THE EFFECTIVENESS OF THE SYNTHETIC PROGESTIN ALTRENOGEST FOR SYNCHRONIZATION OF ESTRUS AND REPRODUCTIVE MANAGEMENT ON COMMERCIAL SWINE FARMS.

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Introduction

The introduction of gilts into the breeding herd, in an efficient and orderly manner, is a continuing management problem for intensive, closely confined swine production units. A large pool of breeding age animals is required to obtain the desired number of estrous gilts for breeding each week. In addition, the age at puberty is delayed in many herds with only 40% to 80% of gilts reared in confinement expressing estrus by 8 to 9 months of age (Christenson,1981; Rampacek et al. 1981). This reduces efficiency by increasing the number of breeding age gilts that must be maintained.

The orally active progestogen, altrenogest (previously identified as allyl trenbolone, Roussel-Uclaf, Paris, France),has been effective and practical for controlling estrus in gilts that have attained puberty and are expressing normal estrous cycles (Webel, 1978; Kraeling et al. 1981). However, altrengest was not effective for overcoming delayed puberty induced by confinement to restricted space (Kraeling et al. 1982). The purpose of this trial was to determine whether altrenogest was effective for regulating estrus and introducing gilts into the breeding herd at a younger age.

Materials and Methods

This trial was conducted on a commercial swine farm with a totally confined, weekly farrowing management system. Twelve pregnant animals (including 4 gilts) were required for each week's farrowing group. Previous records indicated that only 50% to 60% of the gilts were in estrus and bred within 60 days following selection for the breeding herd. Groups of 5 to 8 gilts approximately 6 months of age and 100 Kg bodyweight were selected and moved from the growing-finishing building to the breeding building on Friday or Saturday. The following Monday (day 1) the group was assigned to one of three treatments: 1)Control, 2)Altrenogest for 7 days, 3)Altrenogest for 14 days. One of the three treatment groups was randomly assigned each week. Altrenogest (15 mg/gilt/day) was administered by pouring the premixed drug(4 mg/g) on the daily ration. The gilts were housed and fed on concrete floors as a group. Control gilts were moved to breeding pens adjacent to boars on day 1, whereas the treated gilts were moved following altrenogest treatment on day 7 or 14. The gilts were observed for estrous behavior for 45 days and bred naturally.

Results and Discussion

The results are presented in Table 1. The proportion of altrenogest-treated gilts in heat within 10 or 21 days was greater($P < .05$) than for controls. At 42 days only the 14-day group differed from controls($P < .05$). The proportion of gilts in heat and bred at a constant time of 27 days after introduction into the breeding herd was also greater($p < .01$) for altrenogest-treated compared to control gilts. Farrowing rate and litter size were not different.

Both altrenogest treatments facilitated synchronization and grouping of estrus during the first 10 days post-treatment. Estrus was expressed within 10 days in 50% to 60% of the treated gilts,whereas over 40 days were required for a similar proportion of controls to express estrus. In addition to reducing the interval to conception, altrenogest permitted a reduction by approximately 50% in the number of gilts in the breeding pool. Altrenogest was effective for synchronizing estrus in these young gilts, facilitating their management and the introduction of pregnant gilts into the farrowing schedule.

The proportion of gilts in estrus within 10 days following altrenogest treatment in this trial (50% to 60%) was less than reported for older gilts with previous estrous cycles (80% to 100% Webel,1978). In contrast, Kraeling et al. (1982) reported that altrenogest was ineffective for synchronizing estrus in gilts with confinement induced anestrus. In both the present trial and the previous trial of Kraeling et al.(1982) gilts were reared and maintained in confinement. However, in the present trial the gilts were relocated and received altrenogest at 6 months of age, whereas the gilts remained in the same pens and social groups until 8.5 months in the previous study. The management system used in the previous study appeared to induce anestrus and may explain the difference in response.

Altrenogest was useful for regulating and synchronizing estrus in cycling gilts or in young gilts approaching puberty, but did not induce estrus in animals with a physiological anestrus or delayed puberty. Altrenogest was useful for assisting in the routine management of the breeding herd, in particular for introducing gilts into the farrowing schedule.

Table 1: ALTRENOGEST FOR MANAGEMENT OF THE YOUNG GILT.

	Duration of Altrenogest Administration		
	0	7	14
Number of Gilts	95	100	130
Percent in Estrus Post-Treatment:			
10 Days	32[a]	50[b]	60[b]
21 Days	41[a]	62[b]	67[b]
42 Days	57[a]	66[ab]	72[b]
Percent in Estrus 27 Days After Introduction Into the Breeding Herd	46[c]	61[d]	60[d]
Farrowing Rate (%)	92	86	84
Litter Size	8.7	9.2	9.2

ab cd Means within rows with different superscripts were different (ab = $P < .05$; cd = $P < .01$).

Selected References

Rampacek,G.B., Kraeling,R.R.and Kiser,T.E. 1981. Delayed puberty in gilts in total confinement. Theriogenology,15:441-500; Christenson,R.K., 1981. Influence of confinement and season of the year on puberty and estrous activity of gilts. J.Anim.Sci.,55:821-830; Webel, S.K., 1978. Ovulation control in the pig. In: Control of Ovulation,Crighton,Haynes,Foxcraft and Lamming, Eds. Butterworth,421-434; Kraeling, R.R.,Dzuik,P.J.,Pursel,V.G.,Rampacek,G.B.and Webel,S.K.,1981. Synchronization of estrus in swine with allyl trenbolone(RU-2267). J.Anim. Sci,52:831-835; Kraeling,R.R.,Rampacek,G.B.and Kiser,T.E.,1982. Failure of the orally active progestin,Regu-Mate, to overcome confinement-induced delayed puberty in gilts. Theriogenology,17:183-187.