

## The effect of deep intrauterine placement of semen on conception rate in dairy cows.

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### Introduction

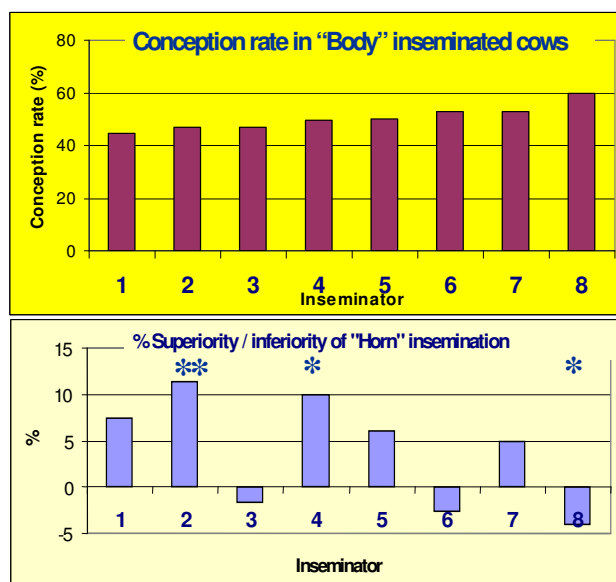
Low conception rates (CR) in dairy herds is a major cause of involuntary culling and reduced profitability and is a contributing factor to the decline in the usage of artificial insemination (AI). There is evidence of significant “between” inseminator differences in CR rates as well correct insemination technique having a low repeatability among both DIY and professional inseminators (Peters et al, 1984). The reported effect of deep intra-uterine horn insemination on conception rate (CR) is equivocal, with some reports indicating an improvement (Senger et al, 1988) while others report no improvement (McKenna et al, 1990). The objective of this study was to determine the effect of bi-lateral uterine horn AI on CR in dairy cows.

### Material and Methods

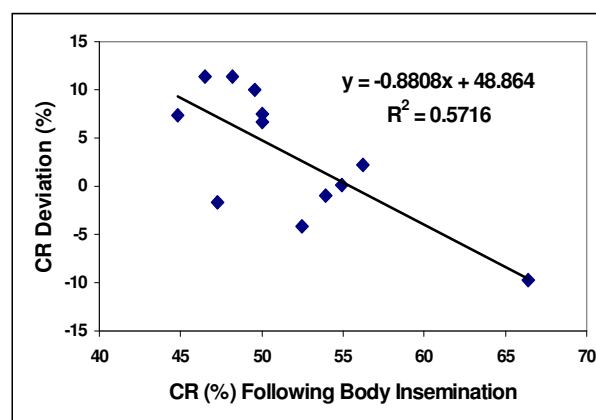
This study was carried out over two years with 6 commercial inseminators involved in each year, 4 of which were involved in both years. All inseminators were chosen by the AI Centre and trained prior to the start of the experiment in each year. The inseminators chose the co-operating herds. Each alternate cow presented for AI in co-operating herds was inseminated by placing all of the inseminate either in the body of the uterus (Body) or by placing 50% of the inseminate beyond the curvature in each uterine horn (Horn). Frozen-thawed semen in 0.25ml straws was used throughout. Records were kept and data collected on a total of 1860 inseminations in 37 herds in Year 1 and on 1586 inseminations in 24 herds in Year 2. Conception rate was determined by ultrasonography at 28-60 days after AI. Data were analysed using PROC CATMOD with terms for AI treatment, year, inseminator, and their interactions included in the model.

### Results and Discussion

There were no AI treatment x inseminator x year, treatment x year or inseminator x year interactions for CR ( $P > 0.05$ ). There was a significant effect ( $P < 0.02$ ) of AI treatment x inseminator on CR, with evidence of either an increase (+11.4%;  $P < 0.05$ ), decrease (-4 to -6%;  $P < 0.05$ ) or no effect ( $P > 0.05$ ) of Horn AI on CR for individual inseminators. Results are presented in Fig 1. A retrospective analysis of the data for each inseminator for each year showed that there was an inverse relationship ( $P < 0.005$ ) between the improvement in CR recorded following Horn insemination and CR achieved following Body AI and results are presented in Fig 2. The largest improvements in CR were recorded by inseminators with the lowest CR following Body insemination.



**Fig. 1** CR following Body AI for each of the 8 inseminators (upper panel). Superiority or inferiority of Horn AI, relative to body AI for each of the 8 inseminators (lower panel)



**Fig. 2.** Conception rate Deviation (CR following Horn AI - CR following Body AI) (Y axis) and CR for Body AI for each inseminator in each year (X axis)

### Conclusions

This study indicates that the effect of uterine horn AI on CR is not uniform and is inseminator dependent. For individual inseminators there was an inverse relationship between the improvement in CR recorded following Horn insemination and CR achieved following Body AI. The results further suggest that non-return rates could be improved for individual inseminators by adopting the practice of placing half of the inseminate beyond the curvature of each uterine horn as opposed to body insemination which is normal practice.

### References

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