

Invocation Receptivity in Female of Rabbit

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Abstract

The target of this work was verified effect of transport females in the car for advance state of receptivity in young females broiler rabbits. We used nulliparous females of broiler hybrid HYCOLE (age 4-5 months, weight 3.5-3.8 kg). Experiment was realized twice, initially in half of November (31 females), after that in half of February (32 females). Females were laid individually in boxes, after they were transported by car 1 hour (50 km). Before and after experiment we detected state of receptivity in females with coloration of vulva. The state of receptivity was determined from 1 for 4 colour of vulva. (1 – anaemic coloration of vulva, 2- pink, 3 – red, 4- violet). We detected positive state of transport, on the receptivity. In November before transport was average of receptivity 1.87, after transport 2.25. The state of receptivity will be improved in 12 females (38.71 %). Improve from 1 to 2 was detected in 4 females, from 2 to 3 in 8 females. Improved from 2 to 4, or from 3 to 4 wasn't noticed in this group. The state of receptivity wasn't changed in 19 females (61.29 %). In the state of receptivity 1 stayed 2 females, in the state 2 stayed 15 females, in the state 3 stayed 2 females and in the state 4 wasn't any female. In February after the end of experiment, state of receptivity was improved with transport in the car from 2.19 to 2.65. The state of receptivity was improved in 13 females (40.63 %). Improve from 1 to 2 we detected in 1 female, from 2 to 3 we detected in 8 females, from 2 to 4 we detected in 2 females, from 3 to 4 in 2 females. In 19 females (59.38%) we don't noticed change state of receptivity. In the state of receptivity 1 were 2 females, in 2 were 11 females, in 3 were 5 females, and in 4 was 1 female.

Key words: coloration of vulva, estrus, rabbit, receptivity.

1. Introduction

Perspective possibilities of intensification of rabbit production include the use of artificial insemination. Before artificial insemination, it is necessary to use oestrus synchronization in females. The most common methods of estrogen synchronization include hormonal treatment with a PMSG-based substance (Pregnant Mare Serum Gonadotropin) [1]. The active ingredient PMSG obtained from pregnant mare sera is the most commonly used hormone for lactating rabbit females [2].

[3] states that the normal use of PMSG may be the main cause of fertility decline.

[4, 5] more than 20 years ago, described the disadvantages of using PMSG in rabbit reproduction. [5] states that doses of PMSG on rabbit farms usually exceed the recommended dose. [6] states that the use of exogenous hormones reduces the natural quality of rabbit meat and is contrary to welfare.

The influence of the seasons on reproduction of broiler rabbits is described [7]. Stimulation with an increase in pre-mating energy intake has a positive effect on receptivity and fertility on many farm animals, however, food restriction has a detrimental effect on sexual receptivity and litter weight. [8] describes the influence of feed restriction (16-hours feed restriction before AI) for oestrus in nulliparous does of broiler rabbits. [9] compared an effect of hormonal treatment and group housing system of does on vulva

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coloration before artificial insemination. Author showed the increased receptivity was observed after the group housing of does (2.74 contra 2.20). The group housing increased the receptivity in 46.88 % of does. The receptivity of 50 % of does remained unchanged and the receptivity of 3.12 % does was reduced. The increased values were observed after hormonal treatment (PMSG) of does (2.30 contra 2.10). The hormonal treatment increased the receptivity in 21.59 % of does. The 76.14 % of does remained unchanged and the receptivity of 2.27 % of does was reduced.

Examining alternative estrogen induction procedures in female rabbits is very perspective, we must count on European Union legislation prohibiting us in the future from using hormonal preparations in food animals.

[10] proved the continuity of coloration of the rabbit female's vulva and the oestrus state.

[11] report that females with anaemic vulvures reach a conceptual ratio of only 35%, with the pink vulva 55%, with the pink vulva 75% and only the 40% with the violet vulva.

The positive results of the increase in receptivity in nulliparous females were noted by the use of feed restriction [12] and using group housing [12, 8]. [2] describes a cage change as a suitable alternative method of receptivity synchronization. The positive effect of group housing (15 - 30 minutes) before inseminating on receptivity is described [13, 14, 15, 16]. [16] states that female nulliparous are the most challenging to induce receptivity through alternative methods.

