# IMPACT OF VITAMIN E AND SELENIUM ADMINISTRATION DURING PERIPARTURIENT PERIOD ON REPRODUCTIVE PERFORMANCE OF SURTI BUFFALO

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**ABSTRACT**

The study was conducted on Surti buffalo (n=20) during the periparturient period. Treatment group buffalo (n=10) were administered vitamin E and Selinium (Inj. E-CARE Se 10 ml, i.m.) on days 60, 45, 30 and 15 before the expected date of parturition and after parturition on days 15 and 30. In treated buffalo, the time for involution of uterus as well as service period was shorter as compared to controls ($p<0.05$). Conception rate was higher in buffalo receiving antioxidant therapy. In brief, the administration of anti-oxidants at regular interval during the periparturient period may help to improve the reproductive performance of buffalo.

**Keyword**: Antioxidant, Buffalo, Reproductive performance, Selenium, Vitamin E

Periparturient period is a stressful event in dairy animals in which the deficiency of antioxidants viz. vitamin E and Selenium leads to free radical accumulation, thus disrupting processes linked to synthesis of steroids and prostaglandins (Harrison and Conrad, 1984). The present study was planned to evaluate the impact of vitamin E and selenium supplementation during the prepartum period to improve the reproductive performance of buffalo during the postpartum period.

The study was undertaken on Surti buffalo during the periparturient period. In treatment group (n=10), 10 ml Inj. E-CARE Se (containing Vit E as DL-α Tocopheryl Acetate I.P. equivalent to Tocopherol base - 50 mg, and Sodium Selenite U.S.P. equivalent to Selenium Base - 1.5 mg in each ml) was administered (i.m.) on days 60, 45, 30 and 15 before the expected date of parturition and after parturition on days 15 and 30. The control group buffalo (n=10) received 10 ml normal saline. The involution of uterus was considered complete as per the already known basis (Butch *et al*., 1955). First postpartum estrus was observed as per the estrous signs as well as per rectal examination. The number of services was recorded till conception and the service period was the time between calving to first conception. Pregnancy diagnosis was carried out at 60-90 days post breeding through per rectal examination. The tests of significance were made by standard Student's paired 't' test.

In present study, the mean period to uterine involution was earlier ($p<0.05$) in buffalo receiving antioxidant therapy as compared to controls (Table). Similar results were reported earlier in buffalo (Amer and Badra, 2008). The days to first postpartum estrus and the number of services required per conception were less ($p>0.05$) in treated buffalo (Table). In a previous study, both of these parameters were much improved in Viteselen (Vit E + Selenium) treated buffalo (Amer and Badra, 2008). Nevertheless, the service period in treated buffalo of present study was mush reduced compared to controls ($p<0.05$, Table). In fact, the observed conception rate was higher in treatment as compared to control group of Surti buffalo. In agreement, other research workers have also found beneficial impact of vitamin E and selenium

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**Table: Postpartum reproductive parameters following anti-oxidant therapy in Surti buffalo**

| Parameters | Treatment (n=10) | Control (n=10) |
|---|---|---|
| Days to involution of uterus | 29.40±1.93* | 35.20±1.79* |
| Days to first postpartum estrus | 74.40±7.11 | 87.10±9.73 |
| Number of services per conception | 1.50±0.17 | 1.80±0.33 |
| Service period, days | 92.6±2.1* | 117.7±9.3* |
| Conception rate within day 105 postpartum | 60% | 20% |
| Conception rate within day 140 postpartum | 80% | 50% |

*p<0.05, between rows

treatment on service period and conception rate (Panda *et al*., 2006; Amer and Hashem, 2008 and Qureshi *et al.*, 2010). In brief, the use of antioxidant therapy during periparturient period is significantly improved overall postpartum fertility in Surti buffalo.

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**REFERENCES**

Amer, H.A. and Badra, A.M. (2008). Influence of antepartum administration of immunopotentiators on reproductive efficacy of buffalo and viability of their newborn. *VeterinariaItaliana*, **44**: 373-382.

Amer, H.A. and Hashem, M.A. (2008). Influence of prepartum administration of Viteselen and/or Ultra-corn on reproductive performance and calves viability in buffaloes. *Global Veterinaria*, **2**: 138-145.

Butch, N. C., Tyler, W. J. and Casida, L. E. (1955). Postpartum oestrus and involution of uterus in an experimental herd of Holstein Friesian cows. *J. Dairy Sci.*, **38**: 73-79.

Harrison, J.H. and Conrad, H.R. (1984). Effect of selenium intake on selenium utilization by the non-lactating dairy cow. *J. Dairy Sci.*, **67**: 219-223.

Panda, N., Kaur, H. and Mohanty, T.K. (2006). Reproductive performance of dairy buffaloes supplemented with varying levels of vitamin E. *Asian-Aust. J. Anim. Sci.,* **19**: 19-25.

Qureshi, Z.I., Siddiq, M., Lodhi, L.A., Muhammad, G. and Jamil, H. (2010). Effect of vitamin E-selenium administration during late gestation on productive and reproductive performance in dairy buffaloes and on growth performance of their calves. *Pakistan Vet. J.*, **30**: 83-86.