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## Prostaglandin Responses in Dairy Herd Breeding Programmes

I wish to express my sincere gratitude to Dr. P.G.G. [unclear] for his personal interest, invaluable advice, support and constructive criticism throughout the study.

I am also indebted to Professor E.J.L. Soulsby for allowing me to use the dairy farm and laboratory facilities during the study.

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My thanks are also due to Mr. Barry Collett, Mr. Jim Page and Miss. Clare Allen for being extremely helpful and cheerful.

A thesis submitted to the Faculty of Veterinary Medicine and Animal Science in fulfilment of the requirements for the degree of Master of Philosophy.

I am greatly indebted to Dr. J. Reid and Mr. S. Dean of Scribusiness for the financial assistance to carry out this study.

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Y. Kuruwita for his advice and assistance. March, 1994

the writing-up of this thesis.

Finally I thank my wife Niranjala for her patience and encouragement during the entire exercise.

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### Abstract

During the recent past, use of prostaglandin F2 $\alpha$  and its analogues to manipulate reproductive cycle to improve reproduction of the cows was widely practised. This study was initiated to evaluate the effects of prostaglandin on luteolytic response and rate of pregnancy in cattle.

Forty one cows were inseminated following induction of oestrus using prostaglandin analogues Fenprostalene (Syncrocept B, Syntex Agribusiness) or Cloprostenol (Estrumate, I.C.I.) at day 7 or day 14 of the oestrus cycle. Ten cows which were inseminated at oestrus were kept as controls.

Luteolysis indicated by a decline in plasma progesterone levels following treatment occurred in 45.5% and 80% respectively in cows injected with 1 mg Fenprostalene or 500 mcg Cloprostenol at day 7 of oestrus cycle. When Fenprostalene and Cloprostenol were given at day 14 of the oestrus cycle luteolysis occurred in 82% and 100% respectively. Visible oestrus was observed in 45% and 70% of cows following treatment of Fenprostalene and Cloprostenol at day 7 of the cycle. Eighty two to 88.8% animals showed visible oestrus following Fenprostalene and Cloprostenol given at day 14 of the cycle respectively. Percentage pregnancy at 8 weeks after insemination ranged from 20% to 27.3% in treatment groups whereas the control group had a pregnancy rate of 30%

The current study indicated that prostaglandins given at day 14 of the oestrus cycle resulted in a marked luteolysis than in day 7 of the cycle. Also, it was evident that Cloprostenol had a better luteolytic ability than Fenprostalene. No significant improvement in rate of pregnancy has been achieved following the treatment with prostaglandins.

Reproductive function includes stimulation of transport of sperms in the female genital tract, induction of luteolysis, affecting the uterine contractility at parturition and contracting the umbilical vessels following parturition.

The length of the inter oestrus interval in most domesticated species is controlled by the duration of the lifespan of the corpus luteum. Premature lysis of it, induced by administration of Prostaglandin F<sub>2α</sub> or its analogues could be used to manipulate the normal pattern of cyclic activity.

There is some suggestion that pregnancy rates are depressed after prostaglandin induced oestrus where cows are inseminated in relation to an observed oestrus.

As part of further evaluation of the role of Prostaglandin F<sub>2α</sub> on induction of oestrus and rate of pregnancy, the present study was initiated with three main objectives.