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Effect of non-genetic factors on conception rate of breeding bulls: A review

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Abstract
The concept of bulls is half of the herd has changed to more than half of the herd". The factors *viz.,* season, period, stage of lactation, breed, parity, number of services per conception, age of cows at the time of insemination affect the conception rate of breeding bulls. Age of the bull at the time of mating was the major factor influence conception rate. Infertility problems of a breeding bulls has a longer impact on herd productivity. Therefore, fertility of breeding bulls is of great concern for herd profitability. Non-genetic factors may be maintain for better conception rate in breeding bulls. The non-genetic factors are having a significant effect on conception rate of the breeding bulls. The main factors includes season, age and period mainly. The present review compiles effect of different non-genetic factors on conception rate of breeding bulls.

Keywords: Non-genetic factors, conception rate, breeding bulls

Introduction
The semen of breeding bulls can be used for multiplication of cattle as well as grading up of non-descript cattle to improve further milk production in India. The differences in bull care and management studies have shown differences among conception rate in bulls [3, 7, 8].

The population of breeding bulls in India is gradually declining due to less adoption of systematic breeding plans under field condition. To mitigate the above problem, special attention is required to make available sufficient number of frozen doses from superior Sahiwal bulls. There is little information on the effects of non-genetic factors on conception rate traits of breeding bulls particularly conception rate based on first A.I. and overall conception rate and

Conception rate based on first A.I. of bulls
Conception rate based on first A.I of Sahiwal bulls was estimated by the ratio of each pregnancy over number of first A.I and expressed in percentage. The conception rate based on first A.I of Sahiwal, KF and Murrah cattle were estimated as 37.6, 33.8 and 35.8%, respectively in NDRI herd [1, 5]. Reported the conception rate based on first AI (CRFAI) in Sahiwal bulls was estimated as $45.95 \pm 1.37\%$ with coefficient of variation of 21.84%. Conception rate based on first A.I. of bulls helps in overall improvement of the fertility in the herd. It is the most important fertility trait which fulfill the desirable level of profitability in the farm. Season, period, stage of lactation, breed, parity, number of services per conception, age of cows at the time of insemination affect the conception rate of breeding bulls mainly in the herd.

Effect of non-genetic factors on conception rate based on first A.I. of bulls
Summer season is not the ideal for the collection of semen in old bulls, and winter is also critical for young bulls [2]. Studied the stressful summer season deteriorated the quality of semen obtained from both Holstein Friesian and Jersey breeding bulls maintained under sub-tropical environment of Pakistan [4, 6]. Reported the overall least-squares mean for CRFAI was estimated as 40.27% and period and season of A.I. had significant effect (($p<0.01$) on CRFAI in Murrah bulls. The overall least-squares mean for conception rate based on first AI was estimated as $46.24 \pm 0.35\%$ and period of conception had significant ($P<0.01$) effect on CRFAI [5].

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Overall conception rate of dairy breeding bulls

Overall conception rate was estimated by total numbers of pregnancy in each cow out of total numbers of A.I and expressed in percentage. The average overall conception rate of Sahiwal and KF cattle were estimated as 46.89 and 36.29% in NDRI herd [1]. The average overall conception rate (OCR) in Sahiwal bulls was estimated as $46.38 \pm 1.55\%$ with coefficient of variation of 22.32% [5]. Overall conception rate of bulls helps in overall improvement of the fertility in the farm. It is the most important fertility trait criteria which fulfill the sufficient level of profitability in the farm as early as possible. Season, period, stage of lactation, breed and parity affect the conception rate of breeding bulls mainly in the farm.

Effect of non-genetic factors on overall conception rate of dairy breeding bulls

[3] reported the period and season were significant effect ($p<0.05$) on overall conception rate in Holstein Friesian and also reported that parity of cows were significant effect ($p<0.05$) on overall conception rate in Holstein Friesian [4, 6]. reported the overall least-squares mean for OCR was estimated as 39.50% and period and season of A.I. had significant effect (($p<0.01$) on OCR in Murrah bulls [5]. reported the overall least-squares means for OCR was estimated as $46.86 \pm 0.27\%$, and period of conception had significant ($P<0.01$) effect on OCR.

Conclusion

It can be concludes that better breeding management should be implemented along with multi-trait evaluation with fertility traits may be carried out for simultaneous improvement of reproductive and fertility performances of dairy breeding bulls. At the same time, however, it is worthwhile to bear in mind that more detailed data collection under improved energy based feeding and management could possibly lead to further improvement in predictions of conception rate of dairy breeding bulls.

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