

**"OBSERVATIONS ON THE OVARIAN ACTIVITY  
OF LIBYAN FAT TAILED EWES:**

**1. UTERINE INVOLUTION AND POST PARTUM  
OVARIAN ACITIVITY**

BY

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**INTRODUCTION**

The areas for expansion in the productivity of adult ewes are limited. Of these areas, the manipulation of the post partum period of anoestrus represents a promising field in non-seasonal breeders as well as ewes with extended breeding season to one of which the Libyan Fattailed ewe belongs (unpublished data). The duration of post partum ovarian inactivity is a major determinant of the duration of post partum anoestrus (Clarke et al., 1981). The resumption of ovarian activity after lambing is influenced by many factors including, environmental temp, suckling and nutrition (Jainudeen and Hafez, 1987). On the other hand plasma FSH concentrations in lactating ewes were similar to those in non-lactating anoestrus ewes (Findlay and Cumming, 1976) and appropriate Gn-RH stimulation can cause ovulation in post-partum and seasonally anoestrus ewes (McLeod, Haresi and Lamming, 1982; Wright et al., 1983) suggesting that

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Gn-RH, LH and FSH are probably not limiting factors post-partum. The object of the present study is to examine the patterns ovarian activity as well as uterine involution in post-partum grazing Libyan Fat-tailed lactating ewes.

## MATERIALS AND METHODS

### Animal and Management

Post-partum ovarian activity was studied by laparotomy in 50 grazing libyan Fat tailed ewes 15-75 days after lambing. The system of management of the ewes studies was described elsewhere (Madni, Ali, Yagoub and Zawia 1984). The experiments were performed between December 3, 1986 and January 14, 1987.

### Laparotomies

Ovarian activity and uterine size were observed by a left para mammary laparotomy performed using a tranquilizer (Calmivet, Vetoquinol) and local anaesthesia (Hostacaine, Hoechst). A 12 Cm. incision was made 4 Cm. away from and parallel to the lateral border of the mammary gland. The ovaries and uterus were exposed and examined as described by (Madani and Tirgari 1984).

Current ovarian activity was indicated by the presence of either of ovulation, a corpus luteum (C.L) or a follicle > 8 mm diameter in presence of a recently regressed C.L. The size and thickness of the uterine horns were recorded.

## RESULTS

The lambing date of two ewes was not available and they were excluded from the experiment. Results obtained from the remaining 48 ewes are presented in (Table, 1).

### 1. Uterine involution

The regression of the uterus was not followed during the first two post-partum weeks of the eight ewes examined 15-30 days after lambing 3 (37.5%) had completely regressed uteri. The other ewes showed variable degrees of regression. The largest uterus was 5 fingers wide. The incidence of fully regressed uteri increased progressively with the interval from lambing. The uterus was fully regressed in many ewes by day 30 post partum (18/48, 37.5%) while their ovaries were still inactive. Of the 24 ewes operated before day 42 postpartum 12 (50%) has fully regressed uteri but only 2 (8.3%) had active ovaries. In the remaining 24 ewes examined after day 42 postpartum, the incidence of complete uterine regression was higher (62.5%) but the incidence of ovarian activity was even much higher (37.5%).

### 2. Ovarian activity

Of the ewes examined between 15 and 75 post lambing only 11 (22.9%) showed ovarian activity (Table, 1 and Fig. 1,2). The majority of these (7/11, 63.4%) were among the ewes examined 61-75 days after lambing ( $P < 0.01$ ). Ovarian activity was in the form of mature C.L. (4 ewes), recent ovulations (4 ewes) and large follicles accompanied by regression C.L. (3 ewes). The activity was largely confined to the right ovary (8/11, 72.3%). This shown in Fig. (1). Fig. (2) shows a graded relationship between uterine involution and ovarian activity.

