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Causes of Repeat breeder in dairy cows

A study

*Submitted to the Council of the College of Veterinary
Medicine, University of Al-Qadisiyah in Partial Fulfillment
of the Requirements for the Degree of Bachelor in Veterinary
Medicine & Surgery*

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رَبِّ زَيْنَبِ الدِّينِ الرَّاهِمَةِ الرَّاهِمَةَ

فَتَعَالَى اللَّهُ الْمَلِكُ الْحَقُّ

وَلَا تَعْجَلْ بِالْقُرْآنِ مِنْ قَبْلِ أَنْ يُقْضَىٰ إِلَيْكَ وَحْيُهُ

وَقُلْ رَبِّ زِدْنِي عِلْمًا

قُرْآنُ الدِّينِ الْعَالِمِ الْعَالِمِ



سورة طه، الآية / 114

Certificate of Supervisor

I certify that this study, entitled (**Causes of Repeat breeder in dairy cows**), was prepared under my supervision at College of Veterinary medicine/University of Al-Qadisiyah in Partial Fulfillment of the Requirements for Bachelor's degree in Veterinary Medicine and Surgery .

Assist. Prof. Ali Habeeb Jaber Albdairi

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Certificate of Department

We certify that **Hassan Fakher Abadi** has completed the fulfillment of her graduation project entitled ((**Causes of Repeat breeder in dairy cows**)) for the year 2020/2021 under our construction.

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Committee Certification

We, the examining committee, certify that we read this study entitled **(Causes of Repeat breeder in dairy cows)** and have examined the student(Hassan Fakher Abadi) in its contents, and that in our opinion it is adequate as a study for Bachelor's degree in Veterinary Medicine and Surgery.

Approved by the Council of College of Veterinary Medicine.

Prof.

Dean

Dedication

To..... My Father & Mother

To My Brothers & My Sisters

To Who supported me

Hassan.....

Acknowledgment

We thank God Almighty who enabled us to complete this scientific research, and who inspired us with health, wellness and insistence.

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Summary

Repeat breeding is a main reproductive problem in dairy cows and its incidence different among management , environmental factor and regions. The causes factors of repeat breeder in dairy cow are unclear, such as the cow and the bull and several environmental and handling factors. And cows that repeated breeder are a source of effort to farmers in dairy cow productions due to its effect on reproductive performances in herds. Repeat breeding in dairy cows consider as economic losses because of increase of calving intervals, elevated culling rates, insemination costs and service costs and decline milk production.

1- Introduction

Repeated breeders syndrome we can explain as cows that fail to pregnant after three serving (Tiwari, *et al* . 2019 ;Yusuf, *et al* 2010 and Parkinson, 2001).

Herd conception rate depended on the incidence of repeat breeder in dairy herds reproduction , cows that repeated breeder are a source of effort to owners in dairy cow productions due to its effect on reproductive efficiency in herds , the repeat breeder cows appeared as cows that normal estrous cycles and have no clinically signs for reproductive diseases, however fail to become pregnant after 2-3 usefully serving (Yusuf, *et al* 2010). The causes of repeat breeder syndrome can related with a cow, the bull and several environmental factors (Islam., *et al.*, 2017).

2- Causes of Repeat breeder syndrome

The etiological factors of repeat breeder syndrome are unclear and mesilinous, such as the cow and the bull and several environmental and handling factors which often overlapped and it is difficult to detect the primary causes (Thakur *et al.*,2006 and Singh, *et al.*,2017).

2.1- Risk factors related with cows

The causes of creation of frequent estrus in cows are occasionally associated with maternal defects, which cannot appeared evaluation and diagnosis more difficultly in routinely examination. also Age factor , genetic attributed, genital system diseases, disorders of hormones, embryo mortality and nutritional and metabolic diseases (Katagiri and Moriyoshi, 2013).

2.1.1- Hormonal disorders

A delayed and decrease progesterone level after ovulation has been associated with low pregnancy rates in cows , also increase progesterone level during estrus may be lead to repeat breeder. some of studies recorded the decrease of LH level does not get the stimulus for ovulation to occur and then repeat breeder syndrome (Sood, *et.al.*,2015 and Jaswal and Singh, 2010) . The follicular cystic ovary and releases estradiol which induces anovulation (Allam, *et al* ,2019).

2.1.2- Age factor

Higher rates have been diagnosed in old females, it is alterations in hypothalamus or pituitary gland hormonal levels or to inhibition of the ovarian activity, in addition to that there are correlation between old age and low follicles maturity which explains the fertility efficiency decline (Zobel, *et al.* 2011).

2.1.3- Early Embryonic Death

its attributed to disorder LH and progesterone levels that induce increase of analysis of corpus luteum CL. also early embryonic death and fertilization failure are common causes of repeat breeder, as well abnormal embryonic progress by hormonal disorders during estrus and metaestrus have been involved in the repeat breeder syndrome (Saraswat and Purohit 2016).

