INTERACTION AMONG THE FACTORS INFLUENCING INCIDENCE OF REPEAT BREEDER COW SYNDROME IN CROSSBRED COWS

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Abstract: Incidence of production and reproductive problems affects the economy of dairy farmers negatively. Repeat breeding in dairy cows will increase service period and dry period and eventually reduce the profit to farmers. Crossbred animals are more prone to health and reproductive problems when compared to native zebu cattle. Detection of interaction among factors affecting incidence of repeat breeding cow syndrome in crossbred animals may help to plan breeding and management strategies to reduce the unwanted expenditure in dairy farming. Hence, this study was conducted and it revealed that the incidence of repeat breeding in multiparous cows was significantly lower than in primiparous cows. Except the parity order in multiparous cows during the period of calving of 2002-2008, no interaction was identified among factors affecting the incidence of repeat breeding.
Keywords: Repeat breeder, interaction, crossbred cows and parity order.

Introduction

Production and reproductive problems in dairy animals have substantial impact on the industry due to the cost of treatment, reduced milk production, reduction in consumer preference and mortality. Reproduction disorders affect the reproductive efficiency and herd life of cows, lead to culling of the affected animals. Incidence and interacting factors of the reproduction disorders is well reported for exotic pure breeds. The available information on interacting factors of repeat breeding in crossbred cows is scanty. Determining the risk factors and their interaction may help in designing the breeding and management programmes to reduce the loss and maximize the profit from dairy industry. Hence this study was undertaken to analyse the interaction among factors affecting incidence of repeat breeder cow syndrome in the crossbred cows.

Materials and Methods

Calving records of 913 crossbred cows and their related reproductive health records were utilized for this study. Data on Karan Fries cows developed at National Dairy Research Institute, Karnal was used in this study. Animals which exhibit regular estrous cycles but fail

to conceive even after 3 or more consecutive inseminations were recorded as repeat breeders (Roberts, 1971). Reproduction disorders considered for this study on incidence of repeat breeding are dystocia, retention of foetal membranes, metritis, endometritis, pyometra and uterine prolapse. Calved crossbred animals were classified based on season of calving, period of calving and parity orders into four seasons, three periods and five parities. Based on the parental breeds, the crossbred cows were grouped into F_1 cows, interbred cows, and cows having ¾ more than ¾ exotic inheritance.

The Chi-squared Automated Interaction Detection (CHAID) algorithm (Kass, 1980) was used to analyse the data for detection of interaction among the factors affecting the incidence of repeat breeding in Karan Fries cows. This statistical technique is used to find out the best combination of interacting independent variables for a dependent variable. Results of CHAID analysis are expressed in classification tree format. Detection of interacting factors of repeat breeding cow syndrome was carried out for all calvers, primiparous cows and multiparous cows separately. Independent variables used in the CHAID analysis were parity order, genetic group, season of calving, and incidence of dystocia, retention of foetal membranes, metritis, endometritis pryometra, and uterine prolapse.

Results and discussion

Incidence of different reproduction disorders were studied and reported by Sharma (2011). In this study interaction among the factors were identified and presented in classification tree format. Parity status of the calved animals showed that the incidence of repeat breeding cow syndrome is more in primiparous cows (6.4 per cent) than in multiparous cows (3.6 per cent). This might be due to the higher incidence of calving difficulties and subsequent reproductive problems in primiparous cows.

In this study it was found that there was no significant interaction among the factors viz. incidence of dystocia, retention of foetal membranes, metritis, endometritis, repeat breeding cow syndrome, pyometra and uterine prolapsed; period of calving; season of calving; parity and genetic group to cause incidence of repeat breeding in primiparous cows. Among the multiparous cows calved during the period 2002-2008, the parity order is the only significant predictor of repeat breeding.

