USE OF DIFFERENT ANTILUTEOLYTIC STRATEGIES TO IMPROVE FERTILITY IN CATTLE

By

AL-MOATAZ BELLAH MAHFOUZ MOSTAFA SHAARAWY

B. Sc. Agric. Sc. (Animal production), Cairo University,1999.

M.Sc. Agric. Sc. (Animal Nutration), Zagazig University-Benha Branch, 2005.

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This thesis for Ph.D. degree has been approved by:

Dr. Abd-Elmoty Khairy Ibrahim Abd-Elmoty ……..
Prof. Emeritus of Animal Physiology, Faculty of Agriculture, Minya University

Dr. Hanafy Embaby El-Sobhy ……..
Prof. Emeritus of Animal Physiology, Faculty of Agriculture, Ain Shams University

Dr. Essmat Bakry Abdalla ……..
Prof. of Animal Physiology, Faculty of Agriculture,
Ain Shams University

Dr. Farouk Abdalla El-Sayed Khalil ……..
Prof. Emeritus of Animal Physiology, Faculty of Agriculture, Ain Shams University

Date of Examination: 4/ 4/ 2013

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Under the supervision of:

Dr. Farouk Abdalla EL- Sayed Khalil

Prof. Emeritus of Animal physiology, Animal Production Department, Faculty of Agriculture, Ain Shams University (Principal supervisor).

Dr. Esmat Bakry Abd-Alla

Prof. of Animal physiology, Animal Production Department, Faculty of Agriculture, Ain Shams University.

Dr. Mostafa Kotb Soliman El-Banna

Head of Research of Animal Physiology, Cattle Research Department, Animal Production Research Institute, Agricultural Research Center, Ministry of Agriculture.

ABSTRACT

Al-Moataz Bellah Mahfouz Mostafa Shaarawy: Use of Different Antiluteolytic Strategies to Improve Fertility in Cattle. Unpublished Ph.D. Thesis, Department of Animal Production, Faculty of Agriculture, Ain Shams University, 2013.

The aim of the present study was to decrease early embryonic loss by elevate progesterone level to normal levels in dairy repeat breeder Friesian cattle. Two field experiments were conducted; the first was conducted in a governmental experimental station to determine the effect of hCG, GnRH, or P_4 administration after artificial insemination (AI) on luteal function, serum progesterone concentration and some reproductive performance of repeat breeder Friesian cows during winter and summer seasons. In this experiment 48 Friesian cows (24 in winter and 24 in summer) were used in the second and third parity and distributed equally to 4 sub groups. After AI, cows in each season were assigned randomly to four equal groups after balancing for daily milk production and parity as follows: G1 (n=6) received an intramuscular injection of 3000 IU hCG (Pregnyl, Novarel) on the 7^{th} day after AI. G2 (n=6) received 100 mg of progesterone (Prontogest, Marcyrl) intramuscularly on the 2^{nd}, 3^{rd}, 4^{th}, 6^{th} and 9^{th} days after AI. G3 (n=6) received an intramuscular injection of 10 µg GnRH (Receptal, Intervet) on the 12^{th} day after AI. The last group; G4 (n=6): cows were left untreated and served as control.

Diameter and induction of corpora lutea were significantly ($P<0.05$) increased by hCG and GnRH treatment. However, in winter and in the 2^{nd} parity, diameter of corpus lutem was significantly ($P<0.05$) improved as compared with summer and the 3^{rd} parity, but induction of accessory corpora lutea was insignificantly improved. Concentrations of progesterone in serum

were significantly (P<0.05) increased in treated cows compared to the control. The results demonstrated that treated cows were more responsive in winter than in summer as indicated by serum progesterone concentration. Compared to control group, it was identified that GnRH or hCG administration significantly (P<0.05) increased conception rate and decreased days open. Number of services/conception was reduced by hormonal treatments but differences were not significant.

Second experiment was conducted in a commercial farm 18 German Friesian heifers and cows were divided into 2 equal group: G1 (n=9) treated with 3000 IU and G2 (n=9) untreated as a control group. In the second experiment hCG treatment improved insignificantly number of services/conception and conception rate in comparison with control group. Number of services/conception was improved insignificantly in control cows in commercial farm compared to experimental station. However, treated cows by hCG improved number of services/conception in experimental station in comparison with commercial farm.

In conclusion, this study supports the use of either hCG, or GnRH post-insemination as a method for enhancing pregnancy rates in lactating repeat breeder dairy cattle especially in summer under Egyptian condition.

Key words: hCG, progesterone, GnRH, seasons, parity, corpus luteum, conception rate, days open, Friesian cows.

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LIST OF ABBREVIATIONS

AI	Artificial insemination
BW	Body weight
C	Celosias
CIDR	Controlled internal drug releasing device
CL	Corpus luteum
d	Day
DM	Dry matter
E_2	Estradiol 17β
FSH	Follicle stimulating hormone
GnRH	Gonadotropin-releasing Hormone
h	Hour
hCG	Human chorionic gonadotrophin
HS	Heat stress
i.m.	Intra muscular
IU	International Unit
kg	Kilogram
LH	Luteinizing hormone
mg	Milligram
ml (mL)	Milliliter
n	Number
ng	Nano gram
P4	Progesterone
PRID	Progesterone releasing-intervaginal device
TAI	Timing artificial insemination
TN	Thermo neutral
µg	Microgram

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