

SUPERVISION SHEET

**PHYSIOLOGICAL ROLE IN LACTATIONAL
PERFORMANCE OF PRIMIPAROUS BUFFALOES**

**Ph.D. Thesis
In
Agric. Sci. (Animal Production)**

By

SAMAH MOHAMED ABDEL-RAHMAN
B.Sc. Agric. Sci. (Animal Production), Fac. Agric., Cairo Univ., Egypt, 1999
M.Sc. Agric. Sci. (Animal Production), Fac. Agric., Cairo Univ., Egypt, 2005

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THESIS

**Submitted in Partial Fulfillment of the
Requirements for the Degree of**

DOCTOR OF PHILOSOPHY

In

**Agricultural Sciences
(Animal Production)**

**Department of Animal Production
Faculty of Agriculture
Cairo University
EGYPT**

2010

الدور الفسيولوجي في إدرار اللبن في الموسم الأول للجاموس

رسالة دكتوراه الفلسفة
في العلوم الزراعية
(الإنتاج الحيواني)

مقدمة من

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التاريخ / / ٢٠١٠

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للحصول على درجة

دكتور الفلسفة

في

**العلوم الزراعية
(الإنتاج الحيواني)**

**قسم الانتاج الحيواني
كلية الزراعة
جامعة القاهرة
مصر**

٢٠١٠

DEDICATION

No words in the world can express my gratefulness to my beloved mother and my beloved brother Dr. Abdel-Rahaman Mohamed, Professor of Surgical Oncology, National Cancer Institute, Cairo University for their encouragement, endless love and support; to them I dedicate this Thesis. Also I would like to express my deepest thanks to the rest of my family, my father, brother and sisters for their patience and help.

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Table 28. Plasma estradiol (pg/ml) levels in nine Egyptian primiparous buffaloes from 7 days before to 7 days after calving (LSM \pm S.E.).

Group	Precalving			Calving	Postcalving			Average
	-7	-5	-2	0	+2	+5	+7	
G1	95.02 ± 15.01	134.23 ± 15.01	200.39 ± 15.01	31.80 ± 15.01	37.55 ± 15.01	17.40 ± 22.93	35.36 ± 15.01	81.90 ^a
G2	85.69 ± 30.95	82.32 ± 15.01	95.30 ± 15.01	39.43 ± 30.95	19.04 ± 15.01	19.04 ± 15.01	32.65 ± 15.01	53.96 ^b
Average	90.35	108.27	147.84	35.61	28.29	18.22	34.01	66.08
G3	110.13 ± 21.23	48.82 ± 15.01	21.95 ± 15.01	23.05 ± 21.23	14.15 ± 21.23	27.35 ± 21.23	19.95 ± 21.23	39.509 ^b
Overall averages	97.86 ^a	88.46 ^a	105.89 ^a	30.35 ^b	29.82 ^b	21.48 ^b	31.75 ^b	57.94

G1= group that milked for 9 months, G2 = group that milked less than 7 months and G3 = group that did not lactate. Averages with different superscripts in the same column or row are significantly different ($P \leq 0.05$).

Table 29. Plasma progesterone (ng/ml) levels in nine Egyptian primiparous buffaloes from 7 days before to 7 days after calving (LSM \pm S.E.).

Groups	Precalving			Calving	Postcalving			Average
	-7	-5	-2	0	+2	+5	+7	
G1	1.84 ± 0.43	1.43 ± 0.43	1.56 ± 0.43	0.34 ± 0.43	0.38 ± 0.43	0.69 ± 0.66	0.45 ± 0.43	1.52 ^a
G2	3.14 ± 0.89	2.74 ± 0.43	1.56 ± 0.43	1.13 ± 0.43	1.04 ± 0.89	0.75 ± 1.09	0.61 ± 0.43	1.52 ^{ab}
Average	2.49	2.08	1.56	0.73	0.71	0.72	0.53	1.20
G3	3.07 ± 0.61	1.07 ± 0.43	0.39 ± 0.43	0.35 ± 0.43	0.41 ± 0.43	0.47 ± 0.66	0.55 ± 0.87	0.78 ^b
Overall averages	2.09 ^a	1.74 ^a	1.20 ^{ab}	0.44 ^b	0.49 ^b	0.63 ^b	0.52 ^b	1.01

G1= group that milked for 9 months, G2 = group that milked less than 7 months and G3 = group that did not lactate.
Averages with different superscripts in the same column or row are significantly different ($P \leq 0.05$).

Table 30. Plasma prolactin (ng/ml) levels in nine Egyptian primiparous buffaloes from 7 days before to 7 days after calving (LSM± S.E.).

