Stable Management and Colic Prevalence with Different Condition in Indonesian Horse Farming

Yulianto Muhammad Danang Eko, Baliarti Endang, Adi Amien Fahrianto

1Department of Animal Production Faculty of Animal Science Universitas Gadjah Mada

Objective
Horses are one of important livestock in Indonesia, and there is no significant attention by the government for
development. The existence of the horses have a strategic value for utilization as working animals, one of
them as transport horses. On the other hand, horses development was encouraging as its utilization as a means of
sport facilities such as horse racing and equestrian that has positive effects for the development as an industrial
commodity which is able to increase the economic value of the horses.

This study is expected to obtain basic information for the development of scientific study of the horses, and to
understand the general conditions of Indoensian equine farming systems. This study aimed to looking for at the
extent to which pattern and types of maintenance and stable management and the influence of the frequency rate
of colic in horses.

Methodology
The research was conducted from May to October 2015 in three different stable management types transportation
(andong) horses in Yogyakarta region, racehorses in Salatiga, Central Java region, and Cavalry Horse, in
Indonesian Cavalry Detachment Army Parongpong, Bandung, West Java region, and in the Parasitology Laboratory
of the Faculty of Veterinary Medicine, Universitas Gadjah Mada. As many as 553 horses are divided into three
groups 176 andong horses in Yogyakarta,144 racehorses in Salatiga and 233 cavalry horses in Parongpong. Data
retrieved by conducting direct interviews by a questionaire with the owners or farm managers. The study also took
data on helminth infections in horses that can be seen through in the feces samples of horses in the laboratory.

Data taken include the identity of the breeders or owners and farm managers, purpose and circumstances, horse
selection, reproductive performance and stable management. The study also took environmental data to analyse
the influence of the environment to the horse performances.

Result and Conclusion

Table 1. Stable management parameter

<table>
<thead>
<tr>
<th>Transportation</th>
<th>Racing</th>
<th>Cavalry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeding Frequency (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 times</td>
<td>47.8</td>
<td>-</td>
</tr>
<tr>
<td>3 times</td>
<td>47.8</td>
<td>-</td>
</tr>
<tr>
<td>4 times</td>
<td>4.4</td>
<td>12.5</td>
</tr>
</tbody>
</table>
More than 4 times
- 87.5
- 100

Feedstuffs (%)

Pellet + Grass
- 16.67
- 100

Mix 1a
100
- 

Mix 2b
- 70.83
- 

Mix 3c
- 12.5
- 

Environmental conditions

Temperature (°C)
30 ± 2
22.27 ± 2.27
19.45 ± 4.12

Humidity (%)
60.06 ± 5.06
69 ± 9
78.05 ± 11.74

Barn floor (%)

Soil
89.13
79.17
- 

Cement floor
87.0
20.83
100

Paving block
<table>
<thead>
<tr>
<th>Bedding (%)</th>
<th>None</th>
<th>34.73</th>
<th></th>
<th>58.82</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>10.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawdust</td>
<td>54.35</td>
<td>100</td>
<td>41.18</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bedding replacement (%)</th>
<th>Never</th>
<th>34.73</th>
<th></th>
<th>58.82</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td>43.48</td>
<td>100</td>
<td>11.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 month</td>
<td>4.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 month</td>
<td>17.39</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 month</td>
<td>2.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deworming programs (%)</th>
<th>Never</th>
<th>21.02</th>
<th></th>
</tr>
</thead>
</table>
Vaccination (%)

1 time
15.45 %
100 %

2 times
23.39 %

3 times
13.30 %

4 times
30.04 %

Never
100 %
17.81 %

a rice brand + wheat brand + peanut straw
b local pellets + oats + importede complete feeds
c rice brand + wheat brand + corns + oats

Stable management closely related to the productivity performances of the horses that will be achieved. In addition to productivity performances is also closely related to the health condition of the horses. equine health
problems such as worm infections and colic are quite dangerous and fatal. Worm infection in horses can not be seen directly and negatively on horses. According to Syamsi (2011), colic are symptoms that every horse owners must pay attention because it can caused death in horses and in some cases, colic can lead to death within hours. The frequency and types of horse feeding management can also cause colic. Widyananta (2000) mention that easy fermentable feed ingredients (grains) and moldy feeds can resulted colic. feeding excess can caused dilatation of the stomach, this is because the digestive system of a horse is small and always enough to facilitate gastric dilatation (Stafford, 1993).

