

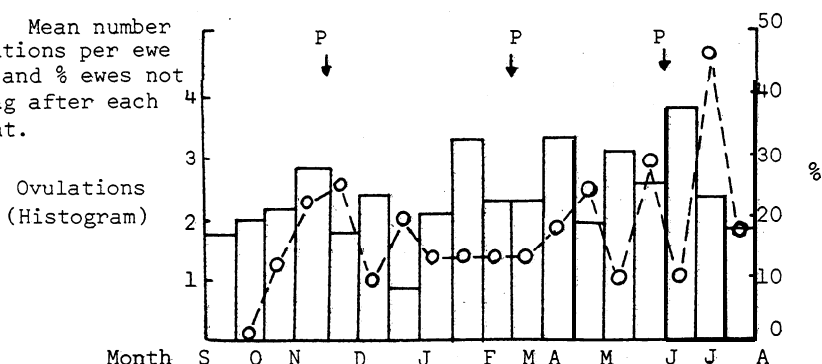
THE EFFECT OF MULTIPLE INJECTIONS OF PREGNANT MARES SERUM GONADOTROPHIN ON THE OVARIAN ACTIVITY OF MERINO EWES

P.G. GHERARDI* and G.B. MARTIN*

Pregnant Mares Serum Gonadotrophin (PMSG) has been used for the induction of oestrus and ovulation in anoestrous animals and the super-ovulation of cyclic animals. It is thought, however, that if treatment with PMSG is repeated in the same animals, they become progressively less responsive to the injected hormone (Clarke 1973, and others). Studies at this laboratory have shown that the ovulatory response of Merino ewes to PMSG varies with season. The decrease in responsiveness reported in the literature could well be confounded by this seasonal variation because none of the experiments continued for a full year. This study was conducted to examine the responsiveness of ewes to PMSG given every cycle, for 12 months and to test the presence of an immune reaction to PMSG after this prolonged treatment.

In September 1976 the oestrous cycles of 23 mature Merino ewes were synchronized with progesterone. They were given 1,000 i.u. of PMSG at the end of synchronization and again on day 12 of the following; and every subsequent cycle. Ewes were run continuously with harnessed teaser rams for the detection of oestrus. Synchronization became less defined as the experiment proceeded, so the ewes were re-synchronized every fifth cycle. The number of ovulations was determined by laparoscopy after each cycle and blood samples were taken each week.

FIGURE 1: Mean number of ovulations per ewe treated and % ewes not ovulating after each treatment.



The results (Fig. 1) show that after repeated superovulation with PMSG ewes do not become acyclic or progressively less responsive to the hormone. With the exception of the first three cycles the % ewes not ovulating in any one cycle was apparently lower during the normal breeding season (Jan-April). At the beginning of the experiment ovulation was probably stimulated by the sudden introduction of rams. On only four of 414 observations following PMSG treatment did individual ewes remain anovulatory for two consecutive cycles.

Plasma and lymphocytes (isolated from fresh whole blood) were tested for their ability to bind radio-iodinated Folligon (Intervet). Neither cellular nor humoral immune reaction to PMSG could be detected during the course of treatment,

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* Department of Animal Science and Production, Institute of Agriculture, University of Western Australia, Nedlands W.A. 6009,