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EFFECT OF BIOSTIMULATION BY BULL EXPOSURE ON RECOVERY OF OVARIAN ACTIVITY AND REPRODUCTIVE ASPECTS DURING THE POSTPARTUM PERIOD OF EGYPTIAN BALADI CATTLE

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SUMMARY

The current research aims to investigate the effects of biostimulation on recovery of ovarian activity and reproductive aspects during postpartum period of Baladi cattle. A total number of thirty-six of Baladi cattle was used in this study during the post-partum period. The cows were divided into two equal groups; the first group was exposed to teaser bull and the second group as a control. The results indicated that the percentage of cows resumed ovarian activity during the post-partum period was 72.2 and 38.8% in cows exposed to bull and without presence of the bull respectively (P <0.05). The interval from calving to the first ovulation during the post-partum period was significantly lower (P <0.05) in cows of the first group than cows of the second group by about seventeen days. The interval from calving to the first estrus post-partum was significantly (P <0.05) longer by fifteen days in cows that not exposed to bull than in cows exposed to bull. The proportion of quiet ovulation was significantly (P <0.05) lower (30.8%) in cows that exposed to bull compared to cows that not exposed to bull (42.9 %). The percentage of anestrous cases was significantly (P<0.05) lower (27.8%) in cows that exposed to bull compared with cows that not exposed to bull (61.2%). First service interval post-partum was significantly (P <0.05) lower (70.7±18.7 d) in treated cows than in cows of the control group (85.8±10.4 d). The interval from calving to conception was significantly (P<0.05) lower (91.7±18.5 d) in cows exposed to bull than cows of the control group (110.5±8.7 d). Number of service per conception was lower (1.8±0.4 service) in treated cows than cows of control (2.5±0.6 services). Conception rate in cows that exposed to bull during the post-partum period was higher (50%) (P <0.05), compared to cows not exposed to bull with recorded less percentage (22.2%). Estrus signs under the experiment were more manifested in cows that exposed to bull compared to the control group. ***In conclusion****, the results of this research elucidated the beneficial effect of presence of bull with cows and resumption of ovarian activity and improving the reproductive aspects of Baladi cattle during the post-partum period.*

Key words: Biostimulation, ovarian activity, reproductive aspects, Baladi cattle

INTRODUCTION

Biostimulation is one of the methods that used for motivation of the cows to resume ovarian activity. Martin *et al.* (2004) and Martin (2009), Socio-sexual stimuli became more focused through recent years. Biostimulation depends on the pheromones execreted from the bull, which plays an effective role in cattle behavior and reproductive processes Custer *et al*. (1990), Fernandez *et al.* (1993) and Shipka and Ellis (1998). In cattle, cutaneous glands, urine or feces are the major source of pheromones that intermediate the bio-stimulatory effect of bulls on resumption of ovarian activity in cows and accelerate the onset of puberty in heifers (Fike *et al.*, 1996; Rekwot *et al.*, 2001 and Tauck and Berardinelli, 2007). Biostimulatory effect of bulls is mediated by secretion of pheromones into the environment through excretory products of bull (Berardinelli and Joshi, 2005**).** Exposure of cows to bull 24 hrs daily lead to hasten resumption of ovarian activity in anestrous suckled cows during the postpartum period (Tauck *et al*., 2006). Kerketta *et al*. (2017) reported that the bio-stimulation technique offers an effective tool and practical way to improve reproductive efficiency in cattle. Many investigations concerned with the effects of biostimulation on resumption of ovarian activity were reported (Landaeta-Hernández *et al*., 2013; Akhtar *et al*., 2015 and Zaidi and Anwar, 2018). Recently, many researchers (Mat, 2013; Silva Filho *et al*., 2015 and Ungerfeld, 2018) suggested that there is a positive effect of bio-stimulation on reproductive efficiency in post-partum period. The present investigation aim to, study the effect of bull exposure to Egyptian Baladi cows during the post-partum period on recovery of ovarian activity and reproductive aspects.

MATERIALS AND METHODS

Experimental design:

Thirty-six of Baladi cows were divided into two groups (n=18 cows for each group). The first group was exposed to bull daily after calving immediately. The second group was non- exposed to bull used as a control and the round of exposure to bull was done for a duration of 120 days post-partum all day.

