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Effects of the Offspring's Sex on Open Days in Dairy Cattle

[1]A. Córdova-Izquierdo, [1]V.M. Xolalpa Campos, [1]C. Gustavo Ruiz Lang,
[1]J.A. Saltijeral Oaxaca, [1]S. Cortés Suárez, [2]C.A. Córdova-Jiménez,
[3]M.S. Córdova-Jiménez, [1]S.D. Peña Betancurt and [4]J.E. Guerra Liera
[1]Department of Agricultural and Animal Production,
Autonomous Metropolitan University-Xochimilco,
Calz. del Hueso 1100 Col, Villa Quietud ZP, 04960, Mexico
[2]Brovel Laborarotories, SA of CV. Mexico
[3]CONACYT-Mexico University of Leon, Spain
[4]Facultad of Agronomy, Autonomous University of Sinaloa, Mexico

Abstract: With the purpose of determining the reproductive efficiency in a dairy farm, 412 registers of production were revised. The objective of this study was to value the effect of the sex of the calf on the open days up in a dairy farm. The study was carried out in a farm located in the municipality of Tizayuca, Hidalgo State, Mexico. The variables involved in this investigation are: number of childbirths, dates of childbirth, sex of the offspring and date of the service-conception. Of these the open days were obtained, with the objective to determine if the sex of the offspring influences in the open days. The registrations were divided in 2 groups (males and females), same that were subdivided in 6 groups by childbirth number. The analysis was carried out in Excel. The obtained results are the following ones: in general, the cows that birth males presented a smaller period of open days (132.56 days) that those that birth females (143.69 days) with a difference of 11.13 days.

Key words: Sex of the offspring, open days, dairy cattle

INTRODUCTION

The main waste causes of the cattle's milk are related to reproductive problems (Chipres, 1996). Diverse factors are responsible for affecting the delay in the reappearance of the ovarian postpartum activity. For example, wide open days and intervals between partum's obey to poor management procedures (Córdova *et al*., 2005). The reproductive registers are essential for any decision making regarding the farm's economic feasibility (Córdova *et al*., 2005; Covantes *et al*., 2001).

A low reproductive efficiency leads to a considerable economic loss due to the milk production's decrease. Eventually, this will result in an increment in production costs. The main causes for low conception index due to repeating cows that means females that get pregnant after 3 or more services (Chipres, 1996). The analysis of open days is an indicator of the reproductive efficiency (De la Rosa, 2002).

The goal of all farmer is to obtain an offspring per year per cow, for what each cow is not pregnant in 1 period again bigger to 90 days after the birth (Chipres, 1996). The interval of births is from 12 to 13 months, this is achieved when the animals are pregnant between the 85 and 115 days postpartum to this period is known as open days, this parameter is important since, reflective deficiency in the heaths detection and it allows the early detection of cows with reproductive problems (De la Rosa, 2002).

The open days, in spite of having a low point the heritability, this feature this related one clearly with the reproductive management (Goyache *et al*., 2005). They are affected by many factors as: season of births, the levels of the production, the parity and the techniques of the inseminator (Oseni *et al*., 2003). They have been analyzed routinely in cows, however there is not consent between authors about the adequate number of open days (Oseni *et al*., 2004). It is said that the adequate number of

Corresponding Author: A. Córdova-Izquierdo, Department of Agricultural and Animal Production, Autonomous Metropolitan University-Xochimilco, Calz. del Hueso 1100 Col, Villa Quietud ZP, 04960, Mexico

open days is from 85-110 according to Campuzano *et al.* (1999); 105-110 days according to González *et al.* (2004) and 100-110 days. However, in Mexico the criteria oscillate between 115 and 160 days with an average of 144.7 days according to that found by Campuzano *et al.* (1999). This is economically important mainly in the productions of milk because for every day a cow that is not pregnant will provocate a loss of near $2 USD per day (O´Connor, 2005).

The objective this study was to value the effect of the sex of the offspring on the open days in dairy cattle.

MATERIALS AND METHODS

This study was carried out in a dairy farm located in the municipality of Tizayuca, in Hidalgo State, Mexico. Total 412 records were analyzed in a period of 10 weeks, of which the following data were obtained: # of births, date of birth, sex of the offspring and date of the service-conception; of which open days were obtained. With these data was determinate if the sex of the offspring influences or not in the open days.