Incidence repeat breeder cow syndrome during the period of calving, 2002-2008 was 7.6 per cent but it was 0.6 per cent during the periods of calving, 1990-1995 and 1996-2001 together. During the period of calving 2002-2008, third, fourth, fifth and above fifth calvers together showed significantly higher incidence than second calved animals. In second parity,

incidence of repeat breeding cow syndrome is higher (3.6 percent) among multiparous cows when compared to other parities separately. Contrarily, the non significant effect of parity on incidence of repeat breeding was also reported in literature (Balasundaram *et al.,* 2010). Overall analysis of incidence of repeat breeding indicated the increasing trend over the period
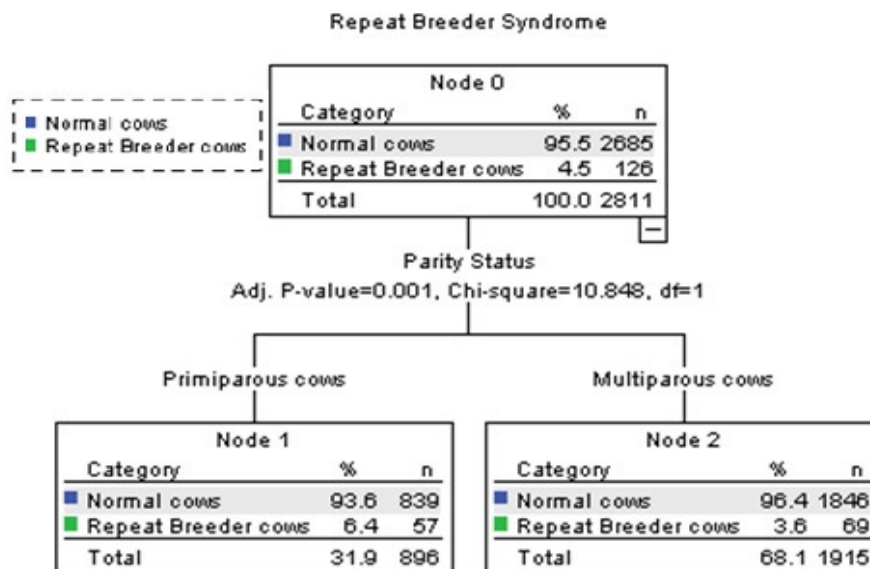

Fig1. Incidence of repeat breeding cow syndrome in all calvers
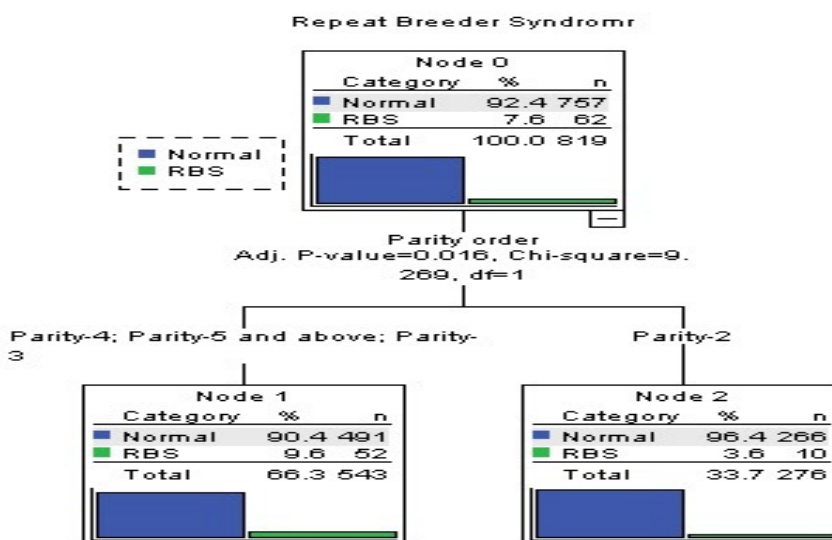

Fig 2. Incidence of repeat breeding cow syndrome in multiparous cows
(Period: 2002-2008)

Conclusion

CHAID analysis on incidence of repeat breeding as carried out for primiparous and multiparous crossbred cows. The results indicated that the incidence of repeat breeding cow syndrome was higher in primiparous cows than multiparous cows. The higher incidence in

primiparous cows could be the extension of incidence of dystocia, abortion, retention of foetal membranes and metritis. Analysis revealed that the parity order is the predictor of repeat breeding incidence in multiparous cows during the last six years of study period. The findings could not reveal any significant interaction among the factors affecting incidence of repeat breeding in primiparous and multiparous cows except parity order in multiparous cows, calved during the period 2002-2008.

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