Location of farm and weather conditions :

This work was carried out in Aswan governorate. The farm of cows is located at Nasser El-Nubba city (32°, 31' 23" East and 22°, 28' 09" North). Ambient temperature and relative humidity during the hot months are presented in Table (1). Temperature humidity index (THI) estimated according to the formula proposed by Mader *et al*. (2006):

THI =(0.8 × T max db)+[(RH/100) × (T max db −14.4)] +46.4

Temperature-humidity index (THI)= 0.8 x ambient temperature + [(% relative humidity) 100) x (ambient temperature -14.4)] + 46.4

Table 1. The ambient temperature (C°), relative humidity (%) and temperature humidity index throughout the hot months

Hot months	Average Ambient Temperature (C°)		Average Relative Humidity (RH%)	THI
	Min	Max		
April	20.1	34.0	17	76.9
May	22.6	40.7	16	83.2
June	25.3	41.4	16	83.8
July	26.2	41.2	17	83.9
August	26.0	41.0	18	83.9
September	23.8	38.4	20	81.9

Animals feeding and management:

The cows were used after calving immediately. Specifications of experimental cows are presented in Table (2). Cows raised in traditional farm as semi-shaded yards. In addition to concentrate ration (corn grains and wheat bran), animals were offered *alfa-alfa*, hay wheat, corn fodder during the experimental period. All cows were kept under the same environmental and managerial conditions according the farm routine work.

Table 2 . Specifications (Mean ± SE) of cows exposed or not exposed to bull

Groups	Body weight (kg)	Age (years)	Parity
Bull-exposed (BE) (n=18)	376.83 ± 16.47	6.36±2.42	4.78± 1.86
Not exposed (NE) (n=18)	378.72± 14.92	5.98± 2.31	4.11± 1.53
Overall (n=36)	377.78± 15.52	6.17±2.34	4.44±1.71

Heat detection and pregnancy diagnosis:

Daily visual observation of cows was executed in the morning at 6:0 am and night and 18:0 pm. Once any sexual behavior signs demonstrated cows considered in estrus. The cows were inseminated naturally once displaying standing signs of heat. Diagnosis of pregnancy was established by rectal palpation 60 days post-mating) as described by Arthur (1964).

Conception rate*:* calculated as the percentage of cows, which conceived from the first mating post-partum

Conception rate = Number of pregnant cows/Total number of mated cows x 100.

Ovarian activity:

The ovarian activity was established by plasma progesterone concentration (once a week sampling), when the plasma progesterone concentration rise above the basal line (1ng/ml) blood, so the ovary started its activity. Besides that, rectal palpation was performed for detecting the corpus luteum on the ovary in weekly basis.

Analysis of hormones:

Blood samples were collected at estrus, day 7, 14 and 21 after mating in heparinized tubes from the jugular vein. Samples were centrifuged at 3000 rpm for 15 minutes for plasma harvesting. Plasma was separated and stored at -18 ºC until the time of analysis, progesterone (P4) hormone was determined using radioimmunoassay kit (Immunotech, France). Sensitivity value reported to be according to manufacturer information. The intra- and inter-assay variation coefficients were 6.3 and 11.4%, respectively**.**

Statistical analysis:

The statistical design included one factor (effect of exposure to bull), the analysis was performed confirmed using SAS (2002). The following model was used:

$$Y_{ij} = \mu + T_i + e_{ij}$$

Where:

Y_{ij} = the observation trait

μ = overall mean

T_i = effect of exposure to bull (treatment=1, control=2)

e_{ij}= experimental error

Duncan's Multiple Range test (Duncan, 1955) was used to test the significance of the differences between means. Chi Square was performed.

