Study of the Efficacy of HimROP Vet Liquid on Conception Rate in Repeat Breeding Dairy Cows

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INTRODUCTION

Repeat breeding is one of the major gynecological problems affecting reproductive efficiency and economy of milk production in dairy animals. Cows that fail to conceive after a defined number of inseminations with fertile semen (generally 3 or more) are diagnosed as repeat breeders (Levine, 1999). This incidence has been reported in about 10–15% of cows (Hartigan et al., 1972). Causes of repeat breeding have been attributed to factors that are genetic (Ayalon, 1978), nutritional (Peters, 1996), hormonal (Duchens et al., 1994; Bage et al., 1997), abnormalities in the gamete (Maurer and Echternkamp, 1985), delayed ovulation (Gustafsson et al., 1986), inadequate luteal function (Maurer and Echternkamp, 1982, 1985), infection (Ayalon, 1978), or managerial causes (O’Farrell et al., 1983; Martinez and Thibier, 1984). The causes of repeat breeding may originate either during the early stages of follicle maturation or during the preovulatory period (Peters, 1996; Bage et al., 2000).

The key to identifying a repeat breeding problem lies in maintaining a good, clear set of records. Hence, by managing and analyzing the estrus and breeding records, one can calculate the per cent of repeat breeders in a herd. The present field investigation was undertaken to study the effect of HimROP Vet liquid, a polyingredient formulation of The Himalaya Drug Company, Makali, Bangalore, India, on the conception rate in repeat breeder cows.

MATERIAL AND METHODS

The study was conducted on crossbred Holstein-Friesian (HF) cows maintained by dairy farmers of Nandi Hills, Devanahalli area, Karnataka state. Ten crossbred cows with a history of repeat breeding were selected for the study. All the cows were clinically free of disease, were aged 4–10 years, and had no history of calving difficulty in the previous parturition. These experimental cows were fed with ad libitum green grass/fodder with free access to
water. Standard managemental conditions were provided throughout the trial period. The animals had no abnormalities of reproductive tract on per rectal examination. They had normal estrous cycles and estrus period. They had failed to conceive after four inseminations, but had clear vaginal mucus discharge at estrus. Control group was not maintained because of self-control. Diagnosis was done based on insemination history and per rectal examination. Recovery from repeat breeding was based on the number of animals conceived by insemination after HimROP Vet treatment.

Ten cows diagnosed for repeat breeding had a case history of 10–15 times of conception failures. All the cows were subjected to detailed clinical examination before treatment, during treatment, and after treatment with HimROP Vet liquid. They were drenched with HimROP Vet liquid—200mL, 200mL, and 100mL on 18th, 19th, and 20th day of postestrus cycle (i.e., proestrus) respectively. The cows were observed for estrus twice daily (morning and evening) by visual observations. Cows in estrus were inseminated on 21st day, approximately 12 h after onset of estrus using thawed frozen semen. Each cow was examined per rectally on day 10 postestrus for the presence of a corpus luteum. Cows returning to estrus were re-inseminated at the subsequent estrus. Those that did not return to estrus were examined per rectally on day 60, post-insemination for pregnancy. The first insemination and overall conception rates were calculated.

RESULTS
HimROP Vet liquid was used in 10 repeat breeding cows. HimROP-treated repeat breeding cows exhibited estrus (Table 1) and overall pregnancy rate was 60%. After treating repeat breeding cows with HimROP Vet liquid at a dosage of 200mL, 200mL, and 100mL on postestrus day 18th, 19th and 20th, respectively, all the cows exhibited estrus on 21st day and were inseminated. All 10 cows exhibited estrus, 4 of which (40%) conceived after first insemination, 2 (33.33%) cows conceived on next cycle, and 4 (40%) cows did not conceive even after treatment with HimROP. Overall 60% repeat breeding cows conceived after treatment with HimROP Vet liquid and the remaining 40% did not conceive at all.
Table 1: Effect of HimROP Vet Liquid Treatment on Estrus Response and Conception Rate in Repeat Breeding Cows

