changed into linolenic acid. Consequently, in the fermentation using *R. oligosporus* linoleic acid content tended to increase, while linolenic acid was also increased.

CONCLUSION

Rhizopus oryzae and *R. oligosporus* have the potential to be used as a coagulant in tofu. The optimum time to perform coagulation for *R. oryzae* is 18 hours and for *R. oligosporus* is 12 hours. Tofu made using *R. oryzae* and *R. oligosporus* as a coagulant has higher content of linolenic and linoleic than in tofu using vinegar as a coagulant. The highest of linoleic and linolenic acids was obtained: (i) *R. oryzae* fermentation at 6 hours (0.26% and 0.14%), after that linoleic and linolenic acids tended to decrease, along with the length of fermentation. (ii) *R. oligosporus* fermentation of 24 hours (0.14% and 0.08%).

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Slaughter weight and carcass of male New Zealand White rabbits after rationing with koro bean (*Mucuna pruriens* var. *utilis*)

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Abstract. *Santoso U, Sutarno. 2009. Slaughter weight and carcass of male New Zealand White rabbits after rationing with koro bean* (Mucuna pruriens *var*. utilis)*. Nusantara Bioscience 1: 117-122.* The objectives of the research were to know the effects of koro bean (*Mucuna pruriens var. utilis*) present on slaughter weight and carcass of rabbits and to know the optimum dosage that resulted the best slaughter weight and carcass. The research used Randomized Block Design whereas 25 heads of six weeks old rabbits with 450-1270 g of body weight were devided into five groups according to the body weight. Each group were treated with different treatment. The treatment were unpresent of *M. pruriens* as a control (R0) and various percentage of *M. pruriens* as much as 21.5%, in the ration with treatment as follows: R1 (raw), R2 (heating), R3 (boiling), and R4 (fermentation). The parameters observed were slaughter weight, carcass weight, meat weight, bone weight, and adipose tissue weigth. The data analyzed by analysis of variance (ANOVA) followed with Duncan's Multiple Range Test (DMRT). The present of processed *M. pruriens* could increase production of slaughter weight better than the present of unprocessed *M. pruriens*. The additional of 21.5% of fermented *M. pruriens* resulted in the best production of slaughter weight and carcass of rabbits.

Key words: koro bean, *Mucuna pruriens*, ration, rabbits, *New Zealand white*.

Abstrak. *Santoso U, Sutarno. 2009. Bobot potong dan karkas kelinci New Zealand White jantan setelah pemberian ransum dengan kacang koro* (Mucuna pruriens *var*. utilis)*. Nusantara Bioscience 1: 117-122.* Penelitian ini bertujuan untuk mengetahui pengaruh pemberian tepung kacang koro (*Mucuna pruriens* var. *utilis*) terhadap produksi bobot potong dan karkas kelinci galur *New Zealand White* serta mengetahui dosis optimum pemberian tepung kacang koro yang memberikan bobot badan dan karkas terbaik. Metode penelitian digunakan adalah eksperimen dengan pola Rancangan Acak Kelompok. Sebanyak 25 ekor kelinci berumur sekitar 6 minggu yang memiliki kisaran bobot badan 450-1270 g dikelompokan menjadi lima kelompok menurut bobot badannya. Masing-masing kelompok mendapat perlakuan yang berbeda, perlakuan yang diberikan adalah ransum tanpa tepung kacang koro (R0) sebagai kontrol dan ransum dengan pemberian tepung kacang koro masing-masing sebanyak 21,5%, dengan perlakuan sebagai berikut: R1 (mentah), R2 (pemanasan), R3 (perebusan), dan R4 (fermentasi). Parameter yang diamati bobot potong, bobot karkas, bobot daging, bobot tulang, dan bobot lemak. Data yang diperoleh dianalisis ragam (ANAVA) dan dilanjutkan dengan uji jarak berganda Duncan (DMRT). Pemberian tepung kacang koro hasil olahan dalam ransum meningkatkan produksi bobot potong dan karkas yang lebih baik dibandingkan dengan pemberian tepung kacang koro tanpa diolah dan pada tingkat 21,5% pemberian tepung kacang koro hasil fermentasi dalam ransum menyebabkan peningkatan produksi bobot potong dan karkas paling baik.

Kata kunci: kacang koro, *Mucuna pruriens*, ransum, kelinci, *New Zealand white*.