Group	Precalving		Calving		Postcalving			Average
	-7	-5	-2	0	+2	+5	+7	
G1	217.02 ±5.84	176.44 ±5.84	180.96 ±5.84	176.89 ±5.84	183.12 ±5.84	185.93 ±8.93	196.25 ±8.29	187.34 ^a
G2	220.51 ± 13.08	167.95 ±17.81	175.19 ±5.84	177.84 ±12.05	178.29 ±13.08	188.73 ± 14.72	183.84 ±5.84	178.93 ^b
Average	218.76	172.19	178.07	177.36	180.70	187.33	190.04	186.35
G3	91.53 ±13.08	177.39 ±5.84	185.67 ±5.84	175.62 ±8.27	171.81 ±13.08	174.45 ±12.05	184.84 ±12.05	176.85 ^b
Overall averages	176.30 ^a	173.93 ^b	180.60 ^b	178.24 ^b	181.44 ^b	180.93 ^b	185.93 ^b	182.92

G1= group that milked for 9 months, G2 = group that milked less than 7 months and G3 = group that did not lactate.
Averages with different superscripts in the same column or row are significantly different (P≤0.05).

Table 31. Plasma insulin-like growth factor -I (ng/ml) levels in nine Egyptian primiparous buffaloes from 7 days before to 7 days after calving (LSM \pm S.E.).

Group	Precalving			Calving	Postcalving			Average
	-7	-5	-2	0	+2	+5	+7	
G1	76.55 ± 16.03	94.75 ± 16.03	89.86 ± 16.03	100.80 ± 16.03	75.11 ± 16.03	116.46 ± 20.17	91.49 ± 16.03	92.00
G2	58.03 ± 30.40	89.24 ± 21.07	98.34 ± 21.07	77.01 ± 31.70	67.76 ± 20.91	150.17 ± 31.90	146.86 ± 14.40	98.00 ^a
Average	67.29	91.99	94.10	88.90	71.43	133.31	119.17	95.17
G3	63.54 ± 20.49	64.64 ± 16.03	63.05 ± 16.03	71.85 ± 16.03	80.36 ± 20.49	72.65 ± 20.34	79.45 ± 29.82	68.52 ^b
Overall averages	75.36 ^b	82.72 ^{ab}	82.57 ^{ab}	84.27 ^a ^b	74.41 ^b	113.09 ^{ab}	105.93 ^a	88.52

G1= group that milked for 9 months, G2 = group that milked less than 7 months and G3 = group that did not lactate. Averages with different superscripts in the same column or row are significantly different ($P \leq 0.05$).

Table 32. Plasma thyroxine (ng/ml) in nine Egyptian primiparous buffaloes from 7 days before to 7 days after calving (LSM± S.E.).

Group	Precalving			Calving	Postcalving			Average
	-7	-5	-2	0	+2	+5	+7	
G1	49.66 ±7.99	54.50 ±8.99	93.53 ±2.10	46.26 ±7.99	61.30 ±7.99	42.70 ±7.99	50.51 ±10.06	56.92 ^a
G2	56.47 15.16 ±	65.24 ±10.51	69.44 ±10.51	70.21 ±15.81	73.19 ±10.43	63.70 ±15.60	78.02 ±7.18	54.36 ^{ab}
Average	53.06	59.87	81.48	58.23	67.24	53.20	64.26	62.47
G3	42.10 ±7.98	59.99 ±10.22	57.80 ±7.99	57.50 ±7.99	58.49 ±10.22	62.19 ±10.16	48.81 ±14.78	49.25 ^b
Overall averages	53.71	58.87	52.88	60.42	54.95	54.64	60.85	56.61

G1= group that milked for 9 months, G2 = group that milked less than 7 months and G3 = group that did not lactate.
Averages with different superscripts in the same column or row are significantly different (P≤0.05).

Table 33. Plasma triiodothyronine (ng/ml) in nine Egyptian primiparous buffaloes from 7 days before to 7 days after calving (LSM \pm S.E.).

Group	Precalving			Calving	Postcalving			Average
	-7	-5	-2	0	+2	+5	+7	
G1	0.86 ± 0.17	0.83 ± 0.16	0.70 ± 0.16	1.33 ± 0.16	0.76 ± 0.16	0.76 ± 0.21	1.00 ± 0.16	1.31
G2	0.93 ± 0.35	1.12 ± 0.22	1.17 ± 0.22	1.35 ± 0.33	1.54 ± 0.22	1.10 ± 0.33	1.41 ± 0.15	0.90
Average	0.89	0.97	0.93	1.34	1.15	0.93	1.20	1.05
G3	0.91 ± 0.21	1.03 ± 0.16	0.70 ± 0.16	1.06 ± 0.16	0.91 ± 0.21	1.24 ± 0.21	0.90 ± 0.31	0.93
Overall averages	0.91	1.02	0.86	1.17	1.00	1.02	1.16	1.02

G1= group that milked for 9 months, G2 = group that milked less than 7 months and G3 = group that did not lactate.