



UNIVERSITI PUTRA MALAYSIA

**DOES PRIOR EXPOSURE OF LITTER MATERIAL AFFECT THE
BEHAVIOUR AND SUBSTRATE CHOICES IN JAPANESE QUAIL
(*Coturnix japonica*)?**

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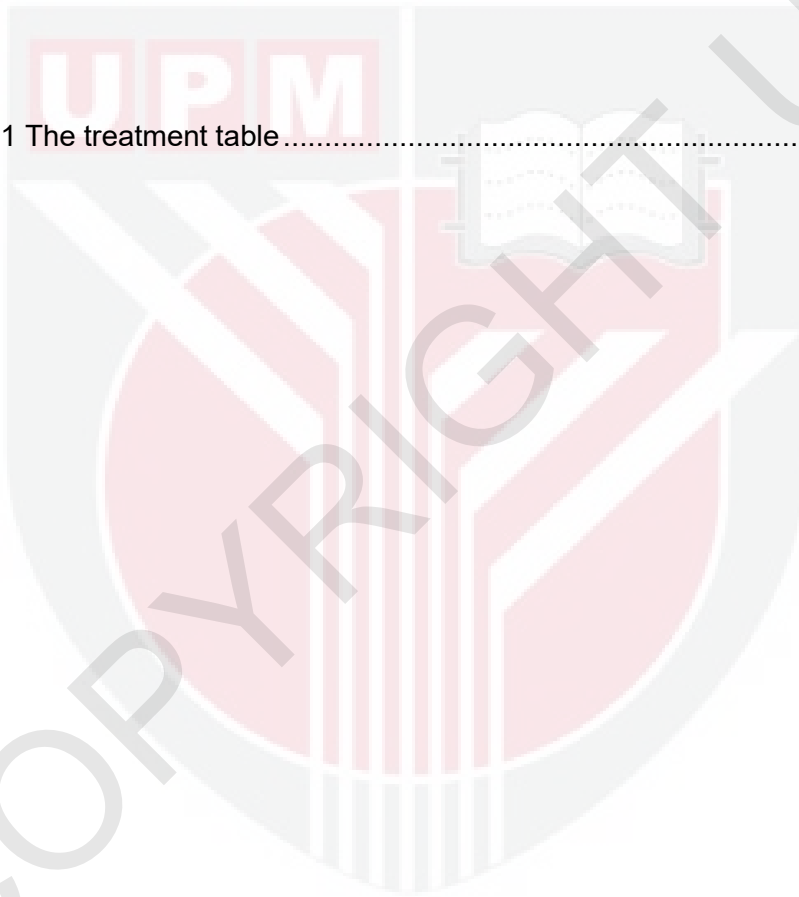
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ABSTRACT

An abstract of the project paper presented to the Faculty of Agriculture in partial fulfilment of the course SHW 4999 – Project.

DOES PRIOR EXPOSURE OF PARTICULAR SUBSTRATE AFFECT SUBSTRATE CHOICES AND BEHAVIOUR OF JAPANESE QUAILS, (*Coturnix japonica*)?

Muhammad Ishamuddin Bin Mohd Shukri

2015

Supervisor : Dr. Sumita Sugnaseelan

An experiment has been conducted to observe whether prior exposure of particular bedding will affect the bedding preference and behaviour of Japanese quails. Rice straw, shredded brown paper, sand and wood shavings were focused in this experiment. From the result, for changes of behaviour, we can conclude that certain behaviours were related to the substrate exposed such as dust-bathing behaviour was preferred to be completed in sand while lying behaviour was preferred on rice straw. Besides that, sitting behaviour was mostly found on wood shaving and sand. Other behaviours were not really related to substrates, indeed they were performed on any

substrates. For substrate preference, we can conclude that quails are more preferred to rice straw and wood shaving rather than shredded brown paper and sand.

Key words : Japanese quail, litter material, preference, behaviour



ABSTRAK

Sebuah abstrak daripada kertas projek yang dikemukakan kepada Fakulti Pertanian sebagai memenuhi sebahagian daripada keperluan kursus SHW 4999 – Projek.

ADAKAH PEDEDAHAN AWAL SARAP MEMBERI KESAN KEPADA PEMILIHAN SARAP DAN KELAKUAN PUYUH JEPUN, (*Coturnix japonica*)?

