IS ISOLATION OF EWES FROM RAMS REQUIRED TO ENSURE AN OVULATORY RESPONSE TO SUBSEQUENT RAM CONTACT?

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It has been widely accepted that for ram contact to advance the onset of the breeding season in Merino ewes, a period of isolation from rams is necessary. Limited contact with rams through a fence was reported to be sufficient to stimulate oestrous cyclicity in ewes in the spring, so complete isolation from rams has been thought necessary to ensure a subsequent response. The present experiment investigated whether exposure to various degrees of ram contact during September and October influenced the ovulatory response of ewes to subsequent contact with rams in early November.

Four groups of 50 Merino ewes, approximately 12 weeks post-partum, were randomly allocated to the following treatments in 3-ha paddocks: (1) complete isolation from rams, (2) opaque fenceline ram contact (fence covered in black plastic), (3) clear fenceline ram contact, (4) full physical contact with vasectomised rams. Ovarian activity in a sample of the ewes was examined using a laparoscope after 4, 29 and 65 days. On day 65 all ewes were grouped together and exposed to 10 novel vasectomised rams which had previously been in contact with other ewes. All ewes were laparoscoped again after 4 days of novel ram contact.

TABLE 1 Ovulatory responses of ewes to various degrees of ram contact

Treatment	% of ewes ovulating after 4 days	29 days	65 days	% of anovulatory ewes ovulating after 4 days novel ram contact
No ram contact	$4^{}$ (1/24)	8^{1} (2/25)	4^{x1} (2/47)	91^{y} (41/45)
Opaque fenceline ram contact	$4^{}$ (1/25)	11^{1} (5/46)	12^{x1} (6/49)	95^{y} (41/43)
Clear fenceline ram contact	4^{g} (1/24)	22^{h4} (9/40)	4^{xg1} (2/48)	89^{y} (41/46)
Full physical ram contact	4^{x} (1/23)	49^{ye2} (21/43)	78^{yf2} (36/46)	90^{yf} (9/10)

x vs.y, e vs.f, g vs.h : values in the same row are different (P<0.001, P<0.01, P<0.05 resp.).1 vs.2, 2 vs.4 : values in the same column are different (P<0.001, P<0.05 resp.). Fisher Exact Test.

There was no difference in the number of ewes ovulating after 4 days of initial ram contact, but more ewes exposed to rams either through a clear fence (P<0.05) or in the same paddock (P<0.001) were ovulating after 29 days compared to isolated controls. However, ovarian activity after 65 days was significant only in those ewes in full physical contact with rams. Subsequent exposure to full contact with novel rams increased the number of ewes ovulating within 4 days in all treatments (P<0.001). Thus isolation by a fence was sufficient to condition anovulatory ewes to ovulate in response to physical contact with novel rams. Physical contact with rams may be necessary for the transfer of the ram pheromones which are thought to be involved in the ram-effect (Knight et a1.1983) and/or other ram stimuli such as tactile/behavioural cues may be necessary for maximum stimulation of ovulation. The complexity of factors involved is emphasised by the observation that anovulatory ewes habituated to particular rams were apparently re-stimulated by exposure to novel rams.

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