SYNCHRONISATION OF OESTRUS IN CATTLE WITH PROSTAGLANDIN $F_{2\alpha}$

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This report summarizes 2 experiments in which the procedure for synchronization of oestrus in cattle reported by Rowson, Tervit and Brand (1972) was tested under field conditions. Seventeen Hereford cows, 8 of which had calves at foot were treated with prostaglandin $F_{2\alpha}$ (PG) on two consecutive days between days 5 and 15 after oestrus. PG (0.5 mg/dose) was introduced into the lumen of the uterine horn ipsilateral to the corpus luteum with a pipette inserted through the cervix. The cows were artificially inseminated with frozen semen on the third and fourth day after the initial PG treatment.

Twelve of the 17 cows were successfully treated with PG; the remainder had unsatisfactory oestrus records or PG could not be administered through their cervicis. Nine of the 12 exhibited oestrus (Table 1) and the concentrations of plasma progesterone measured in daily samples of peripheral blood (Cain et al. 1972) declined after PG treatment (Table 1). No consistent pattern was evident in the progesterone concentrations of animals which did not come into oestrus. Two of the 9 animals which responded to PG treatment calved and another 4 had prolonged oestrous cycles following AI.

TABLE 1 : Mean progesterone concentrations and the time of oestrus relative to PG and HAP treatment

Day of treatment	1	2	3	4	5	6	7	8
Experiment 1 (October 1972)								
Treatment n=12	-	-	PG	PG	-	AI	AI	-
Progesterone (ng/ml) n=9	-	3.0	5.2	2.6	2.8	1.6	0.2	-
No. in oestrus	-	-	-	1	2	2	3	1
Experiment 2 (July 1973)								
Treatment n=24	HAP	-	PG	PG	-	AI	AI	AI
No. in oestrus n=15	-	-	-	-	-	7	6	2

The possibility for controlled induction of multiple ovulations through the use of gonadotrophins in conjunction with PG was investigated in the second experiment. Three groups of 20 or 21 Hereford heifers were treated in a similar manner to the first experiment, but a daily dosage of 0.75 mg of PG was used and in two groups an injection of an extract of horse anterior pituitary (HAP) equivalent to either 800 or 1200 I.U. of PMSG was given 48 hours before PG treatment. To minimise risk of uterine infection, antibiotics were given parenterally at the time of HAP treatment and also included in the PG preparation. The heifers were inseminated on days 3, 4 and 5 after PG treatment commenced.

Owing to difficulties in penetrating the cervix, only 24 of the 62 heifers were successfully treated with PG of which 15 exhibited oestrus (Table 1). The 24 heifers were slaughtered 3 days after the last insemination. Examination of the reproductive tracts revealed that 19 had recently ovulated. For the groups treated with 0 (10 animals), 800 (9 animals) and 1200 (5 animals) I.U. of PMSG equivalents of HAP, respectively, the numbers of ovulations induced were in the ranges of 0-1, 0-2 and 1-6. Eighty-four per cent of the eggs shed were recovered and 61% of these had been fertilised. Despite antibiotic therapy 4 heifers had infected reproductive tracts. These results emphasise the problems of intrauterine administration of PG and demonstrate the necessity for a simplified procedure for field use.

REFERENCES

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