Reproductive performance in out-of-breeding season of fatty ewes using implant norgestomet with or without PMSG

Massoud Talebkhan Garoussi · Nima Farzaneh · Ehssan Gallehdar · Mehrdad Mohri

Accepted: 24 October 2011 / Published online: 9 November 2011 © Springer Science+Business Media B.V. 2011

Abstract Pregnancy in out-of-breeding season in ewes increases the economical goals. Synchronization of estrus and ovulation is essential for above program. The aims of this study using implant norgestomet with or without Pregnant Mare Serum Gonadotropin (PMSG) were to evaluate the serum progesterone (P4) concentration changes: the conception rate and estimation of the lambing rate and litter size. In total, 80 non-cycling multiparous Iranian Kurdish breed fat-tailed ewes with <0.5 ng/ml P4 were used in April and May 2008 in the suburb of Mashhad, Iran. The animals were randomly divided into three groups: a control group (n=30) without hormonal treatment, another group (n=25) received 3 mg of norgestomet implant placed subcutaneously in the convex surface of the ear for 9 days, and the third group (n=25) treated with 3 mg of norgestomet implant for 9 days with an IM injection of 500 IU PMSG at implant removal. The progesterone of treatment and control groups were measured on days 4, 9, and 13 after removal of the norgestomet. The progesterone concentration was significantly higher in treatment groups on 9 and 13 days after norgestomet removal (P<0.05). The pregnancy rate in the control, non-PMSG, and PMSG treatments groups were 17%, 52%, and 72%, respectively. The rates of single and twin pregnancy in the non-PMSG treatment group were 69% and 31%, respectively. These rates in norgestomet and PMSG treatment group were 50% and 39%, respectively. Triplet pregnancy (11%) was observed only in the PMSG treatment group. It was concluded that using implant norgestomet especially accompanied with PMSG can increase and improve the fertilization rate of ewe in the out-of-breeding season program.

Keywords Ewe · Norgestomet · PMSG · Out-of-season · Reproductive performance

Introduction

The ewe is a seasonally polyestrous animal, meaning that it displays estrus (heat) every 16–18 days during a limited breeding season. The onset of the breeding season in the suburb of Mashhad which is located in mid-north of Iran is associated with decreasing day length and temperature in the end of summer season in September. The peak of the breeding season in the mid-north of Iran, as represented by the highest ovulation proportion of the flock showing cyclic estrus activity or by the highest ovulation rate, is in October and November. Therefore, lambs are born to coincide with spring pasture growth.

Sheep have an important role in food, skin, and wool production in Iran. Mashhad suburb in Khorassan Razavi Province is a major producer of meat and dairy in the northeast of Iran. However, it can be of economical advantage if the breeding of sheep is outside the normal breeding period. Despite of this, the worldwide use of these