RESULTS AND DISCUSSION

Effect of exposure to bull on resumption of ovarian activity of Egyptian Baladi cattle:

Figure (1) shows the percentage of cows resumed ovarian activity post-partum, which was 72.2 and

38.8% in cows exposed to bull and not exposed to bull, respectively. There was a significant (*P<0.05*) difference between both groups. The obtained result is in agreement with that reported by Landaeta-Hernández *et al.* (2008) and Tauck *et al*. (2010) who found that proportion of cows resumed ovarian activity was higher (100 and 60%) in cows exposed to bull than those not exposed to bull (80 and 10%), respectively. Bolanios *et al*. (1998) showed that the percentage of cows repeated ovarian activity was greater in cows exposed to a bull (57%) than in unexposed cows (7%). The proportion of cows resumed ovarian activity was higher in cows that exposed to a bull (25.4%) than those not exposed to bull (14.7%) at sixteen days after calving. The percentage of cows repeated ovarian activity was higher in cows that exposed to a bull (53.7%) compared to that cows not exposed to bull (35.3%) during eighty days post-partum (Rekwot *et al*., 2000b).

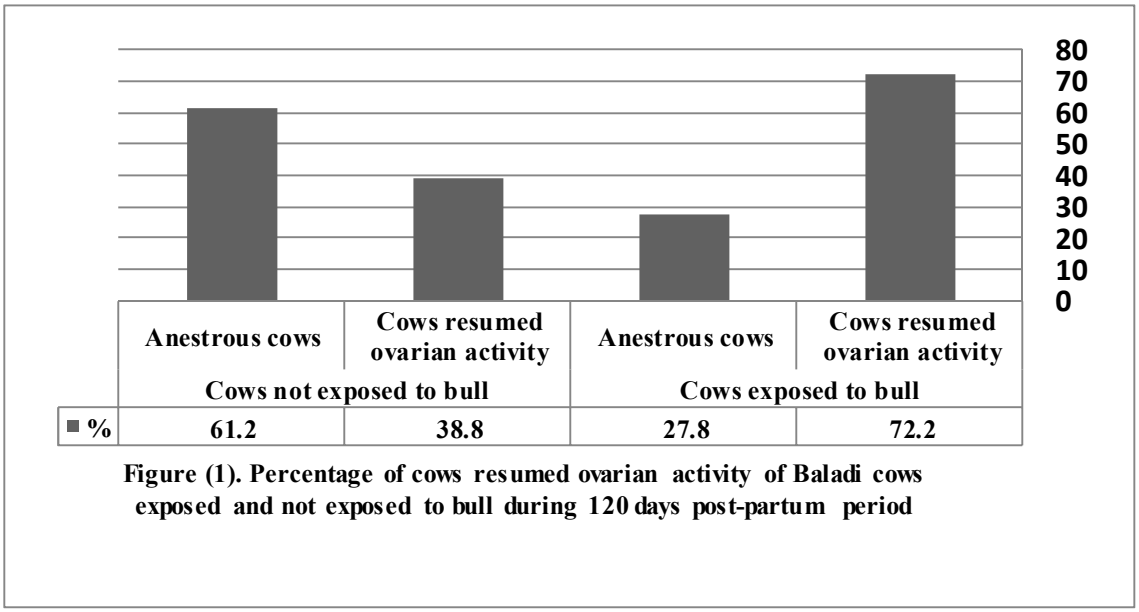

Figure (1). Percentage of cows resumed ovarian activity of Baladi cows exposed and not exposed to bull during 120 days post-partum period

The interval from calving to the first ovulation post-partum was significantly lower (*P <0.05*) in cows exposed to bull than those not exposed to bull by about seventeen days (Table 3). The present results are in correspondence with those reported by (Landaeta-Hernández *et al*., 2008; Tauck *et al*., 2010 and Akhtar *et al*., 2015) who estimated the interval from calving to the first ovulation to be lower in cows exposed to bull ranging between (39.7 -87.7 days) than those not exposed to bull (49.7- 101.2 days). Similar trend was reported by Naasz and Miller (1987) who showed that the interval from calving to resumption of ovarian activity was lower in cows exposure to bull (47.2 days) compared with those not exposed to bull (71.4 days). Additionally, Naasz and Miller (1990) found that repeated estrus occurred sixteen days earlier for cows exposed to bull compared to those not exposed to bull. Recently Zaidi and Anwar (2018) investigated that bio-stimulation by exposing the Nili-Ravi buffaloes to bull for 24 hour daily accelerate the repetition of postpartum ovarian activity. In addition, Crowe *et al.* (2014) found that late repetition of ovulation in cows is fixedly due to a GnRH-mediated lack of LH pulse frequency.

