UNIVERSITI PUTRA MALAYSIA

PERFORMANCE OF RABBITS ON MASH MIXTURE FEED AND PELLET FEED SUPPLEMENTED WITH GUINEA GRASS

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A project report submitted to Faculty of Agriculture, Universiti Putra Malaysia, in fulfillment of the requirement of SHW 4999 (Final Year Project) for the award of degree of Bachelor of Agriculture (Animal Science)

Faculty of Agriculture

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FACULTY OF AGRICULTURE

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SERDANG, SELANGOR DARUL EHSAN

2016/2017

CERTIFICATION

This project report entitled **PERFORMANCE OF RABBITS ON MASH MIXTURE FEED AND PELLET FEED SUPPLEMENTED WITH GUINEA GRASS** is prepared by **FATEEN SYIFA NADHIRAH BT MOHAMAD MAZALAN** and submitted to the Faculty of Agriculture in fulfillment of the requirement of SHW 4999 (Final Year Project) for the award of the degree of Bachelor of Agriculture (Animal Science).

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LIST OF ABBREVIATION

g	Gram
kg	Kilogram
CRD	Completely Randomise Design
NZW	New Zealand White
DM	Dry matter
CP	Crude protein
NDF	Neutral detergent fibre
ADF	Acid detergent fibre
ADL	Acid detergent lignin
ANOVA	Analysis of variance
^{o}C	Degree Celsius
ml	Milliliter
FCR	Feed Conversion Ratio

ABSTRACT

This experiment was conducted in Ladang 2, Universiti Putra Malaysia and 15 male New Zealand White rabbits, age of four weeks old, were used in this experiment. This project include five treatment groups. Treatment 1 (PGg) received 80% pellet feed + 20% Guinea grass**,** Treatment 2 (P60MGg) received 60% pellet feed and 20% mash mixture feed + 20% Guinea grass, Treatment 3 (P40MGg) received 40% pellet feed and 40% mash mixture feed + 20% Guinea grass, Treatment 4 (P20MGg) recieved 20% pellet feed and 60% mash mixture feed + 20% Guinea grass and Treatment 5 (MGg) recieved 80% mash mixture feed + 20% Guinea grass respectively. The main purpose of this study, to examine the effect of different form of rabbit feed on growth performance of rabbits and it influence on body weight of the rabbits. Specifically, the study aimed to determine the growth performance of rabbits fed with pelleted form feed and mash feed mixtures. In recent times, attention has shifted to rabbits as meat animals. Many of Mediterranean countries already include rabbit meat as a common food (Dalle Zotte and Szendro, 2011). Based on the nutritional view, rabbit meat is kind of ideal meat for all kinds of consumer. However, that scenario does not happen yet in Malaysia because of many factors, such as the demand itself influences the production system. Commercial feeds are also expensive and can be a constraint to potential of rabbits to meet the protein needs. It is also will increase operation cost to the farmers. The cost of rabbit feed can be reduced if other feed substitution such as mash mixture feed which can also serve the adequate nutrient supply to the rabbits being used.

All the rabbits were housed individually. Rabbits were distributed randomly to each of the treatment groups equally with three rabbits in each group. All the rabbits were supplied *ad libitum* green grass (Guinea grass). Concentrate feed were given to each group according to the

treatment assigned. Water supply were provided all the time to the rabbits. Amount of feed residue were collected every morning before the feed were given to the rabbits on that the rabbits were supplied *ad libitum* green grass (Guinea grass). Concentrate feed were given to each group according to the treatment assigned. Water supply were provided all the time to the rabbits. Amount of feed residue were collected every morning before the feed were given to the rabbits on that day, to measure the actual feed intake of the rabbits for previous day. Body weight of the rabbits were measured once in a week, early in the morning before the feed was given to the rabbits, to get the body weight gain for every week.Collected data for every parameter were analyzed using Statistical Analysis System (SAS) 9.4 programme to compute analysis of variance (ANOVA) for a completely randomized design (CRD); Duncan's Multiple Range Test (DMRT) was done to compare the treatment means for different parameters.

The results of growth performance of rabbits fed *ad libitum* green grass (Guinea grass) along with either pellet, mash or pellet and mash feed were shown did not differ significantly ($P>0.05$) within the groups. For the body weight gains, the average final body weight of rabbits obtained were 1340.7g, 1291.3g, 1005.3g, 949.7g and 1089g. For the feed conversion ratio (FCR) of the rabbits was also did not differ significantly ($P>0.05$). For the feed intake of the rabbits throughout this experiment, feed intake of treatment group MGg which was fed with mash mixture feed and Guinea grass supplementation showed significantly different at ($P<0.05$) between other treatment groups in Week 3. Feed intakes in other weeks showed not significantly different.

