

## Material and methods

Carried out at El Koudia experimental flock (INRA Morocco), the objective of the study was to determine the age at puberty in D'man (D) and Timahdite (T) ewe and ram lambs and their four-generation crosses (DxT) raised under natural photoperiod.

86 ewe lambs (7 D; 15 T, 14 F1; 14 F2; 18 F3; 18 F4) and 23 ram lambs (4 D; 7 T; 4 F2, 1 F3; 7 F4) born in late December to early January were measured.

Ewe lambs were checked for estrus by overnight exposure to vasectomized DxT rams with marked briskets. Laparoscopic examination of the ovaries was performed 4 to 10 days after the onset of estrus to confirm the occurrence of ovulation.

Ram lambs were subjected to semen collection and testicular size measurements every other week. Semen was collected using electroejaculation and examined for volume and the occurrence of the first spermatozoa.

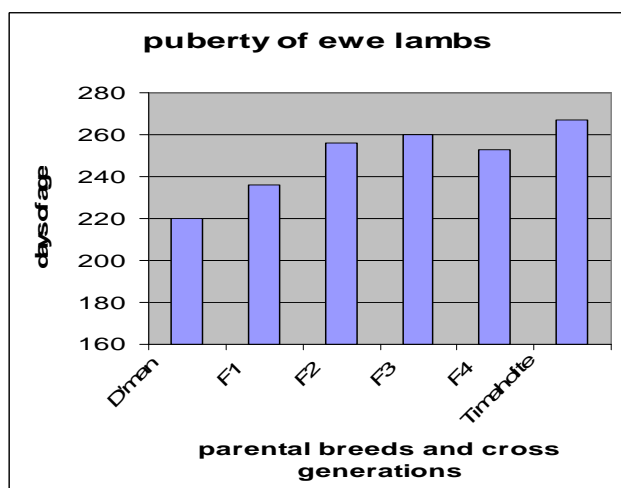
The onset of puberty was considered as the age at the occurrence of the first ovulatory estrus in females and spermatozoa in males.



Photo: INRA Morocco

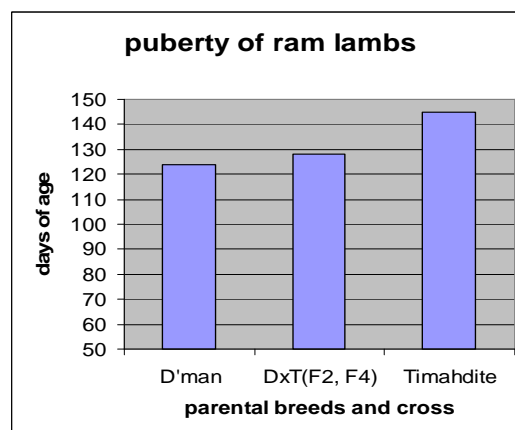
## Results and discussion

38 ewe lambs born in December 2005 were measured on autumn 2006 et 48 others born in December 2006 were measured on autumn 2007. Puberty appeared at 252 days (least-squares mean) for crossbred ewe lambs, closer to Timahdite ewe lambs (267 days) than to D'man (220 days). Effect of type (breed or cross generation) was significant, while year effect was not significant (Ls means yr 2006= 251 days, yr 2007=248 days).



Precociousness of D'man ewe lambs confirmed previous studies. Comparing the four generations of the cross, F1 appears to be closer to the most precocious parental breed D'man while F2, F3, F4 appeared to be closer to the latest parental breed Timahdite.

23 ram lambs were measured in 2008. Puberty appeared for crossbred males at 128 days of age (Ls mean) closer to D'man rams (124 days) than to Timahdite ones (145 days). Effect of type (breed or cross generation) was not significant.



Testis measurements at puberty showed that crossbred rams had a testis length (5,9 cm) shorter than Timahdite rams (6 cm) and D'man ones (6,8 cm). Concerning testis diameter (4,16 cm) and epididymal tail diameter (2,25 cm) crossbred rams ranged between parental breeds, D'man being larger than Timahdite. Crossbred had the lowest scrotal circumference (21,20 cm) while for volume of ejaculate (43,3 ml) they had the highest one. Effect of type (breed or cross generation) was not significant on all these testis traits.

## Conclusion

Puberty of crossbred D'man x Timahdite occurred between that of parentals where D'man is more precocious than Timahdite either for males or for females. Male puberty of crossbred is closer to D'man when female puberty is closer to Timahdite. Such precociousness enforces the interest to breed D'man x Timahdite generations known by their high level of fertility and prolificacy (El Fadili *et al*, 2008).