Table 2. Prevalence infection rate of Helminthiasis

<table>
<thead>
<tr>
<th>Transportation (%)</th>
<th>Racing (%)</th>
<th>Cavalry (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infected</td>
<td>35</td>
<td>16.42</td>
</tr>
<tr>
<td></td>
<td>16.42</td>
<td>94.74</td>
</tr>
<tr>
<td>Clear</td>
<td>65</td>
<td>83.58</td>
</tr>
<tr>
<td></td>
<td>5.26</td>
<td>93.42</td>
</tr>
</tbody>
</table>

Problems often arise on an equine farm that worm infected the digestive tract. How the spread of worms in horses is through the mouth as they eat forage contaminated by third stage larvae (the infective larvae). Sumartono (2010) explains that one of the entrances to the host stadium definitive worm infection through the mouth along with feeds, drinking water or because licked. Barn and barn floor conditions are also one of the causes of worm infections. Irregular bedding replacement enclosures, barn and stable environment sanitary which not done properly and the barn floor moisture will facilitate the development of the parasite worms. Temperature range required by the nematodes to hatch is 18 to 38°C and high humidity is very helpful to ease the worm eggs to hatch within 3 to 4 days (Levine, 1994). Noble (1989) found that the worm will not be able to hatch in temperatures above 40°C. Nielsen (2007) adds that Strongylus infective larvae phase can survive in extreme climatic conditions, but they will still have the optimum environmental conditions to grow. In the summer, when conditions are very humid then the ability to survive the larvae will declined, but still can infect horses. In the winter, where there are a couple of days with freezing temperatures and periods of snow-covered land, larvae can survive for several days, although some studies conducted in the UK showed a lower survival rate of larvae until next spring (Nielsen, 2007). The important factor to prevent the worm infection is deworming program in horses. Papini (2015) explains that the same group dewormer used, the high-frequency treatment, and under doses used of dewormer is the cause of resistant of worms to an anthelminticum. According to Relf (2014), grazing activities of the horses are potential condition of helminth parasite infection throughout their lives, and type of small Strongylus considered as the most dangerous. Access to the grazing paddocks is a favorable condition for the occurrence of the infection by infective stage larvae that live freely in the pasture (Papini, 2015).

Table 3. Colic Prevalence Parameter

<table>
<thead>
<tr>
<th>Transportation (%)</th>
<th>Racing (%)</th>
<th>Cavalry (%)</th>
<th>Colic occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>30.68</td>
</tr>
<tr>
<td>Symptom</td>
<td>Traditional</td>
<td>Medication</td>
<td>Combination</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Rolling</td>
<td>29.63</td>
<td>-</td>
<td>33.33</td>
</tr>
<tr>
<td>Frequent wake-lay down</td>
<td>83.33</td>
<td>100</td>
<td>-</td>
</tr>
<tr>
<td>Nervous</td>
<td>11.11</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Front legs hit</td>
<td>35.19</td>
<td>20</td>
<td>-</td>
</tr>
<tr>
<td>Anorexia</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>72.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>81.48</td>
<td>80</td>
<td>96.15</td>
</tr>
</tbody>
</table>

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Signs of equine colic is moving constantly, pain, sweating, anxiety, anorexia, abdominal section turned constantly, lay down and rolling (Rossdale, 1987). Horse is suffering from colic due to the specificity of the anatomy of the digestive tract that the stomach is small and always fully charged which causes easy dilatation, the horse has a digestive tract that is long in the abdominal cavity is narrow, the horse is difficult vomiting because it has epiglottis great, horses, including mammalian species can not stand to pain (Sisson, 1958). Worm infections can caused colic in horses. Belschner (1969) adds the worm infection can cause colic in horses is often called a worm colic. Colic is also caused by larval migration strongylus vulgaris to the anterior mesenteric artery resulting in thickening of the artery walls and blocked blood flow to the intestines aorta, the artery blockage can lead to rupture of the intestine which caused colic and death (Anonim, 1961).

Colic can also be caused by a blockage of the intestine, impaction colic is caused by an obstruction in the form of food ingredients in the colon. Impaction colic can occur for various reason, one of which is for horses it often takes a powder that is usually used for the base in large quantities (Hayes, 1990). Total mount of concentrate should not be more than 0.5 percent of body weight for concentrates will be easily absorbed in the small intestine and if the amount of excess will lead to colic (Syefrizal, 2008).

The results showed that helminth infection rate from highest to lowest is the Cavalry horses with 94.74% of faecal samples infected, Transportation horses with 35% of faecal samples infected and race horses with 16.42% of faecal samples infected. The highest occurrence rate of colic is in the Horse Cavalry Detachment Army with a percentage of 57.94%, transportation horse farms by 30.68% and racehorse stables with 10.42%. In conclusion, there is a positive correlation between helminth infection rate and the occurrence of colic and different types of stable management.

**KEYWORD** : Horse, Management, Colic, Helminthiasis
CERTIFICATE OF PRESENTATION

This is to certify that

Muhammad Danang Eko Yulianto
Endang Baliarti
Amien Fahrianto Adi

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Mitsuhiro Furuse, Ph.D.
President of the 17th AAAP Animal Science Congress