Under the conditions of small rabbit farms, breeders say that females that refuse to refuse the male will begin to be receptive after being transported in a car.

In recent years, great efforts have been made to find alternative methods of synchronizing rabbit oestrus.

The target of this work was verified effect of transport females in the car for advance state of receptivity in young females' broiler rabbits.

2. Materials and methods

The experiments were carried out under the conditions of a private rabbit farm. The females were housed in a hall with a partially controlled microclimate. Photoperiod mode was natural.

We used nulliparous females of broiler hybrid HYCOLE (age 4-5 months, weight 3.5-3.8 kg). Experiment was realized twice. First in half of November (31 females), second in half of February (32 females). Females were laid individually in boxes. After they were transported by car 1 hour (50 km). The temperature in the hall was 9 ° C. The temperature during transport was 22 ° C (in the car).

Before and after experiment we detected state of receptivity in females with coloration of vulva. The state of receptivity was determined from 1 for 4 colour of vulva. (Table 1).

The observed results were statistically processed by using the program Microsoft Excel and differences between groups were compared of Student's t-test.

Table 1. Distribution of state receptivity

The status of the vulva receptivity	Description signs of receptivity
1	Anemic not swollen vulva
2	Slightly swollen pink vulva
3	Markedly swollen red vulva
4	Markedly swollen violet vulva

3. Results and discussion

We detected positive state of transport, on the receptivity. In November before transport was average of receptivity 1.87, after transport 2.25 (-2.82 ++). The state of receptivity will be improve in 12 females (38.71 %). Improve from 1 to 2 was detected in 4 females, from 2 to 3 in 8 females. Improved from 2 to 4, or from 3 to 4 wasn't noticed in this group.

The state of receptivity wasn't changed in 19 females (61.29 %). In the state of receptivity 1 stayed 2 females, in the state 2 stayed 15 females, in the state 3 stayed 2 females and in the state 4 wasn't any female.

In February after the end of experiment, state of receptivity was improved with transport in the car from 2.19 to 2.65. The state of receptivity was improved in 13 females (40.63 %). Improve from 1 to 2 we detected in 1 female, from 2 to 3

we detected in 8 females, from 2 to 4 we detected in 2 females, from 3 to 4 in 2 females. In 19 females (59.38%) we don't noticed change state of receptivity. In the state of receptivity 1 were 2 females, in 2 were 11 females, in 3 were 5 females, and in 4 was 1 female. We can assume that the positive transport effect was also influenced by olfactory incidences among females, similar to the grouping method prior to insemination, but without the contact of individual females.

[9] states that, by means of a joint setting (30 minutes), the receptivity state increased from

2.20 ± 0.39 to 2.74 ± 0.66 , with the hormone treatment receptivity increased from 2.102 ± 0.30 to 2.30 ± 0.44 (no statistically significant difference).

Improving the receptivity results after group housing are also reported [14, 13]. [8] describes the positive effect of a 16-hour feed restriction on nulliparous females on the receptivity state. [14] did not detect statistically significant differences in fertility between alternative methods of estrous synchrony and conventional method (PMSG).

Table 2. Results of changes in female rabbit receptivity

Experiment period	Number of does n	Change in receptivity (%)	Comparison of differences	State of receptivity		
				$\bar{x} \pm \text{sd}$	x_{\min}	x_{\max}
November	Before transport	31		1.87 ± 0.50	1	3
	After transport	31	-2.82 ++	2.25 ± 0.58	1	3
February	Before transport	32	-2.53 +	2.19 ± 0.64	1	4

4. Conclusions

We found the positive effect of transporting nulliparous female rabbits in the car on receptivity. We also recorded an increase in receptivity in November, at a time when the daylight is shortening, which has a negative effect on the reproduction of rabbits. In November, post-transport receptivity increased from 1.87 ± 0.50 to 2.25 ± 0.58 (High significant statistically difference (-2.82 ++)). The state of receptivity will be improved in 38.71 % females. In February, post-transport receptivity increased from 2.19 ± 0.64 to 2.65 ± 0.83 (Statistically significant difference (-2.53 +)). The state of receptivity was improved in 40.63 % females. Based on the results we can recommend this method especially for smaller breeds of rabbits.

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