INTRODUCTION

Rabbit (*Oryctolagus cuniculus*) is known as healthy meat-producing cattle with high protein content and low cholesterol and triglyceride. As an added value it also produces skin and fur, feces (droppings) and urine as organic fertilizer. New Zealand White rabbits (NZW) quickly grow large; this type of rabbit can be used as meat rabbit. Adult weight can reach 4.5 to 5 kg; and the baby can reach 10-12 rabbits (Verhoef-Verhallen 1998). Developing rabbits is a good prospect in taking over the problem of meat shortage as the protein source in order to ensure continuous availability of food at the community level (Farrell and Raharjo 1984).

Rabbit farming in Indonesia has been quite popular in the community for its easy maintenance, relatively small capital, simple cage that can be made not extensively. To feed rabbits we can use agricultural waste, kitchen waste, market waste, or other forages. In addition, by looking after rabbits family can take utilize its spare time for more productive activities in an effort to obtain value-added (Rismunandar 1981; Sitorus et al. 1982; Sarwono 1991).

Based on the observation in the field it is found that the low productivity is caused mainly by poor of food management. Foods that are given to the rabbits are generally only green forage without concentrate and any other feedstuffs. Thus, the growth rate of body weight of the rabbit is not optimal and results in low slaughter weight

and low carcass quality. Conditions like these can be improved by using feed ingredients that can improve the quality of foods so that they can meet the needs for basic living and production. However, the problem in the implementation of maintenance is the limited availability of raw materials, particularly soybean meal. Up to now, soybean meal is still imported because the domestic production has not been able to meet the needs. Every year our country imports as much as 1.2 million tons of soybeans for feeding material only.

In relation to the problem above, it is necessary to find alternative feed ingredients, by maximizing the utilization of local raw materials to reduce the dependence on imported feed ingredients. One of the local foods ingredients that are known to have the potential to be a source of protein food is *M. pruriens* (*Mucuna pruriens* var. *utilis*). This plant is known for its ease and quickness to grow naturally. *M. pruriens* are legumes that grow in the soil surface by creeping or climbing. Like other legumes, *M. pruriens* can help to increase soil nitrogen levels through its symbiosis with *rhizobium*, which is known as a source of organic material. In addition, *M. pruriens* are resistant to disease, crop residues, weeds and any other weeds (Friday et al. 1999).

In Indonesia, *M. pruriens* are not used yet optimally as any other *leguminose* crops (soy beans) both as food crop and as animal food ingredients. *M. pruriens* have many kinds of species with different seed colors and are good source of protein because they have abundant of essential amino acids, especially leucine. Although there are differences in species, the amino acids which are contained in them have the same composition (Lubis 1972). *M. pruriens* seeds contain high crude protein namely as much as 28.94%. If we take a look at the nutritional content, *M. pruriens* can be used as animal feed for its protein, vegetable, replacing some soybean, especially for rabbits.

Koro seeds are known to contain toxic compounds that may affect the use of nutrients in the body of non-ruminant livestock, such as the acid compound cyanide/HCN (Purwo 1974). Raw koro seeds contain HCN 42.5 mg/kg. The use of raw koro seeds in the food of pigs which is more than 15% is found to decrease food intake, weight, and feed conversion (Enemalom et al. 2004). So is the use of raw koro seeds in broiler chicken rations which is more than 10% can reduce food intake and weight (Carmen et al. 1999).

Mucuna pruriens nutritional value as animal food ingredients can be increased, if the anti-nutritional compounds they contain can be reduced or even eliminated altogether, so the potential of this food material provides a good prospect in the diversification of animal food. Treatments with water or solution through a process of soaking, dyeing, boiling, roasting, and fermentation or by a combination of these ways are a treatment that can reduce the levels of cyanide (Aisyah 1995). The treatment process through the provision of heat with method of roasting or boiling can reduce by approximately 68% cyanide acid levels in *M. pruriens* (Siddhuraju 1996). Fermentation of *M. pruriens* can remove cyanide to get the results that are safe for use as a raw material feed (Handajani 2001).

In connection with it this research examines the effects of the use of *M. pruriens* that is processed by heating, boiling and fermentation toward the weight of New Zealand White male rabbits.

MATERIALS AND METHODS

Place and time of the study

The experiment was conducted in District Pacet, Cianjur, West Java for 8 weeks from 5 December 2008-11

Figure 1. New Zealand White rabbits

Table 1. Nutrient of the feed (based on dry ingredients).

