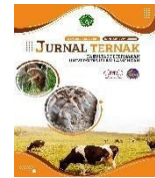


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The Indonesia's Racehorse Reproductive Performance

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ABSTRACT

The need for equestrian sport is increasing for local horse grading with Thoroughbred horses used for racehorses. Pamulang Equestrian Centre is one of the horse farms in Indonesia that acts as a pioneer in creating local Indonesian racehorses. The purpose of this paper is to explain the reproductive performance of the Indonesian Kuda Pacu Indonesia (KPI) through a case study at Pamulang Equestrian Centre. Primary data was obtained directly from the documentation and interviews of the farmers. Meanwhile, secondary data was collected from literature studies. Horse farming at Pamulang Equestrian Centre was the result of breeding horses G3 with G3, G3 with G4, G4 with G4, G3 or G4 with KPI that produced KPI. Horse breeding was carried out annually during the breeding season, from August to January. The reproductive performance of male and female KPI at Pamulang Equestrian Centre was mating time from August to January, at the age of first estrus was 12-15 months, the first mating age was 4 years, estrus duration was 7 days, and duration of gestation was approximately 11 Months.

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1. Introduction

Horses are one of the special type of animals that have been bred by humans for a while. The use of horses in the field of sports is mostly used for enjoyment (hobby) such as agility, racing, and pet competitions [1]. There is an urgent need for equestrian sports to improve the genetic quality of horses. The solution is by doing grading-up local horses with imported horses [2]. Horse commodities in Indonesia have begun to develop with the cross of local Indonesian horses with Thoroughbred horses which are used as racehorses [3]. KPI is as a typical Indonesian horse. KPI has the performance of Thoroughbred horses which excel in racing but have the endurance of Indonesian local horses. KPI horses have the potential to be developed because horses take into account cultural aspects that cannot be separated from the role of breeders in the development process. Therefore, KPI reproduction quality continues to be improved to get good horse performance. Pamulang Equestrian Center is one of the horse farms in Indonesia that plays a role as a pioneer in creating local Indonesian racehorses. This farm does grading-up to produce a typical Indonesian racehorse, such as the KPI. At this time, horse breeding is still being done. Based on the description above, it is necessary to conduct research to determine the reproductive performance of KPI at Pamulang Equestrian Center. Reproductive performance of horses can be seen from several parameters, including duration of pregnancy, estrus cycle, age at first mating, and age at first estrus.

2. Method

Sampling materials and methods

The subjects of this research were KPI horses from at Pamulang Equestrian Center. The center was located at Pamulang, South Tangerang City, Banten Province. The number of samples used were 4 G4 mares, 1 G3 mare, 6 KPI horses with an age range of 4-19 years. The mating data used for this study was in 2020. Mating records at Pamulang Equestrian Center included records of mating dates, mares names, and stallions names. Moreover, the date of the ultrasound examination and the results were also recorded. Observations and sampling were obtained through observation and interviews. The method of observation was done by direct observation on the object of research. Interview method was conducted to obtain primary data and secondary data. Data collection was carried out through direct interviews with workers by providing pre-prepared questionnaires. Interviews were conducted to obtain data regarding maintenance management and mating implementation at Pamulang Equestrian Centre.

Observed variables

The variables observed in this study were the time of mating, the age at first experiencing estrus, the age at first mating, the length of estrus, and the duration of pregnancy.

3. Results and Discussion

Horse Mating

Horse farming at Pamulang Equestrian Centre was the result of breeding horses G3 with G3, G3 with G4, G4 with G4, G3 or G4 with KPI that produced KPI. The horse breeding was held annually during the breeding season, specifically between August and January. The reproductive performance of male and female KPI at Pamulang Equestrian Centre can be seen in table 1.

Reproductive Performance	Male		Female	
	August -	January	August -	January
Mating Time	August -	January	August -	January
First Time Estrus (Desire)	-		12-15 Months	
Long Estrus	-		7 Days	
Age First Time Mated	4 Years		4 Years	
Long Pregnant	-		± 11 Months	

Horse breeding at Pamulang Equestrian Centre was held annually during the breeding season, between August and January. Mating records at Pamulang Equestrian Center include records of mating dates, mares' names, and stallion's names. Moreover, the date of the ultrasound examination and the results were also recorded. Apart from ultrasound, rectal palpation could also be shown. The goal was to detect pregnancy. [4] The optimal postpartum time for diagnosis of pregnancy using ultrasound was around 31 to 35 days. This time was optimal because it had an accuracy of around 97.8%. Rectal palpation was also performed 21 days after the mating. Pregnancy diagnosis on days 18-20 should be re-examined on days 45-60 because of the possibility of embryonic death [5].

