

EFFICACY OF TWO GONADOTROPHINS ON RECEPTIVITY OF COMMERCIAL DOES

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ABSTRACT: The efficacy of two commercial gonadotrophins (PMSG) on sexual receptivity of 1104 does was compared in a field trial. The two gonadotrophins were tested in alternate 8 weekly groups (4 Foligon®; 4 Gonaser®). Does that allowed the male to

Key words: PMSG, receptivity, does.

mate were considered as receptive. Does treated with different PMSG were equally receptive (Foligon® 94.5% vs Gonaser® 95.1%).

Résumé: Efficacité de deux gonadotropines sur la réceptivité de lapines de souches commerciales.

L'efficacité de l'action de deux gonadotropines (PMSG) sur la réceptivité sexuelle de 1104 lapines a été comparée dans un essai en ferme. Les deux gonadotropines ont été testées sur 8 groupes

Mots clés: PMSG, réceptivité, lapines.

hebdomadaires alternés (4 Foligon®; 4 Gonaser®). Les lapines qui acceptaient l'accouplement du mâle étaient considérées comme réceptives. La réceptivité des lapines ne différait pas entre les deux gonadotropines (Foligon® 94.5% vs Gonaser® 95.1%).

INTRODUCTION

Although other methods have proven to be efficient for the oestrus synchronisation in does (THEAU and BOITI, 1998), PMSG (Pregnant Mare Serum Gonadotrophin) is still widely used in industrial rabbit production because of its follicle-stimulating effect. It improves receptivity of does and increases fertility and litter size, mainly in lactating and primiparous does (BOURDILLON *et al.*, 1992; McNITT, 1992; MAERTENS *et al.*, 1995; CASTELLINI, 1996). The aim of the present work was to compare the efficacy of two commercial gonadotrophins (PMSG) on receptivity of does in a field trial.

MATERIAL AND METHODS

Treatments

Two commercial PMSG sources were compared (Foligon®, Intervet vs Gonaser®, Laboratorios Hipra). In both cases, 5000 IU were diluted in 200 ml of a

saline solution (Glucosalina Grifols®) and 1 ml of this dilution (i.e. 25 IU/doe) was injected subcutaneously in the scruff of the neck 48 hours prior to mating.

Four groups of does (I, III, V, VIII) were treated with Foligon® and the remaining four groups (II, IV, VI, VII) were administered Gonaser®. Treatments were alternated weekly (Group I: 23/10/2001, Group II: 29/10/2001, Group III: 06/11/2001, Group IV: 13/11/2001, Group V: 20/11/2001, Group VI: 27/11/2001, Group VII: 3/12/2001, Group VIII: 11/12/2001).

Animals

Eight groups comprising a total of 1104 does were used in the study. Only nulliparous and lactating does in day 9 of lactation were treated. Mean size of the group was 138 does. Details on genetics and physiologic status of does are shown in Table 1.

Conditions

The study was conducted in an industrial rabbitry where does were semi-intensively handled in weekly groups. Lighting programme was constant, 16 hours-light: 8 hours-dark, and ventilation was natural. Does

were housed in individual flat-deck wire-mess cages and fed with a balanced granulated diet *ad libitum*.

Males were allowed to mate twice with the same doe on day 11 post-parturition. Receptivity was assessed visually during mating. If the doe accepted mating, then it was considered to be receptive. Receptivity percentage was calculated as Number of does accepting service/Number of PMSG-treated does x 100.

Percentage of births calculated as Number of does giving birth/(Number of does giving birth + Number of does not giving birth) x 100. Number of live born per birth was also recorded. Due to the handling of the animals in the industrial rabbitry, it was not possible to record these data from all does. They were assessed in 397 does treated with Foligon® and 383 does treated with Gonaser®, all of them receptive.

Statistical Analysis

Frequency of receptive does was calculated for each treatment and group. A χ^2 test was used to compare frequencies. For each treatment, the same analysis was done on does giving and not giving birth

and number of live born per birth was analysed by ANOVA.

RESULTS

The number of receptive does by group and treatment is shown in Table 2. There were no differences in receptivity in does treated with Foligon® and Gonaser®. Differences were only found when comparing group II with VI and VIII ($P<0.05$), (Table 2). It seems that there is a positive relationship was found between receptivity and maximum temperature at the day of mating (Figure 1).

Percentage of births was not significantly different from Foligon® and Gonaser® groups (94.5% and 96.6%) as well as number of live born per birth (8.8 and 8.7).