Nutritional value	Field grass	Concentrate	*M. pruriens*
Protein (%) [1)]	14,10	14,07	28,94 (raw)
	-	-	26,84 (heating)
	-	-	26,89 (boiling)
	-	-	32,42 (fermentation)
Fibers (%) [1)]	31,65	11,98	-
Lipids (%) [1)]	2,17	1,12	-
Ashes (%) [1)]	12,12	19,66	-
BETN (%) [1)]	39,96	53,17	-
Gross energy (kkaL/kg)[1)]	3741,00	1302,00	-
HCN (mg/kg) [2)]	-	-	42,5 (raw)
	-	-	39,5 (heating)
	-	-	24,4 (boiling)
	-	-	0,93 (fermentation)

Note: 1) The result from Quality Test Laboratory PPPPTK Cianjur Farming Board 2008. 2) The result from Livestock Nutrient and Chemical Food, Pajajaran University 2006.

January 2009. The altitude of the location of the study is 1050 meter above sea level, the minimum temperature was 21.3°C, and the maximum temperature was 27.2°C, with 88% humidity.

Material

This study used New Zealand White male rabbits (Figure 1) as many as 25 wean off of about 6 weeks old, with body weight ranged from 450-1270 g. The basic rations used in this study consisted of field grass in the vicinity of the study and concentrate from KUD Cipanas, Cianjur regency. The level of *M. pruriens* contains the results of processing a food mixture material that would be studied. The species of the field grass used consisted of bitter grass (*Paspalum conjugatum*), galinggang (*Galinsoga parviflova*), sintrong (*Crassocephalum crepidioides*), babadotan (*Ageratum conyzoides*), domdoman (*Andropoghon aciculatus*), and carrot leaves. The species of the field grass were obtained in the vicinity of the study. Concentrate, the species of grass used in this study, the nutrients are shown in Table 1. Five kinds of rations used in this study were (R0, R1, R2, R3 and R4) with the composition of food materials of every kind of ration experiment that can be seen in Table 2.

Table 2. The composition of food ingredient in each rations experiment (based on fresh ingredients and dry ingredients.)

Ration	Ration material (g)		
	Field grass	Concentrate	*M. pruriens*
R0 (control)	250	50	0.000
R1 (raw)	250	50	10.75
R2 (heating)	250	50	10.75
R3 (boiling)	250	50	10.75
R4 (fermentation)	250	50	10.75

Note: R0 = diets without the addition of *M. pruriens*. R1 = rations with addition of 21.5% raw *M. pruriens*. R2 = rations by the addition of 21.5% heated *M. pruriens*. R3 = rations with addition of 21.5% boiled *M. pruriens*. R4 = rations with addition of 21.5% fermented *M. pruriens*.

Prior to rationing the treatment was given, each rabbit was measured for its maximum feed intake limit per day, then the ration was given by *ad libitum* twice. First the food was given in the morning at 08.00 in a form of *M. pruriens* from processed mixed with a concentrate that was mixed evenly mixed with boiling water and stir until soft. At 14.00 fields grass then was given. Drinking water was given once a day (early morning) by *ad libitum*.

M. pruriens that were given had to be previously cleaned first, and then they were sliced into small pieces and dried in the sun for two to three days by autoclave (heating). Subsequently dried *M. pruriens* ground to a flour, *M. pruriens* flour were mixed into the concentrate with homogeny according to the level of the addition. Rabbits were randomly placed in individual cages with 0.6 m long, 0.6 m wide and 0.45 m high, pedestal high was 0.30 m. Each cage was surrounded by concentrate place of 20 cm diameter 3 cm high and made of soil, and drinking water place was 20 cm and 3 cm height made of soil, the cage made of wood, bamboo, wire and woven wire. Scales used for measuring the body weight, slaughter and diet weight 5 kg, with a precision of 1 g, while to measure the weight of meat, bone and fat using an electric scale with a capacity of 400 g with a precision of 0.1 g.

Other tools used were places for food and drink, plastic buckets, plastic bags, plastic gloves, meat cleaver, scissors, cameras, plastic ropes, plastic tray, raffia rope, grinder, thermometer to measure room temperature (° C), and hygrometer to measure humidity room (%). The efforts to prevent disease is done through cage sanitation and some equipments, parasitic worm medicine Albenol-100 at a dose of 0.005% was also used for rabbit with body weight of 450-1270 g (2.25 to 6.35 mL) given orally at the time of preliminary research.