Keywords : Rabbit, New Zealand White, performance, pellet feed, mash mixture feed, Guinea grass

ABSTRAK

Kajian ini telah dijalankan di Ladang 2, Universiti Putra Malaysia dan lima belas ekor arnab jantan baka New Zealand White , berumur empat minggu telah digunakan dalam kajian ini. Di dalam kajian ini, sebanyak lima jenis kumpulan diet telah digunakan. Kumpulan diet 1(PGg) telah menerima 80% makanan pellet + 20% rumput Guinea, Kumpulan diet 2 (P60MGg) telah menerima 60% makanan pellet beserta 20% makanan mash + 20% rumput Guinea, Kumpulan diet 3 (P40MGg) telah menerima 40% makanan pellet beserta 40% makanan mash + 20% rumput Guinea, Kumpulan diet 4 (P20MGg) telah menerima 20% makanan pellet beserta 60% makanan mash + 20% rumput Guinea dan Kumpulan diet 5 (MGg) telah menerima 80% makanan mash + 20% rumput Guinea. Objektif utama kajian ini dijalankan adalah untuk mengkaji kesan perbezaan bentuk makanan arnab kepada prestasi pertumbuhan arnab dan berat badan arnab. Khususnya, kajian ini bertujuan untuk mengkaji pretasi pertumbuhan arnab diberi makan dengan makanan pallet dan makanan campuran mash.

Sejak kebelakangan ini, perhatian telah beralih kepada arnab sebagai haiwan daging. Banyak negara-negara Mediterranean sudah menerima daging arnab sebagai makanan harian mereka (Dalle Zotte dan Szendro, 2011). Berdasarkan pandangan pemakanan, daging arnab adalah jenis daging sesuai untuk semua jenis pengguna. Walau bagaimanapun, senario ini tidak berlaku lagi di Malaysia disebabkan oleh banyak faktor, seperti kadar permintaan yang mempengaruhi sistem pengeluaran daging arnab.Makanan komersial yang maha jugal boleh menjadi kekangan kepada potensi arnab untuk memenuhi keperluan protein. Ia juga akan meningkatkan kos operasi kepada petani. Kos makanan arnab boleh dikurangkan jika makanan gantian lain yang juga boleh membekalkan bekalan nutrien yang mencukupi kepada arnab seperti makanan campuran mash digunakan.

Semua arnab telah ditempatkan di setiap sangkar secara individu. Arnab telah dibahgikan secara rawak kepada lima kumpulan diet dengan tiga arnab dalam setiap kumpulan. Semua arnab telah dibekalkan dengan rumput hijau (rumput Guinea) secara *ad libitium*. Makanan konsentrat telah diberikan kepada setiap kumpulan mengikut diet yang diberikan. Bekalan air telah disediakan sepanjang masa untuk arnab. Jumlah sisa makanan arnab dikumpul dan ditimbang setiap pagi , sebelum makanan diberikan kepada arnab pada hari itu, untuk mengukur pengambilan makanan sebenar arnab untuk hari sebelumnya.Berat badan arnab diukur sekali dalam seminggu, pada awal pagi sebelum makanan diberikan kepada arnab, untuk mendapatkan berat badan badan arnab untuk setiap minggu. Data yang dikumpulkan bagi setiap parameter telah dianalisis dengan menggunakan Statistical Analysis System (SAS) 9.4 program untuk mengira analisis varians (ANOVA) untuk acak lengkap (CRD); Duncan Multiple Range Test (DMRT) telah digunakan untuk membandingkan purata kumpulan diet untuk parameter yang berbeza.

Hasil purata prestasi pertumbuhan arnab yang diberi makan rumput hijau (Guinea rumput) secara *ad libitum* bersama-sama dengan makanan pallet,makanan mash atau pallet dan makanan mash menunjukkan tiada perbezaan yang ketara (P> 0.05) dalam kalangan kumpulan diet yang berbeza. Bagi nisbah penukaran makanan (FCR) arnab juga tidak berbeza dengan ketara (P> 0.05) dalam kalangan lima kumpulan diet yang berbeza. Untuk pengambilan makanan arnab sepanjang kajian ini, pengambilan makanan oleh kumpulan rawatan MGg yang diberi makan dengan makanan campuran mash dan rumput Guinea menunjukkan perbezaan yang ketara di (P <0.05) di antara kumpulan rawatan lain dalam Minggu 3. Pengambilan makanan dalam minggu-minggu yang lain menunjukkan perbezaan purata yang tidak ketara

Kata kunci: Arnab, New Zealand White, prestasi pertumbuhan arnab, makanan pallet, makanan mash campuran, rumput Guinea.

CHAPTER 1

INTRODUCTION

In recent years, rabbit production has become increasingly intensive system in most countries as well as Mediterranean countries like Italy and Spain (Dalle Zotte and Szendro, 2011). Its productivity is now as equivalent to other livestock productivity in those countries. Beside being kept as a pet, rabbits also being reared as a food and sources of income. Rabbit is unique as it can effectively utilize forages and by-products as major diet component (Cheeke, 1986). Interesting fact about rabbit, it can give a good return to the farmers, as it has ability to turn forages into high quality protein. Rabbit's meat also have high nutrients as many of Mediterranean countries like Italy, Spain, and some other European countries already include rabbit meat as a common food (DalleZotte and Szendro, 2011). Rabbit meat is very useful in Western countries whose diet is generally rich in fats and sodium, thus exposing them to health problems ; obesity, cardiovascular disease and many more (Karppanen and Mervaala, 2006) .