Table 3. Effect of exposure to bull on resumption of ovarian activity during 120 days post-partum of Egyptian Baladi cattle

Items	Exposure to bull	Non- exposure to bull
No. of cases	18	18
Number of cows resumption of ovarian activity[1]	13	7
Percentage of cows resumption of ovarian activity (%)	72.2^{a}	38.8^{b}
1st Ovulation post-partum (days)	63.9^{a}±21.5	80.7^{b}±15.1
1st Estrus post-partum (days)	70.7^{a}±18.7 (9)	85.8^{b}±10.4 (4)
Quiet ovulation (%)	30.8^{a} (4)	42.9^{b} (3)
Anestrous cases (%)	27.8^{a} (5)	61.2^{b} (11)

a, b: values within the same row having different superscripts are significantly different at (P <0.05)
1-Resumption of ovarian activity during 120 days post-partum

The interval from calving to the first estrus post-partum (70.7±18.7) and (85.8±10.4) days, in cows exposed and no-exposed to bull, respectively (Table 3). This interval was significantly *(P <0.05*) longer by fifteen days in cows that not exposed to bull. The present result is in agreement with that reported by Naasz and Miller (1990) and Landaeta-Hernández *et al*. (2008) who found that the intervals from calving

to first estrus was longer (59.9 and 58.3 days) in cows that not exposed to bull than those exposed to bull (38.1 and 42.2 days), respectively. Similar trend was reported by Gokuldas *et al*. (2010) who found that intervals from calving to first estrus was lower in cows exposed to bull (57.7 day) compared with those not exposed to bull (71.3 day). Monje *et al*. (1983) showed that cows that exposed to bull returned early to estrus by 14 day compared with cows that no exposed to bull. In addition, Burns and Spitzer (1992) found that the interval from calving to estrus declined in cows that exposed to bulls.

The proportion of quiet ovulation was significantly (*P <0.05*), lower (30.8%) in cows that exposure to bull compared with those not exposed to bull (42.9 %) (Figure, 2). The present result is in conformity with that reported by Shipka and Ellis (1998) and Gokuldas *et al*. (2010) who found that the quiet ovulation was lower in cows that exposed to bull (24.0 and 18.8%) compared with those not exposed to bull (35.7 and 50.0%), respectively. Significantly, decline percentage of quiet ovulation in cows exposed to bull (22%) was found in contrast with (89%) in cows that not exposed to bull (Alberio *et al*., 1987).

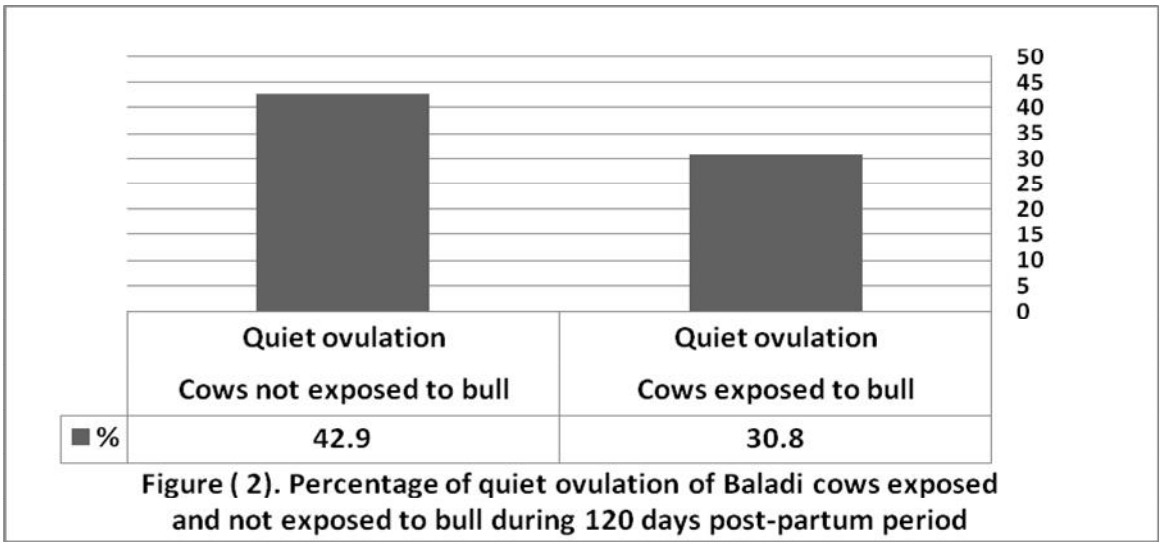

Figure (2). Percentage of quiet ovulation of Baladi cows exposed and not exposed to bull during 120 days post-partum period