[6] Rectal palpation was only palpable like a fold of velvet cloth so it can be seen and predicted whether the fertilization failed or not. But if there was a lump with a diameter of 4 until 5 cm, then fertilization has occurred. Observation of lustful horses also needed to be done. Horses that experience lust after being bred, would be bred again in the next cycle of lust. Horses that have calved would be in heat again on 5 to 9 days after giving birth [7].

Horses that had given birth were bred again one month after giving birth at Pamulang Equestrian Centre. Breeders who did this on the grounds that horses mated less than a month after giving birth often failed. As a result, the mare did not get pregnant. This knowledge was up to the breeder.

[8] Natural mating carried out in the first cycle had a low pregnancy rate which was around 44.7% and the incidence of embryo loss was high. The success of the mating carried out in the next cycle experienced to have a significant increase, which was about 80 to 90% of the brood horses getting pregnant. Postpartum fertility in horses depended on the resumption of ovarian activity (estrus cycle) and uterine in ovulation [7].

Age When Horses First Mate

The results of observations on horses at Pamulang Equestrian Centre showed that the average age of horses at first mate was 4 years. The horse breeders did not mate them at a young age because the young horses were not yet ready to bred. Female foals were bred when they had reached sexual maturity or puberty. Horse puberty at Pamulang Equestrian Centre were at the age of 12-15 months. [9] Horse puberty took place at the age of 12 -15 months. The age of sexual maturity of KPI was 2-3 years [10].

Lust (Estrus)

Individual behavior during estrus varies between horse individuals, but tends to be the same between horses' lust cycle [11]. Characteristics of a horse that is in lust is that the appetite goes down, and makes a sound. The sound of the estrus mare will reply to the male [12]. The experience of breeders at Pamulang Equestrian Centre to find out whether a horse was lustful or not was by bringing the female horse closer to the male. The reaction of the mare would do a rejection, then the female was not in estrus. [12] A mare experiencing estrus, when approached by a male, does not refuse. The response of the mare was in a position ready to mate or approaching the male by itself, then the tail was lifted for a relatively long time, and gives the vulva part. Symptoms of estrus in mares are that their vulva appears larger than that of non-estrus female horses. The frequency of urination in the female horse that was in estrus increased compared to the female horse that was not in estrus. In addition, the vulva blinked and the way of standing tended to squat were also the clues. (squatting) [11].

Based on interviews with horse breeders in Pamulang, the average horse experienced an estrus period was 7 days, but there were also 10 to 11 days after giving birth. Estrus period was included in normal conditions. [2] Estrus in horses is usually about 5-10 days postpartum, although the mother is still nursing. [6] Estrus in mares can occur 6 to 13 days after calving. Female horses that are in heat, are mated every day for 2 days. The average estrus cycle in horses ranges from 19 to 22 days, whereas the estrus period is about 5 to 7 days [13]. However, based on the research of Moningga *et.al* the length of the estrus cycle in horses lasts for 21 to 30 days with an average of 21,67 days [14] Female horses in lust are bred every day or every two days starting from the third day of estrus. The reason is that ovulation occurs at the end of the estrus period [15].

Long Pregnant

Breeding horses at Pamulang Equestrian Centre were bred once a year. The horse that have been bred was not pregnant and had the lust again, so the horse was mated again. Other pregnancy characteristics in mares were enlarged abdomen, slow walking, and unusual decreased activity [9]. The duration of pregnancy in broodstock at Pamulang Equestrian Centre was approximately 11 months. The duration of pregnancy in mares is 11 months but pregnancy can occur less than a week, or more than a week from 11 months [9]. Pregnancy in a mare averages about 335 days [2].

4. Conclusions

The reproductive performance of male and female KPI at Pamulang Equestrian Centre was the mating time from August to January when the age at first estrus was 12-15 months, age at first mating was 4 years, estrus duration was 7 days, and the gestation period was about 11 months.

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