<table>
<thead>
<tr>
<th>Parameters</th>
<th>HimROP treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animals treated (n)</td>
<td>10</td>
</tr>
<tr>
<td>Oestrus response</td>
<td></td>
</tr>
<tr>
<td>Animals exhibited oestrus</td>
<td>6</td>
</tr>
<tr>
<td>Fertility response</td>
<td></td>
</tr>
<tr>
<td>First service conception rate (%)</td>
<td>40 (4/10)</td>
</tr>
<tr>
<td>Second service conception rate (%)</td>
<td>33.33 (2/6)</td>
</tr>
<tr>
<td>First and second service conception rate (%)</td>
<td>37.5 (6/16)</td>
</tr>
<tr>
<td>Overall pregnancy rate (%)</td>
<td>60 (6/10)</td>
</tr>
</tbody>
</table>

**DISCUSSION**

Repeat breeding is a multifactorial condition and there is no accurate method available for diagnosing the cause of most individual cases. In this study, 60% of repeat breeder cows conceived. Therefore, it is apparent that many repeat breeder cows are fertile and they should not be culled from herds, especially when they are valuable. The conception rate was 40% (4/10) in first service and 33.33% (2/6) in second service. The results of the study showed that HimROP Vet liquid clears the uterus from undesirable conditions and causes an increase in the conception rate.

The constituent herbs of HimROP Vet liquid are *Moringa oleifera*, *Adhatoda vasica*, *Gloriosa superba*, *Ruta graveolens*, *Peganum harmala*, and *Cyperus rotundus* are well known for their ecbolic, uterotonic, and antibacterial activities (Ravi and Bhagwat, 2007, Mohan and Bhagwat, 2007). Following are the therapeutic properties of the herbs mentioned above.


*Adhatoda vasica*: Vasicine, an alkaloid from *Adhatoda vasica* exhibiting uterine stimulant activity, is mediated through release of prostaglandin (Gupta *et al.*, 1978).
**Gloriosa superba:** This herb is useful in increasing the force of contraction of uterus (Chopra *et al.*, 1958; Chunekar, 1969). Teweri *et al.* (1967) reported the presence of strong ecolic activity in fresh juice of rhizome of this plant. Water-soluble portion of the alcoholic extract of *Gloriosa superba* has shown strong oxytotic effect in isolated uterus of guinea pigs, rabbit (non-gravid and gravid uterus of different stages), dogs, and human beings (Tewari *et al.*, 1972).

**Ruta graveolens:** Aqueous extract of the seed showed uterotonic activity (Kong *et al.*, 1989).

**Peganum harmala:** The therapeutic value of *Peganum harmala* is attributed to the presence of alkaloids, harmine and harmaline. It has antibacterial and antiprotozoal activity (El Saad and El-Rifaie, 1980). Extract of *Peganum harmala* seeds, which induce contractions of uterus are not dependent on prostaglandins, muscarinic, and alpha receptors. These contractions are related to external calcium (Fathiazada *et al.*, 2006).

**Cyperus rotundus:** The rhizome extract have a broad spectrum of antibacterial activity, although the degree of susceptibility could differ between different organisms. The antibacterial activity found may be attributed to the presence of secondary metabolites of various chemical types present in the plant material either individually or in combination (Sharma and Singh, 2011).

An important aspect of the HimROP Vet liquid is that it contains a unique combination of herbs rather than a single herb. The strategic combination of the various ingredients of herbs in HimROP Vet liquid exhibits beneficial and synergistic effects. The nutritional, hormonal, uterotonic, and antibacterial activities of different herbal constituents in HimROP Vet liquid makes it an exceptional choice for veterinarians and farmers for preventing repeat breeding in dairy cattle.

Although the sample size used in the present study was small, it appeared to be sufficient to obtain a rational conclusion. The results of this study imply that HimROP Vet liquid has some advantages, such as no milk wastage or side effects on the endometrium, and may improve the conception rate, to some extent. However, further studies are required to confirm these findings.

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References