Design of research

The experiment was conducted by using experiment methods with randomized block design (RBD). Treatment that were given were five kinds of diets, namely processed and raw *M. pruriens*, so there were 5 kinds of rations treated respectively as follows:

R0 = control diet, containing 0% *M. pruriens*.
R1 = rations containing 21.5% raw *M. pruriens*.
R2 = rations containing 21.5% heated *M. pruriens*.
R3 = rations containing 21.5% boiled *M. pruriens*.
R4 = rations containing 21.5% fermented *M. pruriens*.

This study used white male New Zealand wean off as many as 25 heads of about 6 weeks old, body weight ranging from 450-1270 g. Those rabbits were grouped into five blocks of replications based on body weight, so that each group consisted of 5 rabbits. Rabbit body weight in group I ranged from 450-600 g, 601-750 g in group II, group III 751-900 g, 901-1050 g group IV, group V 1051-1270 g. The randomization results in the layout of the experiment as follows:

Table 3. The layout of the experiment

Block/repetition	Treatment				
I	R0	R4	R2	R1	R3
II	R3	R1	R4	R0	R2
III	R1	R4	R3	R2	R0
IV	R4	R2	R0	R1	R3
V	R2	R1	R4	R3	R0

Note: I, II, III, IV, V = repetition block; R_0, R_1, R_2, R_3, R_4 = Blocks per replicate R4

Data analysis

Statistical model experiments are as follows:

$Yij = \mu + \alpha j + ri + Єij$

Yij = observed response of the experiment that measured in to-i, j-th repetition
i = 1, 2, 3, 4, 5 (treatment)
j = 1, 2, 3, 4, (replications)
μ = mean of population
ri = effect of i-th treatment
αj = effect of j-th group
Єij = effect of experimental error/effect error component in the i-th treatment, j-th repetition

Assumptions:

Єij value spread normally and independent of each other
Єij expected value = 0 or E (Єij) = 0
Variety of Єij = δ2
So Єij ~ NID (0, δ2)
Effect of treatment is permanent.

The hypothesis was tested:

H0: R0 = R1 = R2 = R3 = R4
H1: There are at least a pair of treatment (R1) which is not the same

The data gained then were analyzed by method of variance and multiple range test followed by DMRT. Data were analyzed with ANOVA according to the experimental design (Table 4). Antarper lakuan Differences tested with Duncan multiple range test (Steel and Tori 1991).

Table 4. List of variance analysis

Source diversity	Db	JK	KT	F_{hit}	F.0,05
Group	t-1 = 4	JKK	KTB	KTB/KTG	
Treatment	t-1 = 4	JKP	KTP	KTP/KTG	
Error	t (r-1) = 6	JKG			
Total	rt-1 =24				

Note: If F ≤ F hit 0.05, then thank HO (ns), meaning that the treatment had no significant effect. When F ≥ F hit 0.05, then thank HI (s), meaning that the treatment significantly.

RESULTS AND DISCUSSION

Body weight

The mean slaughter weight gain New Zealand White male rabbits for each treatment during the study are presented in (Table 4). The highest mean weight gain is in the treatment of R4 which is 316 g/head, while the lowest average weight gain the lowest in the treatment of R1, that of 164 g/head.

The result of the calculation of variance showed overall weight gain New Zealand White male rabbits was significantly affected (P <0.05) by treatment. Furthermore, to know the difference between the treatment of the addition of body weight/piece of New Zealand White male rabbits that were fed with processed *M. pruriens* performed using the Duncan Multiple Range Test results that can be seen in Table 5.

Table 5. DMRT results of treatment effect on body weight gain, carcass weight, meat weight and bone weight in New Zealand White male rabbits (g/head).

Treatment	Mean weight			
	Body (g)	Carcas (g)	Meat (g)	Bone (g)
R0 (control)	238 ab	326.62 b	178.78 b	147.83 a
R1 (raw)	164 a	294.77 a	158.18 a	136.60 a
R2 (heating)	288 b	341.14 bc	185.23 bc	155.90 ab
R3 (boiling)	286 b	341.15 bc	185.50 bc	155.65 ab
R4 (fermentation)	316 c	350.60 c	194.87 c	155.73 ab

Note: number followed by different letters in same column significantly different at level 0.05.