The percentage of anestrous cases was significantly (*P <0.05*) lower (27.8%) in cows that exposed to bull compared with cows that not exposed to bull (61.2%), (Figure, 1). The present result is in agreement with that reported by Landaeta-Hernández *et al.* (2008) who found that lower anestrous cases were observed in cows that exposed to bull (3%) versus to (20%) in cows that not exposed to bull. Similar trend was reported by Berardinelli and Joshi (2005), Landaeta-Hernández *et al.* (2006) and Miller and Ungerfeld (2008) who found that exposure of cows to bulls decline postpartum anestrous interval. In addition, Zalesky *et al*. (1984); Alberio *et al.* (1987) and Custer *et al.* (1990) indicated that presence of a bull with cows during post-partum period decreases occurrence of anestrus cases. Introduction of bull with cows throughout post-partum period maybe due to increase in LH pulse secretion in postpartum cows (Fernandez *et al*., 1996 and Tauck *et al*., 2010) and anestrous heifers (Fiol and Ungerfeld, 2016). Similar observation was found by Kerketta *et al*. (2017) who reported that biostimulation maybe can effects on reproductive activity through the hypothalamic system that produce pulses of (GnRH). Berardinelli and Tauck (2007) and Miller and Ungerfeld (2008) suggested that the biostimulatory effects of bull exposure on cows initiated a favorable response by influencing regulation of hormone and ovarian activity.

Effect of exposure to bull on post-partum reproductive aspects of Egyptian Baladi cattle:

Post-partum first service interval was significantly (*P <0.05*) lower (70.7±18.7 d) in cows exposed to bull than those not exposed to bull (85.8±10.4 d) (Table 4). The present result is in agreement with that reported by Shipka and Ellis (1999) and Mat (2013) who suggested that the interval from calving to first service post-partum was lower (75.7 and 57.5 d) in cows exposed to bull than those not exposed to bull (88.9 and 63.8 d), respectively. Similar trend was observed by Zaidi and Anwar (2018) who found that the interval from calving to first service post-partum was less (26.3 d) in Nili-Ravi buffaloes exposure to bull than control group (40.0 d).

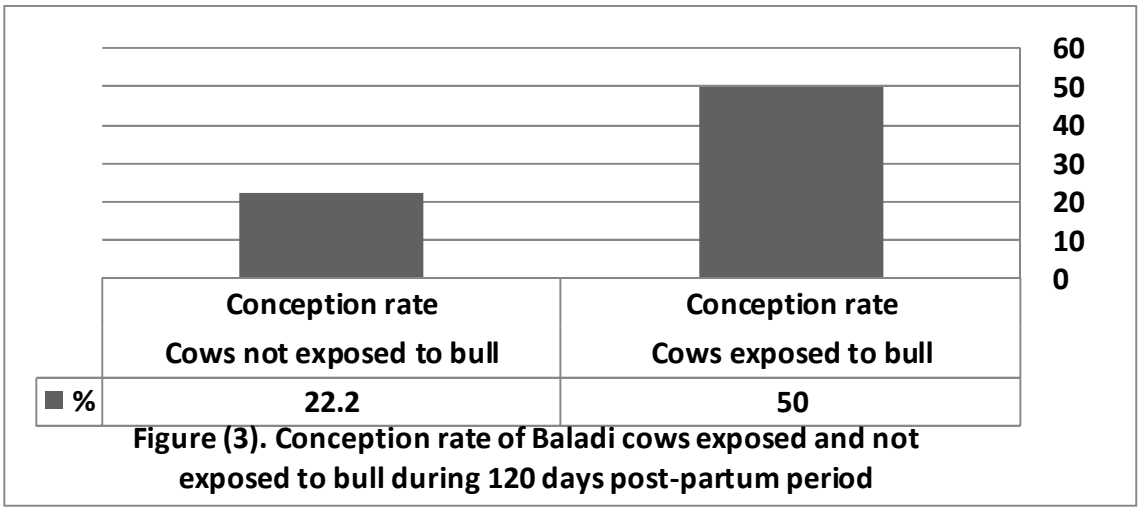

Figure (3). Conception rate of Baladi cows exposed and not exposed to bull during 120 days post-partum period