**Fig.1. Ewes with involuted uteri and active ovaries**

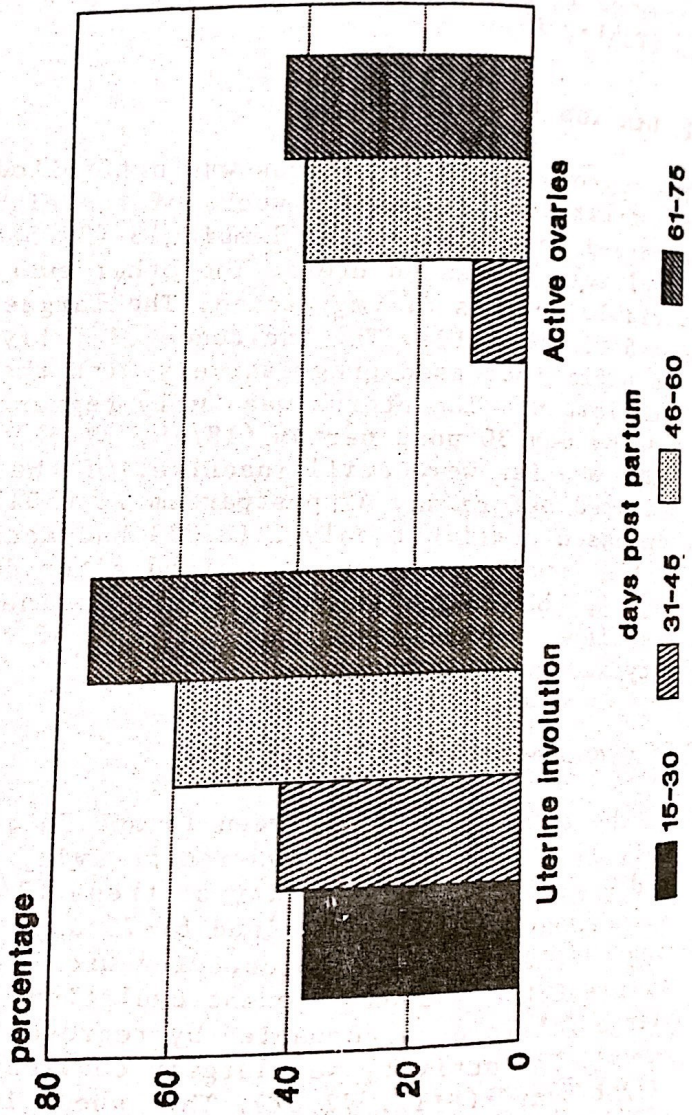


Fig.2. Ewes with involuted uteri and active ovaries before and after day 42 post partum