However, that scenario does not happen yet in Malaysia because of many factors, such as the demand itself influences the production system. The demand of poultry and other livestock is much more higher compared to rabbit's meat . Due to the less demand, farmers are still cautious to get involved in this industry. Another aspect that related to this industry in Malaysia is the performance of rabbits production still low and the cost of rabbits feed that is

too high can be reduced if rabbit industry in Malaysia does not depend totally on feed commercial. Therefore, the purpose of this study, to examine the effect of different form of rabbit feed on growth performance of rabbits and it influence on body weight of the rabbits. Specifically, the study aimed to determine the growth performance of rabbits fed with pelleted form feed and mash feed mixtures.

1.1 OBJECTIVES

1.1.1 General objective

The general objective of this study was to evaluate the growth performance of rabbits fed with different form of feed.

1.1.2 Specific objectives

The specific objectives of this study were:

i. To determine the feed intake of rabbits on pellet feed and mash mixture feed.
ii. To determine the body weight change of rabbits.

1.2 RESEARCH HYPOTHESIS

Some studies conducted showed the average of body weight changes of rabbits fed with mash mixture feed was lower compared to the rabbits fed with pellet feed. The feed intake of rabbits on mash mixture feed was lower compared to feed intake on pellet feed.

REFERENCES

Alexander Huwiq et al, (2001). Mycotoxin Detoxification of Animal Feed By Different Absorbents.

Amy E. Halls, M. Sc. (2010) .Nutritional Requirements for Rabbits, Shur-Gain, Nutreco Cana Inc.

Bielanski et al, (1998) . Effect of Genetic Variation On Growth And Meat Quality In Rabbits.

Cheeke, P. R. (1987). Rabbit Feeding and Nutrition.Rabbit Feeding and Nutrition.Elsevier.http://doi/org/10.1016/B978-0-08-057078-5.50007-8

Cheeke, P. R., Patton, N. M., Lukefahr, S. D., and McNitt, J. I. (Eds.) (1987).Rabbit Production. Interstate Printers & Publishers, Inc., Danville, Illinois.

CM Placinta et al, (1999) . A Review Of Worldwide Contamination of Cereal Grains And Animal Feed With *Fusarium*Mycotoxins.

de Blas, C., Wiseman, J. (2003). The Nutrition of the Rabbit.CABI Publishing, Oxon, UK.

de Blas C., Wiseman J. (2010) . Feeding BehaviourIn Rabbits.

DalleZotte A. 2002. *Perception of Rabbit Meat Quality and Major Factors Influencing The Rabbit Carcass and Meat Quality*. Livest. Prod. Sci., 75: 11 – 32. doi:10.1016/S0301-6226901)00308-6

DalleZotte (2011) . The Role Of Rabbit Meat As Functional Food.

Dozier et al.,(2010). Effects of Feed Form On Growth Performance and Processing Yields of Broiler Chickens During A 42 Day, Production Period. Vol. 19, 2010, pp 219-226.

Gerencser et al., (2011) . Nutrition Of The Rabbit.Kaposvar University.

Handa MC, (1995) . Rabbits For Meat Production. Vol. 20(9) p, 99-100. Agriculture Univ., Ludhiana, India.

Irlbeck , (2001) . How To Feed The Rabbit (*Oryctolaguscuniculus*) Gastrointestinal Tract. 79(E. Suppl.): 343-346. Department of Animal Sciences, Colarado State University, Fort Collins.

Jacela JY, (2010) .Mold Inhibitors, Mycotoxin Binders, AndAntixodants. Vol. 18(1) p 27-32. Department of Animal Science and Industry, Kansas State University, Manhattan, Kansas.

Jenkins, J.R. 1999. *Feeding Recommendations for The Horse Rabbit*.Veterinary Clinics of North America: Exotic Animal Practice. Vol. 2 p 143. W.B Saunder Company, Philadelphia.

Lebas F, (2004) . Reflections Of Rabbit Nutrition With A Special Emphasis On Feed Ingredients Ultilization. Vol 7-10.

Maertens L, (2009) . Possibilities To Reduce The Feed Conversion In Rabbit Production. Ministry of The Flemish Community, Institute for Agricultural and Fisheries Research (ILVO), Animal Sciences, Melle, Belgium.

Mckinney and Teeter, (2004) . Predicting Effective Caloric Value of Nonutritive Factors 1. Pellet Quality and 11. Prediction of Consequential Formulation Dead Zones. Poultry Science, Volume 83, 2004, pp. 1165-1174.

Mingbin, (2015) . Animal Nutrition. Effects of Feed Form and Feed Particle Size On Growth Performance, Carcass Characteristics and Digestive Tract Development of Broilers. Volume 1, Issue 3, Pages 85-256,

Prebble, J. L., Langford, F. M., Shaw, D. J., & Meredith, A. L. (2015). The effect of four different feeding regimes on rabbit behaviour. *Applied Animal Behaviour Science*, *169*, 86–92. http://doi.org/10.1016/j.applanim.2015.05.003

Schmale D.G, (2014) .Mycotoxins In Crops : A Threat To Human And Domestic Animal Health.