The interval from calving to conception (days open) was significantly (*P <0.05*) lower (91.7±18.5 d) in cows exposure to bull than no-exposure to bull (110.5±8.7 d) (Table 4). The present result is in agreement with that reported by Soto Belloso *et al.* (1997) Shipka, and Ellis (1999) who found that the interval from calving to conception was tended to be less (73.0 and 114.1 d) in cows after exposure to bull than no-exposure to bull (98.6 and 124.3 d), respectively. Comparable trend, was observed by Gokuldas *et al*. (2010) who found that the interval from calving to conception was lower (68.0 d) in cows following exposed to bull compared with not exposed to bull (81.2 d).

Table 4. Effect of exposure to bull on post-partum reproductive aspects of Egyptian Baladi cattle during the experimental period

Items	Exposure to bull	Non- exposure to bull
No. of cases	18	18
Post-partum first service interval	70.7±18.7[a] (9)	85.8±10.4[b] (4)
Days Open	91.7±18.5[a]	110.5±8.7[b]
Number of service per conception	1.8±0.4	2.5±0.6
Conception rate (%)[1]	50[a] (9/18)	22.2[b] (4/18)

a, b: values within the same row having different superscripts are significantly different at (P <0.05)
1-Conception rate calculated during 120 days post-partum

Number of services per conception was lower (1.8±0.4 service) in cows following exposure to bull than no-exposure to bull (2.5±0.6 services). The difference between means was insignificant (Table 4). The present result is in agreement with that reported by Shipka and Ellis (1999) who found that number of services per conception tended to be less (1.9 service) in cows after exposure to bull post - partum than no-exposure to bull (2.1 service). Similar trend, was reported by Silva Filho *et al*. (2015) who found that there was a positive effect of bio-stimulation on decreased the number of services per conception in beef cows.

Higher conception rate in cows that exposed to bull during the post-partum period (50%) in contrast to cows no exposed to bull where less percentage was recorded (22.2%). The difference between proportions was significant (*P <0.05*) (Table 4). The present result is in agreement with that reported by Ebert *et al*. (1972) and Shipka and Ellis (1999) who found that conception rate after first service was higher (68 and 53%) in cows exposed to bull than in control cows (48 and 46%) respectively. Comparable trend, was observed by Tauck and Berardinelli, (2007) and Gokuldas et al. (2010) who reported that conception rate after first service was higher (85 and 54.5%) in cows exposed to bull compared with in control group (60 and 15.5%), respectively. Mat (2013) and Ungerfeld (2018) reported that conception rate after first service was higher **(**53.9 and 81%) in cows following exposure to bull than in control group (18.2 and 58.6%), respectively. Akhtar *et al*. (2015) obtained higher conception rate (66.7%) in Cholistani cows that exposed to bull during post-partum compared to control cows (33.3%). In addition, Silva Filho *et al*. (2015) suggested that the combination of bio-stimulation and temporary weaning led to increased pregnancy rate in beef cows.

Effect of exposure to bull on estrous behavior of Egyptian Baladi cattle :

Estrus signs under the experiment were more manifested in cows that exposed to bull compared to control group (Table 5). The difference between all signs in the two groups was insignificant. Table (5) shows that vaginal mucus discharge and mounting behavior were more frequent compared to signs in the control groups whereas the standing behavior was

the same in both groups (100%). The present observations were in agreement with those found by Landaeta-Hernández *et al*. (2008) and Mat (2013) who reported that cows exposed to bull during the post-partum period recorded higher percentage of estrus signs compared with control group. Comparable trend, was reported by Khanh *et al.* (2012) who found in primiparous cow more intense estrus and more mounting behavior (100% vs. 52%) when exposed to bull continuously. In addition, Zaidi and Anwar (2018) reported that the biostimulation by bull exposure for 24 hours daily led to a significantly higher estrus expression in Nili-Ravi buffaloes. The sexual behavioral of bull toward cows during the heat maybe due to pheromones that produced from cows in urine, faces, vaginal fluid (Sankar and Archunan, 2008, Sankar and Archunan, 2011 and Archunan and Kumar, 2012)

