earlier findings[7] proving the seed-borne nature of *R. bataticola* in soybean.

One of the authors (VD) is grateful to ICAR, New Delhi for financial assistance.

1 June 1987

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## FERTILITY OF FROZEN SEMEN IN SURTI BUFFALOES

A. J. DHAMI, V. R. JANI* and S. B. KODAGALI
*Department of Gynaecology and Obstetrics, Gujarat Veterinary College, Gujarat Agricultural University, Anand 388 001, India.*
** Present address: Panchmahal Dairy, Godhra 389 001, India.*

THE ICAR expert panel has proposed research regarding the improvement in conception rates of buffaloes during low breeding season (summer) by using frozen semen produced during high breeding season (winter). However, no reports are available on the findings of such studies. An attempt was therefore made to elucidate the effect of using frozen semen produced and utilized during winter as well as summer seasons and vice versa on fertility.

Ejaculates numbering 136 and with initial motility above 70% were obtained from 4 Surti buffalo bulls ($SB_1$, $SB_2$, $SB_3$ and $SB_4$) during low and high breeding seasons. These were diluted randomly in 3 extenders viz, tris fructose yolk glycerol (TFYG), egg yolk citrate glycerol (EYCG) and lactose yolk glycerol (LYG) at 6% glycerol level keeping 25 million sperms per 0.5 ml straw and were frozen in liquid nitrogen vapour as described earlier[1]. Post-thaw motility was assessed immediately after freezing and after 1 week of storage. Frozen semen doses were preserved in liquid nitrogen at least for a month before use. A total of 3490 fresh inseminations were performed under field conditions in the Panchmahal District by trained inseminators using summer frozen semen during summer and winter, and winter frozen semen during winter and summer seasons. Pregnancy was confirmed per-rectally 90 days later. The data were analysed statistically[2].

The freezability and fertility according to the seasons of freezing and inseminations presented in table 1 show that the average freezability and fertility was 51.58% and 39.82% respectively. The freezability differed significantly between bulls (45.92–55.68%) and seasons (48.92–53.87%) but not between dilutors (50.63–52.28%). Fertility results were significantly different between bulls (38.34–44.86%), dilutors (37.40–42.69%) and seasons (32.08–42.17%) regardless of freezing or insemination seasons. The fertility and freezability results for bull No. $SB_1$, TFYG diluent and winter season were significantly superior over others.

It is interesting to note that significantly higher conception rates could be obtained when frozen semen produced during winter was used for inseminations during winter (42.17%) or summer (39.27%) seasons as compared to frozen semen produced and used during summer (32.08%). This meant that winter frozen semen appeared to possess an inherent superior fertilizing ability as compared to the semen produced during summer season. Although the summer frozen semen used during winter gave significantly higher conception rate (38.36%) as compared to that obtained by using it during summer (32.08%), this was low when compared with the conception rate obtained with winter frozen semen used in winter (42.17%) or summer (39.27%). This indicated that the fertilizing ability of semen produced during summer season was poor.

The above results emphasize the need for further studies so that frozen semen technology can be made more useful to improve fertility in dairy buffaloes especially during low breeding season using frozen semen produced in high breeding season.

This paper forms part of the M.V.Sc., thesis submitted to the Gujarat Agricultural University, Anand by the first author. Thanks are due to Dr M. R. Patel for encouragement.

11 June 1987; Revised 15 July 1987

**Table 1** *Post-thaw motility and fertility of frozen semen in Surti buffaloes as influenced by bulls, dilutors and seasons*