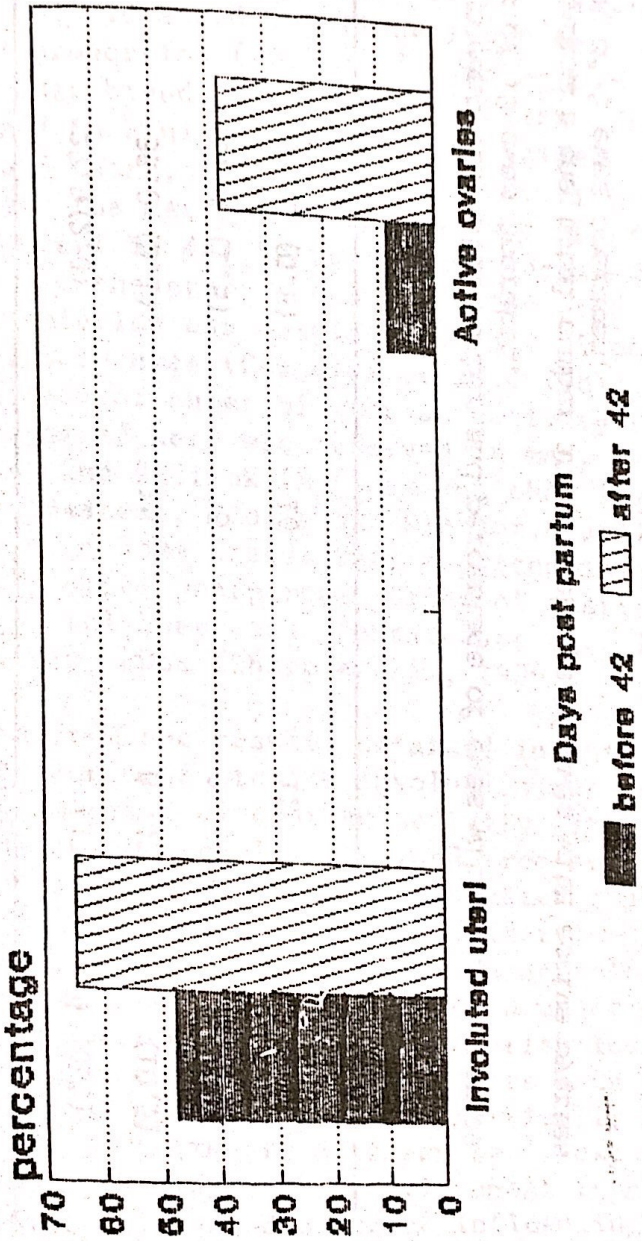


Table - 1: Frequency of uterine involution and ovarian activity during the postpartum period in Fat tailed used in Libya.

Postpartum period (days)	Mean	Number of ewes operated.	Number (%) of ewes with	
			Regressed uteri	Active ovaries
15-30	27.9 (2.0)	8	3 (37.5)	0 (0.0)
31-45	35.0 (2.1)	19	8 (42.1)	2 (10.5) <sup>a</sup>
46-60	52.4 (1.5)	5	3 (60.0)	2 (40.0) <sup>b</sup>
61-75	68.3 (0.8)	16	12 (75.0)	7 (43.7) <sup>c</sup>

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- a - Represent the total number and percentage of ewes with active ovaries out of 19 ewes operated.
- b - Represent the total number and percentage of ewes with active ovaries out of 5 ewes operated.
- c - Represent the total number and percentage of ewes with active ovaries out of 16 ewes operated.

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## DISCUSSION

Our present observation indicated that uterine involution was well advanced in all ewes but was completed in a small proportion (37.5%) of ewes by day 30 postpartum in this breed is in close agreement with results obtained in Finish Landrace ewes (Ainsworth, Lachance and Labri, 1983). A much lower rate was reported for the merino 13% of the ewes had fully regressed uteri by day 52 postpartum compared to 60% of the ewe in the present study. On the other hand uterine involution was completed by day 30 postpartum in pelibuey ewes (Gonzales et al., 1981). A graded pattern of onset of ovarian activity similar to that reported here was observed in many breeds e.g. Dorset and Sufflok (Matinez Peniche, 1979); Pelibuey (Bostedt, Stolla and Klenner, 1981). On the other hand some breeds were reported to experience a very brief postpartum period of ovarian quiescence e.g. pelibuey ewes (Gonzalez et al., 1981) and Cross bred ewes (Sharp et al., 1986).

It appears from the results obtained in this breed that some degree of uterine involution was necessary for the resumption of ovarian activity after lambing. Comparison of the results obtained from ewes examined before and after 42 postpartum indicated that uterine involution could not be the sole factor involved in the regulation of postpartum ovarian activity. Day length is not likely to have played a major role in deciding the onset of postpartum ovarian function in this study since the observations were made during a short period bisected almost symmetrically by the shortest day. Such small differences in exposure to the prevalent photoperiodic environment is not likely to precipitate a major difference influencing the regulatory mechanisms of ovarian function (Williams, 1974). Wright, Stelmasiak and Anderson (1983) noted a significant suppression of the post-ovariectomy

rise in plasma gonadotropin concentration in lactating ewes. They, as well as other workers, (Boshoft and Faure, 1976; Bosted et al., 1981 and Lewis et al., 1981), concluded that an inhibitory influence of uterine origin may be involved in suspension of postpartum ovarian activity.

### SUMMARY

Post-partum uterine involution and ovarian activity were studied by laparotomy of Fourty-eight suckling ewes 15-75 days after lambing. The largest uterus was 5 fingers wide at day 15 post-partum. The incidence of fully regressed uteri increased progressively as the post-partum interval increased. Ovarian activity followed the length of post-partum period rather than uterine regression. No ovarian activity was observed before day 35 post-partum, eleven ewes showed ovarian activity during the period of study, the majority of which (7/11) were in ewes examined after day 60 post partum.

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