DISCUSSION

The percentage of receptive does in this trial was similar to those reported in previous works using

Table 1: Characteristics of does in the trial

	GROUP								Total
	I	II	III	IV	V	VI	VII	VIII	
N° does	136	142	149	129	129	146	138	135	1104
Breed Type (%)									
Californian	10.3	7.0	1.9	14.0	10.9	9.6	10.1	8.2	9.3
New Zealand	41.9	42.3	40.9	38.8	37.2	37.0	39.9	42.2	40.0
Commercial hybrids	47.8	50.7	57.2	47.2	51.9	53.4	50.0	49.6	50.7
Physiologic status (%)									
Multiparous ¹	89.0	75.3	89.9	87.6	96.1	84.2	85.5	94.8	87.7
Primiparous ²	0.0	13.4	0.0	0.0	0.8	1.4	8.7	5.2	3.7
Nuliparous ³	11.0	11.3	10.1	12.4	3.1	14.4	5.8	0.0	8.6

¹Does having more than one parturition. ²Does with just one parturition. ³Does with no parturition.

Table 2: Receptivity of does treated with two commercial PMSG (Foligon® vs Gonaser®)

	N° PMSG-treated does	N° receptive does	N° non receptive does	Missing data	% receptivity ¹
Foligon®	549	519	30	0	94.5
Group I	136	132	4	0	97.1
Group III	149	141	8	0	94.6
Group V	129	122	7	0	94.6
Group VIII	135	124	11	0	91.9
Gonaser®	555	527	27	1	95.1
Group II	142	140	2	0	98.6
Group IV	129	121	7	1	94.5
Group VI	146	135	11	0	92.5
Group VII	138	131	7	0	94.9

¹ Receptivity = (N° receptive does / N° PMSG-treated does) x 100

PMSG (90-98%; MORIN *et al.*, 1976; McNITT, 1992; MAERTENS *et al.*, 1995; CONTERA, 1996).

The higher percentage of receptive does in October (Groups I and II) compared to the groups mated in November and December could be explained by a severe weather change that happened in the area where

the rabbitry was located (I.N.M., 2001). A decrease of temperature could have affected negatively the receptivity, although it remained in an acceptable range during this period (91-94%). An influence of treatment on these results could be excluded since groups treated with both PMSG were affected in the same way.

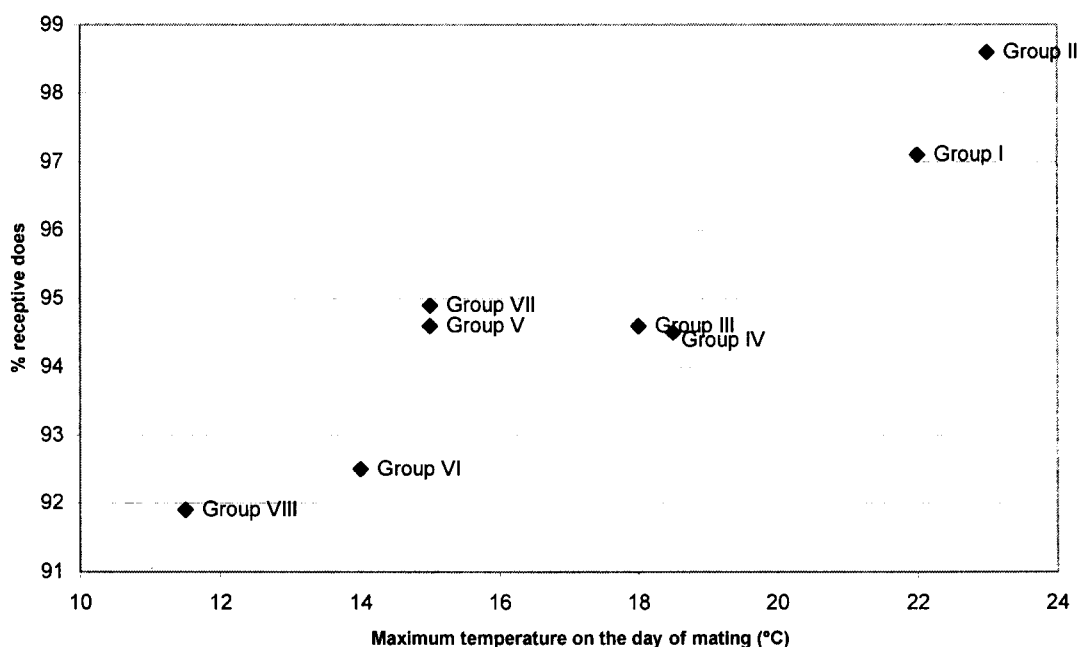


Figure 1: Relationship between receptivity of does and maximum temperature on the day of mating.

Differences in receptivity disappeared when globally comparing does treated with Foligon® and Gonaser® (94.6% vs 95.1%, respectively) and, percentage of births and number of live born were also similar for both treatments.

CONCLUSIONS

When comparing the efficacy of two commercial gonadotrophins (PMSG) on receptivity of does in a field trial, no differences were found.

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