Table 5. Effect of exposure to bull on estrus behavior of Egyptian Baladi cattle during the experimental period

Estrus signs	Treatment	
	Exposure to bull	Non- exposure to bull
No. of cases	7	6
Vaginal mucus discharge	(5/7) 71.4	(4/6) 66.7
Mounting behavior	(6/7) 85.7	(4/6) 66.7
Bellowing	(4/7) 57.1	(3/6) 50.0
Swelling of vulva	(3/7) 42.9	(3/6) 50.0
Standing behavior	(7/7) 100	(6/6) 100

Effect of exposure to bull on estrous cycle length (days) of Egyptian Baladi cattle:

The proportion of normal cycles recorded higher incidence (71.4%) in cows exposed to bull during post-partum period compared with the control (50%) (Table, 6). The odd cycles were less frequent in the two groups with no short cycles in cows exposed to bull. Similar trend was reported by Landaeta-Hernández *et al*. (2008) who showed that normal cycles were more frequent (59.3%) in cows exposed to bull than (50%) in cows not exposed in post-partum period. Hombuckle *et al.* (1995) reported that the percentages of normal cycles were significantly higher (63%) in cows exposed to bull compared with (21%) the control group. In addition, Smith *et al.* (1987) Garverick *et al.* (1992), and Breuel *et al*. (1993) reported that the biostimulation during early postpartum period maybe responsible for inducing the cows to resume ovarian activity with normal estrous cycles

Table 6. Effect of exposure to bull on estrus cycles length (days) of Egyptian Baladi cattle during the experimental period

Estrous cycle	Treatment					
	Exposure to bull			Non- exposure to bull		
	Types of estrous cycle length					
	Normal 18 – 24 d	Long > 24 d	Short <18 d	Normal 18 – 24 d	Long > 24 d	Short <18 d
No. of cycles	5	2	-	3	2	1
Percentage of cycles %	71.4	28.6	-	50	33.3	16.7
Mean ± SE	21.8±1.3	32.5±0.7	-	22.7±1.5	33.5±2.1	17.0±0.0

Effect of exposure to the bull on progesterone concentration (ng/ml) at estrus, seven, fourteen and twenty-one days post-estrus of Egyptian Baladi cattle:

Progesterone concentration throughout the estrous cycle in pregnant cows was slightly higher in treated cows compared to control group (Table 7). The present result is in agreement with the finding of Rekwot *et al*. (2000a) who found that the concentrations of progesterone was higher in cows exposed to bull but the difference was not significant. Comparable trend was also found by Custer *et al.* (1990) and Hombuckle *et al.* (1995) who reported that progesterone concentrations recorded higher value in cows that exposed to bull during the post-partum period. Fike *et al*. (1996) found that concentrations of progesterone were higher in cows following exposure to bull. In addition, Mate (2013) stated that secretion of progesterone in cows that exposed to the bull during the postpartum period had a more rapid rise after day 4. Concentrations of progesterone were higher in pregnant cows at estrus compared with in non-pregnant however, the difference was insignificant (Table 7). Mate (2013) reported that higher concentrations of progesterone before mating maybe related to better conception rates. Dieleman *et al*. (1983) and Lonergan (2011) suggested that there was a relationship between progesterone and development of the dominant follicle and quality of oocyte. Folman *et al*. (1973)

reported that higher concentration of plasma progesterone during the estrous cycle pre-insemination was related to incidence of conception in dairy cows.

