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Time of foaling in Arabian mares raised in Tiaret, Algeria

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PEER REVIEW

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Comments

The results of the current study can be useful in predicting birth in Arabic race horses. The role of factors such as: parity, nutrition, season of mating and effect on each other were studied. Details on Page 588

ABSTRACT

Objective: To enhance effectiveness of reproduction management in Arabian mares, factors influencing the time of foaling were investigated in this study. **Methods:** Data were collected at the National Haras of Tiaret in Algeria from 2003 to 2010. The foaling time of 255 Arabian pure bred mares, aged from 3 to 20 years were used for this study. **Results:** A total of 78.07% of foaling happens between 7 pm and 6 am. **Conclusions:** The influence of the month of foaling and the sex of the foal, on the time of foaling was statically significant.

KEYWORDS

Arabian mare, Time of foaling, Reproduction, Foal heat

Length of gestation in the mare is highly variable, and the variability in physical signs of imminent parturition makes predicting foaling particularly difficult^[1]. Generally, gestation lengths were 320–360 d which was reported by Whittaker *et al*^[2]. This large variability of time in which viable foals can be born, indicates that gestation length in the mare may be highly susceptible to environmental factors^[3]. According to published studies, the main environmental factors influencing gestation period in a certain breed are related to age of mother, number of foalings, nutrition, sex of the foal, year and month of conception, season of conception and photoperiodic influence^[4]. It was reported that age of mares significantly influenced length of gestation. Although, a negative correlation between the age of mares and gestation length was reported, young mares have longer gestation than old mares^[1].

Arabian purebred mares are being raised in Algeria since 1877. In this work we investigated the factors influencing the time of foaling with the aim to enhance effectiveness of reproduction management of Arabian mares.

The foaling time data of 255 Arabian pure bred mares, aged

from 3 to 20 years were used for this study which was carried out from 2003 to 2010. Animals belonged to the National Haras of Tiaret, Algeria. Foaling time as well as the sex of the foal and the mother was recorded.

The repartition of the time of foaling within months is reported in Table 1. In our study, it was noted that 78.07% of foalings occurred between 7 pm and 6 am. However the maximal incidence was observed between 10 pm and 11 pm. Also a majority (52.8%) of mares foaled at night between 8 pm and 2 am^[1].

Table 1

Time of foaling repartition within months.

Time of birth	N	Foaling rate			
		7 am to 6 pm		7 pm to 6 am	
January	60	15	25%	45	75%
February	81	17	21%	64	79%
March	45	6	13%	39	87%
April	56	6	11%	50	89%
May	13	4	31%	9	69%
Total	255	48	19%	207	81%

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The variation in physical signs of imminent foaling makes the prediction of parturition in the mare particularly difficult. The management of high-value stock demands the precise prediction of parturition. The knowledge of the gestation length and the possibility of predicting the date of birth can be important to a successful management of the pregnant mare^{4, 5}.

Furthermore, to coordinate deliveries in a given period of time, mares can be grouped according to their predicted gestation lengths. On the other hand, this enables the culling of mares with very long gestation periods which results in the birth of very large sized foals, and under some conditions, cause dystocia labours. Also mares with very short gestation periods that produce very light-weight foals, may be culled². According to published studies, the primary foaling time peak was around 2 am and the secondary smaller peak around 1 pm. Colt foals were less likely to be born during the day than fillies, but there was no effect of age or parity of mare or month on foaling⁶. The principal environmental factors influencing gestation period in a certain breed are related to age of mother, number of foalings, nutrition, sex of the foal, year and month of conception, season of conception and photoperiodic influence³. Mare age and type and mating type all affect foaling rates⁷.

In this study, we noted a significant effect of the month and the sex of the foal ($P < 0.05$). The majority of variation in reproductive performance was associated with mare level factors and the contribution of the stallion and stud farm was relatively minor⁸. We conclude that time of foaling is influenced by environmental factors as the month of birth, and by the mare and the sex of the foal, but generally most of foalings happened at night hours.

Conflict of interest statement

We declare that we have no conflict of interest.

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Comments

Background

Today, horse breeding and use of these animals in the field (work, sports, recreation, etc.) will be considered in all communities. Therefore, the reproduction and duration of pregnancy in mares are very important. The study of factors affecting the extent of the change is beneficial.

Research frontiers

This study examines the role of factors such as: sex, labor

month colt, at delivery during the day to purebred Arabic mares in Tiaret, Algeria.

Related reports

Factors such as: month of labor and sex of foal ultimately affecting the hormonal activities have an impact on the delivery time. Meliani S *et al.* affirmed the role of factors such as: Age, frequency of delivery, feeding, foal gender, month and the mating season.

Innovations and breakthroughs

However, the investigation undertaken by other scholars, the role of foal gender is determined at birth, but in this study in addition to the role of foal gender, month of labor is known as labor time. As well as is known that these two factors have a significant effect at the time of labor in mares.

Applications

In this study, the role of factors such as: sex of fetal, birth month, delivery time well-known, and it can be used to estimate delivery time in horse race of Arabic in the studied region.

Peer review

The results of the current study can be useful in predicting birth in Arabic race horses. The role of factors such as: parity, nutrition, season of mating and effect on each other were studied.

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