The mean weight gain of R1 is the lowest (P <0.05) when compared with weight gain of the other treatments (Table 5). Lower body weight gain by rations in the presence of treatment R1 is because there is toxic cyanide that becomes a disturbing factor on both raw *M. pruriens* for human and livestock consumption(Purwo 1974). Based on the results, raw *M. pruriens* seeds that was used as animal feed have negative effect on the growth of livestock which can reduce feed intake, weight gain, and feed conversion (Enemalom et al. 2004). This condition is a result of cyanide compounds contained in raw *M. pruriens* (Carmen et al. 1999). According to Widodo (2005) the presence of cyanide in the feed caused the negative effect of losing the use of proteins, especially amino acids containing sulfur, such as: methionin, cysteine, cystine, vitamin B-12, minerals iron, copper, iodine, and the production of thyroxin. HCN compounds used in the diet causes the amino acids that contain sulfur compounds to neutralize the HCN. It causes reduction of the amino acids mainly methionin that is available to form muscle in growth period. If the HCN levels consumed too much, it will cause difficulty for cells in the body to breathe because of the disruption of cytocrom oxidase enzyme which usually ends with the death of the livestock. According to the results of this study that the diet containing high HCN causes a low growth. According to Bahri and Tarmuji (1990) cyanide enters the animal's body through breathing,

skin, and at mostly through the digestive tract. So tolerance of cattle against cyanide depends on the ability of cattle in detoxification. These capabilities can be seen from the level of rhodanase enzyme in its liver. R0 treatment mean body weight/cut 238 g/head with ration treatment without *M. pruriens* contain no significant differences due to growth in one animal is influenced by the nutritional adequacy, body size, and amount of rations consumed. In the R$ treatment the fermented *M. pruriens* is most favored over the treatment diet compared to other *M. pruriens*.

Treatment with fermentation is the best way because there is no effect on body weight reduction. Allegedly R4 treatment rations shows there a big loss of HCN due to the fermentation process is always preceded by boiling and/or steaming. Treatment R2 mean body weight/pieces of 288 g/head and R3 mean body weight/pieces of 286 g/head have no difference in its effect because *M. pruriens* diet containing the results of heating and boiling HCN levels are still high because only soluble in during heating and boiling, and evaporate during drying. In the R2 treatment andR3 treatment the food are not so favored, and this cause nutrition deficiency resulting in low weight gain in cattle.

Carcass weights

Rao et al. (1978) states that what is meant by rabbit carcass is part of the animal's body without the blood, head, skin, feet, tail, digestive tract and its contents and the content of the chest cavity, except kidney. Average carcass weight of New Zealand White male rabbits for each treatment during the study are presented in (Table 5). The highest mean carcass weight is in treatment of R4 which is 350.60 g/rabbit, while the lowest average carcass weight is in treatment of R1, that is 294.77 g /rabbit. The result of the calculation of variance shows overall carcass weight of New Zealand White male rabbit was significantly affected ($P < 0.05$) by treatment. Furthermore, to know the difference between the treatment of additional carcass weight of New Zealand White males who were given diets containing *M. pruriens* processing results performed using Duncan's Multiple Range Test of the results can be seen in Table 5.

Average carcass weight real R1 is the lowest ($P < 0.05$) when compared with other treatments carcass weight (Table 5). Average carcass weights resulting from this research are lower (27.40%) than that recommended by Templeton (1968) that the percentage of young rabbit carcass (*fryer*) as much as 50-59%. The difference is possible because in addition to the nation and the environment it is also caused by rabbit breeding patterns that are generally much different.

Different carcass weight was not in line with the slaughter weight. It is presumed as a result of differences in the proportion of muscle in the meat. A good carcass composition has a high proportion of meat, low bone, and optimum fat (Berg and Butterfield 1976). The highest average carcass weight is in treatment R4 and the lowest is in R1 treatment. This is due to HCN in the diet was consumed not only affected the growth of meat but the effect on overall growth. Usually a percentage and carcass weight are more influenced by genetic trait.