| Bull/ dilutor | Season of freezing | Season of insemina-tions | No. of fresh A.I. | No. of buffaloes followed | No. found pregnant | Concep-tion rate (%) | Post-thaw motility (%) |
|---|---|---|---|---|---|---|---|
| $SB_1$ | Summer | Winter | 422 | 238 | 96 | 40.34 | 54.75 ± 3.32 |
| | Winter | Winter | 325 | 192 | 96 | 50.00 | 56.89 ± 3.92 |
| | Winter | Summer | 77 | 56 | 26 | 46.43 | 56.89 ± 3.92 |
| | — | Average | 824 | 486 | 218 | 44.86* | 55.68 ± 1.89* |
| $SB_2$ | S | W | 431 | 289 | 111 | 38.41 | 48.71 ± 4.53 |
| | W | W | 351 | 223 | 92 | 41.26 | 54.47 ± 3.89 |
| | W | S | 112 | 86 | 30 | 34.88 | 54.47 ± 3.89 |
| | — | Average | 894 | 598 | 223 | 38.96 | 51.63 ± 2.78 |
| $SB_3$ | S | W | 411 | 230 | 85 | 36.96 | 43.97 ± 3.77 |
| | W | W | 357 | 250 | 97 | 38.80 | 48.67 ± 4.03 |
| | W | S | 70 | 64 | 27 | 42.18 | 48.67 ± 4.03 |
| | — | Average | 838 | 544 | 209 | 38.42 | 45.92 ± 3.61* |
| $SB_4$ | S | W | 374 | 231 | 87 | 37.66 | 53.17 ± 2.89 |
| | W | W | 324 | 191 | 76 | 39.79 | 51.50 ± 3.67 |
| | W | S | 158 | 97 | 36 | 37.11 | 51.50 ± 3.67 |
| | — | Average | 856 | 519 | 199 | 38.34 | 52.38 ± 2.57 |
| TFYG† | S | W | 553 | 354 | 152 | 42.94 | 51.88 ± 3.38 |
| | W | W | 446 | 304 | 135 | 44.41 | 52.50 ± 4.13 |
| | W | S | 155 | 115 | 43 | 37.39 | 52.50 ± 4.13 |
| | — | Average | 1154 | 773 | 330 | 42.69* | 52.28 ± 1.57 |
| EYCG | S | W | 495 | 274 | 105 | 38.32 | 48.75 ± 2.85 |
| | W | W | 415 | 274 | 115 | 41.97 | 51.87 ± 2.56 |
| | W | S | 126 | 88 | 33 | 37.50 | 51.87 ± 2.56 |
| | — | Average | 1036 | 636 | 253 | 39.78 | 50.63 ± 1.78 |
| LYG | S | W | 590 | 360 | 122 | 33.89 | 49.62 ± 2.78 |
| | W | W | 496 | 278 | 111 | 40.41 | 52.32 ± 3.17 |
| | W | S | 136 | 100 | 43 | 43.00 | 52.32 ± 3.17 |
| | — | Average | 1222 | 738 | 276 | 37.50* | 51.38 ± 1.63 |
| Over-all | S | W | 1638 | 988 | 379 | 38.36 | 48.92 ± 1.89 |
| | W | W | 1357 | 856 | 361 | 42.17 | 53.87 ± 1.98* |
| | W | S | 417 | 303 | 119 | 39.27 | 53.87 ± 1.98* |
| | Summer§ | Summer | 78 | 53 | 17 | 32.08* | 48.92 ± 1.89 |
| | — | Average | 3490 | 2200 | 876 | 39.82 | 51.58 ± 1.24 |

*Significant at 5% level between bulls, dilutors or seasons; †TFYG = tris fructose yolk glycerol, EYCG = egg yolk citrate glycerol, LYG = lactose yolk glycerol; § Due to very limited number of inseminations, bull-wise and dilutor-wise distribution of summer frozen-summer insemination has not been shown.

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## VALIDITY OF THE GENUS *CHLOROLEPIOTA*—A MEMBER OF AGARICALES

SANDHYA DESHPANDE
*Botanical Survey of India, Western Circle, Pune 411 001, India.*

THE genus *Chlorolepiota* Sathe & Deshpande[1] was established to accommodate the specimen collected from Mahabaleshwar ( typus locus ), a hill station, 1375 m above MSL 120 km from Pune with *C.*