Muhammad Ishamuddin Bin Mohd Shukri

2015

Penyelia : Dr. Sumita Sugnaseelan

Satu eksperimen telah dijalankan untuk melihat sama ada pendedahan awal sarap akan memberi kesan kepada pemilihan sarap dan kelakuan dalam Puyuh Jepun (*Coturnix japonica*). Jerami padi, kertas perang yang dipotong, pasir dan ketaman kayu digunakan dalam eksperimen ini. Hasil eksperimen menemui, dari aspek perubahan tingkah laku, kita boleh menyimpulkan bahawa sesetengah kelakuan mempunyai hubungan dengan sarap yang diberikan. Contohnya, mandi habuk menjadi pilihan untuk dilaksanakan di kawasan pasir dan aktiviti berbaring menjadi pilihan di kawasan jerami padi. Di samping itu, kelakuan duduk kebanyakannya ditemui kawasan ketaman kayu dan pasir. Kelakuan lain secara langsungnya tidak mempunyai hubungan dengan sarap di mana puyuh lebih berminat untuk melakukan di mana-mana sarap. Untuk

pemilihan sarap, kita boleh menyimpulkan bahawa Puyuh Jepun lebih suka jerami padi dan ketaman kayu berbanding kertas coklat yang dipotong dan pasir.

Kata kunci: Puyuh Jepun, sarap, pemilihan sarap, kelakuan



1 INTRODUCTION

Litter is defined in Directive 1999/74/EC as any material that are disposable and allowing the hens to fulfil their ethological desires (Guinebretière *et al.*, 2014). Bedding or litter material requirement and management are very crucial in relation to environment, physical, physiological and welfare in animal production (Lanteigne and Reebbs, 2006; Garcia *et al.*, 2014).

Occasionally, litter material help in insulating that may contribute to the comfortability for the chicks as it reduce the loss of heat to the environment (*Raynor et al.*, 1983). Besides that, litter material also works as faeces and urine absorbent, but proper management of litter is necessary to control the excessive ammonia emissions that may harm the animals bedded on that litter material (Gamble and Clough, 1976). Other than that, litter material is also needed to fulfil nesting construction behaviour as it may contribute to the comfortability of the particular animals (Lanteigne and Reebbs, 2006). In term of health, litter material is needed to reduce leg abnormalities (Shields *et al.*, 2004) as well as breast burns, blisters and footpad burning as reported by (Benabdeljelil and Ayachi, 1996). If there are no litter material given to the animals especially broiler, their welfare are not well-taken care as they cannot perform their natural behaviour such as pecking, dust bathing and scratching (Shields *et al.*, 2005).

Typically, animals would prefer the litter material that can dispose lipid content from the animal's body especially birds as it help the hens to remove stale lipids from their plumage through dust bathing (Van Liere *et al.*, 1990). Besides that, particle size is considered to be an vital factor on choosing litter material as birds preferred fine grain

size (Olsson and Keeling, 2005), but the dust content also needed to be taken into account when choosing litter material as it may cause allergies, cancers and respiratory problems to the animals (Raynor *et al.*, 1983). In addition, flooring type in animal house also affect the litter material preference which animal more prefer to lying down in soft flooring as it provide better health assurance and better welfare (Herlin, 1997).

Many studies have been documented on litter materials using different parameters such as live performance (Davis *et al.*, 2010), ammonia production (Chamblee and Yeatman, 2003) and behaviour (Toghyani *et al.*, 2010) as well as other animal species, such as Syrian hamster (Lanteigne and Reeb, 2006), mice and rats (Blom *et al.*, 1996), laying hens (Duncan *et al.*, 1998), pigs (Douglas *et al.*, 2015), dairy cattles (De Vries *et al.*, 2015) and broilers (Chamblee and Yeatman, 2003; Senaratna *et al.*, 2007; Toghyani *et al.*, 2010).

The significant of the study is provision of suitable substrate to indoor housed animals is important to enable the expression of normal behaviours of Japanese quails. Failure to gain access to any substrate may result in manifestation of stereotypy behaviours to cope with the deficiency, immobility due to lameness as well as may result in poor body condition. The hypothesis of this study is innate behaviour may influence the animal's preference to a particular substrate irrespective of the substrate's functionality

Therefore, a behavioural study on *Coturnix japonica* was conducted to investigate if previous substrate exposure influences Japanese quail, *Coturnix japonica*'s choice of 4 different litter materials & their behaviour.

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