According to Forrest et al. (1975) raising livestock across nation diversity has effect on the speed of growth and body composition. He adds that if the slaughter id high, it will produce a higher carcass weight. Shafie et al. (1961) declared that young male rabbit carcass weight higher than that of female, female rabbit carcass weight then becomes higher as time goes on because more fatty carcass. Templeton (1968) and De Blass et al. (1977) added that a rabbit carcass is affected by nation, gender, age, thickness of the skin, gastrointestinal tract, fatty, quality, and quantity of ration consumed.

Meat weight

The mean body weight of New Zealand White rabbit males for each treatment during the study are presented in (Table 5). The highest mean weight gain was found on treatment R4 namely 194.87 g rabbit, while the lowest average body weight gain in treatment R1 namely 158.18 g /rabbit. The results of calculation of variance show in overall body weight gain in New Zealand White rabbit males of each rabbit was significantly affected ($P < 0.05$) by treatment. Furthermore, to know the difference between the treatment of meat weight encroachment New Zealand White males who were given diets containing *M. pruriens* from processed using Duncan multiple range test whose results can be seen in Table 5. The mean weight gain of R1 is the lowest ($P < 0.05$) when compared with other treatments meat weight. The highest mean weight (Table 5) produced by the rabbit who ate R4 treatment (194.87 g), and then followed by R3 (185.50 g), R2 (185.23 g), R0 (178.78 g), and R1 (158.18 g). It appears that rabbits treated with R4 produce meat weight which is significantly higher ($P < 0.05$) than rabbits treated rations consumed R0, R1, R2, and R3.

On the other hand, the weight of meat produced by the rabbit who ate rations R0, R1, R2, and R3 showed no significant differences ($P > 0.05$). The high weight of rabbit that consume ration treatment with level of *M. pruriens* (R4 = 21.5%/10.75 g/head/hr) was in line with the carcass weight. This is in accordance with the opinion by Dwiyanto et al. (1984) that with increasing carcass weight, the percentage of muscle meat tends to rise. These results provide evidence that fermented *M. pruriens* in a relatively small amount of 10.75 g per cow per day is thought to be able to increase the metabolism and absorption of protein. Proteins are absorbed and subsequently deposited in the form of meat.

Bone weight

The main function of bone is as the framework supporting the soft tissues of the body. Bone tissue was formed in the phase before birth (prenatal) and after birth (postnatal) with changes in the connecting tissue (Forrest et al. 1975). Sandford (1979) argues that each tissue has a growth rate that is different. The organs that develop earlier are the brain, liver, lungs, gastrointestinal tract, and bone. The development will be followed by the development of bone tissue and the last is the development of fat.

The mean weights of bone in New Zealand White male rabbits for each treatment during the study are presented in (Table 5). The highest mean bone weight gained is in treatment R2 namely 155.90 g /rabbit, followed by treatment R4 (155.73 g /rabbit), R3 (155.65 g /rabbit) R0 (147.83 g /rabbit), while the lowest average weight gain is in treatment R1 that is 136.60 g /rabbit. The result of the calculation of variance shows that the overall weight of bone was not significantly affected (P> 0.05) by treatment. Furthermore, to know the difference of the treatment of bone weight given diets containing processed *M. pruriens* results performed using the Duncan Multiple Range Test results we can see Table 5.

Table 5 shows that the average bone weight of each treatment (R0, R1, R2, R3, R4) was not significantly different. From the analysis it was known that the treatment had no effect (P> 0.05) against the weight of the bone. Similarly, the results obtained after the analysis of Duncan. This means that the diversity of the weight of the bone caused by the treatment means nothing. According to Forrest et al. (1975), bone is the body component formed in the phase before birth (prenatal) and after birth (postnatal), and is developed earlier than tissue and fat (Sandford 1979). In addition, carcass bone weight negatively correlated with carcass weight, because the increase of carcass weight means the increase in fat and meat but the percentage of bone tends to decrease (Forrest et al. 1975).By considering the diversity of a relatively small weight of bone, it is presumed that it is an indication showing that the development of rabbit bone was near optimum. Thus, the provision of treatment produces no significant effect.

CONCLUSION

The provision of *M. pruriens* in the rabbit food increased the body weight and the carcass weight of New Zealand White male rabbits. This is supported by the results as follows: (i) Rabbit R1 treatments that use the raw *M. pruriens* flour in the ration were not able to neutralize the HCN content. (ii) The *M. pruriens* fermentation process results in a ration of 21.5% (10.75 g) as a whole is able to increase production of body weight/carcass weight of white New Zealand White male rabbits.

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