Table 7. Effect of exposure to the bull on progesterone concentration (ng/ml) (Mean ±SE) at estrus, seven, fourteen and twenty-one days post-estrus of Egyptian Baladi cattle

Days of estrous cycle	Treatment			
	Exposure to bull		Non- exposure to bull	
	Pregnant	Non-pregnant	Pregnant	Non-pregnant
At estrus Mean ±SE	0.36± 0.02	0.24±0.02	0.26±0.03	0.23±0.02
7 day Mean ±SE	2.82±0.16	2.21±0.10	2.72±0.17	2.85±0.22
14 day Mean ±SE	3.79±0.72	4.03±0.42	3.66±0.18	3.54±0.13
21 day Mean ±SE	5. 84±0.61	0.22±0.04	5.72±0.41	0.25±0.01

CONCLUSION

The results of this research elucidated the beneficial effect of presence of bull with cows during the post-partum period for enhancing resumption of ovarian activity and improving the reproductive aspects of Baladi cattle.

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تأثير التنبيه الحيوي باستخدام التعرض للذكر على إستعادة النشاط المبيضى والمظاهر التناسلية خلال فترة ما بعد الولادة في الأبقار البلدية المصرية

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هدفت الدراسة الحالية إلى تقييم تأثير التنبيه الحيوي على استعادة النشاط المبيضى و المظاهر التناسلية في الأبقار البلدية بعد الولادة. أستخدم في هذه الدراسة عدد ٣٦ من الأبقار البلدية أثناء فترة مابعد الولادة. قسمت الأبقار إلى مجموعتين الأولى تعرضت للذكر الكشاف أما الثانية استخدمت كمجموعة ضابطة. أظهرت أهم النتائج أن نسبة الأبقار التي استعادت نشاطها المبيضى أثناء فترة مابعد الولادة كانت ٧٢.٢% و٣٨.٨% في الأبقار التي تعرضت للطلوقة والتي لم تتعرض للطلوقة على التوالي عند مستوى (*P <0.05*). كانت الفترة من الولادة حتى التبييض الأول أقل معنويا في الأبقار التي تعرضت للطلوقة عنه في الأبقار التي لم تتعرض للطلوقة بحوالي ١٧ يوم عند مستوى (*P <0.05*). كانت الفترة من الولادة حتى الشياع الأول أطول معنويا بـ ١٥ يوم في الأبقار التي لم تتعرض للطلوقة عنه في الأبقار التي تعرضت للطلوقة عند مستوى (*P <0.05*). نسبة التبويض الصامت كانت أقل معنويا ٣٠.٨% (*P <0.05*) فى الابقار التى تعرضت للطلوقة عن تلك الأبقار التي لم تتعرض للطلوقة ٤٢.٩%. كانت نسبة حالات عدم الشياع أقل معنويا ٢٧.٨% (*P <0.05*) فى الابقار التى تعرضت للطلوقة بالمقارنة بالأبقار التي لم تتعرض للطلوقة ٦١.٢%. الفترة من الولادة حتى التلقيح الأول كانت أقل معنويا (٧٠.٧± ١٨.٧ يوم) في الأبقار التي تعرضت للطلوقة عنه في الأبقار التي لم تتعرض للطلوقة (٨٥.٨ ± ١٠.٤ يوم) الفترة من الولادة حتى الإخصاب كانت أقل معنويا (٩١.٧ ± ١٨.٥ يوم) في الأبقار التي تعرضت للطلوقة عنه في الأبقار التي لم تتعرض للطلوقة (١١٠.٥ ± ٨.٧ يوم) (*P <0.05*). عدد التلقيحات اللازمة لحدوث الحمل كانت أقل (١.٨± ٠.٤ تلقيحه) في الأبقار التي تعرضت للطلوقة عنه في الأبقار التي لم تتعرض للطلوقة (٢.٥± ٠.٦ تلقيحه). كان معدل الإخصاب أعلى (٥٠%) في الأبقار التي تعرضت للطلوقة بالمقارنة بالأبقار التي لم تتعرض للطلوقة (٢٢.٢%). علامات الشياع كانت أكثر ظهورا في الأبقار التي تعرضت للطلوقة بالمقارنة بالمجموعة الضابطة. أظهرت نتائج البحث التأثير المفيد لوجود الطلوقة مع الأبقار في إستعادة النشاط المبيضى وتحسين المظاهر التناسلية للأبقار البلدية خلال فترة مابعد الولادة.