These records were divided in 2 groups (male offspring, female offspring) that in turn each of these groups were divided in 6 smaller groups (1st, 2nd, 3rd, room, 5th and 6th birth) with regard to the number of births of the female. The analysis of data was processed in Excel.

The data were obtained to analyze the relationship between the sex of the offspring and their influence in the period of open days. The registrations were analyzed trough a correlation of data.

RESULTS

In Table 1, the influence of the sex of the offspring in the open days, in the dairy farm is showed.

In Table 1, we observe the influence of the sex of the offspring in relation to open days of the cow, which is of 11,13 days greater in cows than they give birth females (143,69 days) in relation to cows that give birth males (132,56 days). In Table 2, appear the results of the influence of the sex of the offspring in open days and the number of partum.

In the group of cows of 2nd partum, we observed that cows that birth males were those who presented the smaller number of open days with 134, as opposed cows that give birth females which presented an average of 8 days (142). Only in the group of cows of 3rd partum we observed the cows that birth male calves were those that presented a bigger number of open days (210), as opposed to the cows that give birth to females which presented an average of 169 days (the difference is 41 days).

Table 1: Average of open days between female and male offspring in the dairy farm

Sex of the offspring	Open days
Female	143.69
Male	132.56
Difference	11.13

Table 2: Average of open days in males, females, births twins births, drowned and abortions by number of partum

	Number of partum (open days)					
Sex of the offspring	1	2	3	4	5	6
Male	(118)	(134)	(210)	(142)	(175)	(76)
Female	(141)	(142)	(169)	(181)	(207)	(166)
Diference	(23)	(8)	(41)	(39)	(32)	(90)

In the group of cows of 4th partum, we observed that cows that birth males were those who presented the smaller number of open days (142), as opposed cows that give birth females which presented an average of 39 days (181).

In the group of cows of 5th partum, we observed that cows that birth males were those who presented the smaller number of open days with 175, as opposed cows that give birth females which presented an average of 32 days (207).

In the group of cows of 6th partum, we observed that cows that birth males were those who presented the smaller number of open days (76), as opposed cows that give birth females which presented an average of 90 days (166).

DISCUSSION

Since, long time ago the goal in dairy cattle is to make the production more efficient, this is related with the reduction of open days. Determination of causes of repeating caws is difficult, since the factors are multiple, some of the main factors can be pathological, hereditary or of handling like: abortion, acidosis, ketosis, hipocalcemia, metritis, placenta retention, displacement of abomasums, distoccic partums, deficient handling, uterine injuries, deficient handling, corporal condition, lactation, uterine pathologies, defects of reproductive tract, defects of the oocyte, defects of the spermatozoon, defects of the embryo, embryonic death, among many others. Nevertheless in consulted literature was not any data that relates the sex of the offspring to the period of open days (Ávila, 1997; Campuzano *et al.*, 1999; Jaramillo *et al.*, 1999; Ferrugem, 2003), acute pospartum endometritis, slowed down uterine involution that affects from 40-60% of the postpartum cows (Ortiz *et al.*, 2000).

In Table 1, we observed the influence of the sex of the offspring in relation to the opened days of the mother, who is of 11, 13 days greater in cows than they give birth females (143, 69 days) in relation to cows that give birth

males (132, 56 days). In Table 2 appear the results of the influence of the sex of the offspring in the opened days, by number of partum.

This is very important for farmers, according to O´Connor (2005), which mentions that every open day in dairy cows it has a cost of $2.00 USD per day. In this sense, the advantage is of $23 USD in average in favor of the cows that birth males. With the data collected by number of parturition of the cows we have differences in favor of the females that birth males from $48-$189 USD.

Therefore, we concluded that the sex of the calf influences the open days. When separating these cows by number of childbirth the difference of open days in cows of 1st childbirth is of 23 days (118 day), of 2nd childbirth of 8 days (134 day), of 4th childbirth of 39 days (142 day), 5th childbirth of 32 days (175 day) and in females of 6th birth of 90 (76day) days, in all these the difference is in favor of the females that give birth males.

In females of 3rd partum, the difference is in favor of the cows that birth females with 41 days (169 day) of difference with the cows that give birth males. In general the females that give birth males are those with a smaller period of open days (132,56 days) with a difference of 11,13 days with respect to the cows that give birth females (143,69 days) in average.

CONCLUSION

The sex of the offspring, influences open days. When the offspring is male, the period of open days is smaller.

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