2.1.4- Genital tract factors

The reproductive system of cow provides a suitable environment for successful pregnancy (Carlos *et al.* 2014) . Anatomical of these organs can lead to pregnancy failure and then infertility ,for example of deformities the adhesions between the ovary and oviduct and also inflammation and obstruction of oviduct causes repeat breeder syndrome (Singh, 2000 and Thakur *et al.*,2006a) .

Metritis and endometritis provoking repeat breeder syndrome also cervical stenosis by trauma or obstruction can be cause repeat breeder syndrome from the other hand vaginitis change vaginal acidity and normal flora depressed then reducing the sperm activity (Shresta *et al.*, 2004).

2.1.5- Nutritional factor

The nutrition is importance in all vital processes of the body and the qualitative and quantitative differences in the ration in dairy cow may cause reproductive disorder. Nutritional defect and failure of services per cow are correlated resulted from endocrinal imbalance that effect on fertility (Balamurugan , *et al.*, 2017 ; Ibtisham, *et al.*, 2018 and Hoedemaker, *et al.*, 2015).

2.1.6- Genital diseases

Essential factor for repeat breeder syndrome is endometrial infections (Singh, 2000). And there are relation between increased embryo mortality and repeat estrus (Rani *et al*, 2018). Clinical diagnosis are difficult to detect and it's not easy to diagnose by rectal palpation and the bacteriological smears of mucus for cervix does not reflect the endometrium health But the Endometrial biopsies or uterine microbiological smears may help in the diagnosis of healthy status of endometrium(Shresta *et al.*, 2004) .

2.1.7- Genetic factors

The chromosomal or genetic abnormalities of parent, or those that occurred during the embryonic stage may effect on fertility which usually associated with high inbreeding or aged gametes. Higher repeated breeder syndrome rate in Charolais and Holstein breed than in Frisian or Norman breed . other factors recorded as genetic when dystocia, postpartum problems and metritis, we can be say that genetic factor , nutrition, semen quality are the main possible causes for repeat breeder (Islam, *et al* 2017) .

2.2- Male related factors

The reproductive performance of the bulls should be assessment at least 24 months carrying out semen analysis by macroscopic and microscopic exam and physical evaluation and mention libido status for diagnose reproductive performance in bulls and must be maintain a good male:female ratio for serving in the herd in order to prevent repeat breeder syndrome (Sylvia and Bedford-Guaus, 2014) .

2.2.1-Semen quality factor

From the one causes related to the male and his sperm quality may lead to repeat breeder syndrome naturally the sperm function different in natural and artificial insemination wherever Frozen semen straws must carefully handling and preservation (Walsh, *et al.*,2011 and Thakur *et al.*, 2006b).

2.2.2- Semen deposition site

Natural deposition the Sperm into the vagina while in artificial insemination deposit into the uterus then reach the oviducts and fertilization happen (Hunter, 2002). the female reproductive system may alter the mechanism of sperm travel and then enhance infertility and defective fertilization obviously deposition of semen at the percervix may cause repeat breeder syndrome while increase conception rates when semen are deposited into the uterus (Singh, *et al.* 2005 and López-Gatius, 2002) .

2.2.3- Semen deposition date

The rule of AM/PM is usually dependent practically in dairy cattle herds it consists of making in heat the previous evening insemination at morning while if heat was detected in the morning inseminated in the afternoon, semen is deposited into the uterus and the uterine environment will be adequate effect on the phase of the estrous cycle this recorded as the most common etiology for repeat breeder syndrome (Bayri *et al.* , 2016 and Shamsuddin *et al.*, 2001).

2.3- Management factors

environmental and management factors should be monitored in order to decrease the occurrence of repeat breeder syndrome (Singh *et al.*,2008).

2.3.1- Stress factor

produce cortisol from adrenal glands after induced stress is very important factor to induce repeat breeder syndrome which cause increase level of progesterone also stressed cows reduce the period and intensity of estrus and change in hormone levels then increase corticosteroids and progesterone as well Uterine environment is altered and viability of the pre-implanted embryo is reduced (Bage, 2002 and Ferreira *et al.*, 2011).

2.3.2- Seasonal factor

during the summer season which cause heat stress then inhibit effect on the endocrine hormones that lead to reduce the fertility, also the temperature different are related to the season influence on the endocrine hormonal regulation during the estrous cycle (Yusuf, *et al* 2010).

2.3.3- Estrus observation

The main causative factor of repeat breeder syndrome is the poor heat detection in cows which lead to mis-time insemination also abortion happen in pregnant cows Between 3 - 10% in case recurrent insemination of pregnant cows and go to repeat breeder (Perez-Marin & España, 2007 and Bayri *et al.* , 2016).

2.3.4- Artificial insemination factor

From the important points carefully handling to prevent all infections at reproductive system during artificial insemination the catheter is most factor insert pathogens into the uterus and dangerous effects on reproduction system (Singh, *et al.* 2005 and Singh, *et al.*,2017).

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