repeat breeding (14.3%) were the major reasons of infertility in the cattle presented in the clinical camps, whereas endometritis (46.6%) followed by true anestrus (25.8%) and infantile genitalia (12.5%) were most prevalent in the cows examined in the College Clinics. The reason for preponderant endometritis in the College Clinics was attributed to more number of cows presented for AI during estrus, which is the most convenient stage for diagnosis of endometritis. Cumulatively, the highest prevalence of true anestrus in 36.4% cases was much higher than 26.6%; irregular estrus (26.2%) and repeat breeding (37.3%) being the other infertility reasons accounting for 90.1% infertility in cattle examined in three different regions of Uttar Pradesh (Singh and Sahni 1995). Although not estimated, the reasons for infertility in the later study were incriminated to deficiency of energy, protein, copper and phosphorus. In a more recent study by Ambore *et al.* (2009), endometritis, anestrus, repeat breeding, cystic ovaries and subestrus were, respectively, prevalent in 36.6%, 22.3%, 21.3%, 16.2% and 3.6% cattle investigated in district Parbhani, Maharashtra. Hence, magnitude of true anestrus in the current study was much higher than all the previous reports.

True anestrus and infantile genitalia, the two major disorders in current study, can result from a variety of reasons (Arthur *et al.* 2001). However, undernourishment in the investigated cows, as revealed from lack of scientific feeding practices, was considered as a common etiological basis for a relatively higher prevalence of the two aforesaid disorders. In H.P less than 0.5% of cultivable land is under fodder cultivation as against a national average of 4.4% (DOA 2009). This is the plausible reason for shortage of green fodder in the State by 57.4% (Dev *et al.* 2006). Moreover, for a profitable dairy entrepreneurship, cattle feeding have to be primarily fodder based (Gupta 2007). Concentrate feeding is

Table 1. Prevalence (%) of different reproductive disorders in cows of Himachal Pradesh

Reproductive disorder	Prevalence (%) at different locations		
	Clinical camps (4449)	College Clinics (1717)	Total (6166)
True anestrus	40.5 (1802)	25.8 (444)	36.4 (2246)
Infantile genitalia	17.9 (797)	12.5 (215)	16.4 (1012)
Endometritis	14.9 (662)	46.6 (800)	23.7 (1462)
Repeat breeding	14.3 (635)	2.6 (44)	11.1 (679)
Silent estrus	5.2 (231)	2.1 (36)	4.3 (267)
Cervical fibrosis /kink	4.6 (204)	4.3 (73)	4.5 (277)
Metestral bleeding	2.6 (118)	3.5 (61)	2.9 (179)
Prolonged estrus	-	2.6 (44)	0.7 (44)

Figures in parenthesis indicate the number of cows

another biological need of cattle to sustain normal reproduction. Although H.P is considered to be self sufficient in grain production for human consumption, but the quantum of grains required to be diverted as a part of concentrate for cattle seems to be missing. The latter was a finding in a study indicating shortage of concentrates for cattle by 93.1% in H.P (Vashist *et al.* 2000). A poor socio-economic status of the rural farmers also restricts their ability to afford expensive feed and fodder for the crossbred cattle having a relatively higher nutritional requirement to maintain different physiological activities. Hence, in the existing scenario there is an urgent need to look for other alternatives addressing lack of quality feed and fodder for the existing cattle population. Treatment of poor quality roughages for their nutritional enrichment and silage making, appear to be the promising alternatives. A high prevalence of endometritis in the current study is suggestive of educating the farmers on hygienic managemental practices, although a compromised uterine immunity in the undernourished cows (Hammon *et al.* 2006) cannot be precluded.

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