

## EFFECT OF *Lactobacillus* Sp AS PROBIOTIC SUPPLEMENTATION IN DIET ON THE PERFORMANCE OF 62 – 69 WEEKS LAYING HENS

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### ABSTRACT

The objective of this experiment is to find out the effect of *Lactobacillus* sp. as probiotic supplementation in diet on laying performances. One hundred 62-69 weeks-old layers strain Isa Brown were randomly allotted to five diets : a basal diet (P<sub>0</sub>) ; a basal diet + 0,1% probiotic (*Lactobacillus* sp.) (P<sub>1</sub>), a basal diet + 0,2% probiotic (*Lactobacillus* sp.) (P<sub>2</sub>), a basal diet + 0,3% probiotic (*Lactobacillus* sp.) (P<sub>3</sub>) and a basal diet + 0,4% probiotic (*Lactobacillus* sp.) (P<sub>4</sub>). The trial was conducted for 8 weeks. The variables observed were diet intake (g/bird/day), hen day production (%), egg weight (g), egg mass (g/bird/day), and diet conversion. Data of those variables were subjected to analyze of covariance with Completely Randomized Design. The protein digestibility and metabolizable energy cause also observed. The results of this research showed that supplementation of *Lactobacillus* sp. as probiotic was not significantly (P>0,05) improved laying performances, protein digestibility, and metabolizable energy but most variable give significantly (P<0,05 and P<0,01) influences on the data at initial age to the next age on laying performances except diet intake (g/bird/day). Although there were no biological improved on laying performances but supplementation using this probiotic give more profit from P<sub>1</sub> at about Rp.326,53/kg/day egg that could produce.

*Keywords: Probiotic, Lactobacillus Sp, Laying Hens, Laying Performances*

### INTRODUCTION

Diet is a component, which has a deep effect on efficacy in ranch. Good diet management pays attention to the ness, quality, and amount of diet so that the efficiency usage of diet can be maximized. One of factors influencing efficiency usage of diet is the balance of micro flora in livestock digestive tract. The population of micro flora in digestive tract especially in intestine is a complex ecosystem that assorted of bacterium both beneficial and harmful. If both bacterium in a state of well balanced hence livestock can digest diet better and also higher the productivity. The colony of beneficial Micro flora in livestock intestine adapts itself to grow and symbiosis of mutualisms with his him. According to Sjoffan ( 2003) intestine microbe can improve readily of food required for the growth of livestock production. The balance of Micro flora in every individual is different from each other depends on species, period of production, situation of livestock, and given diet. Layer *layer* of Egg of above 60 week have experienced of degradation on production and experience of molting, that is a period of where layer *layer* molts the fur and the production of downhill either through quality and his amount. Layer *layer* will experience of molting after 8-12

months ( 32-48 week) ( NRC, 1994; Anonymous, 2003). Conditions of quill also have an influence to consumption of diet, if bad floor condition hence will improve requirement of diet ( Lohmann,1991). Molting *layer* will be easily stress and infected to disease, one of them is the increasing amount of *Salmonella enteritidis* at digestive channel. This matter will cause imbalance at digestive channel that in the end will degrade *layer* productivity. Addition of probiotic in *layer* diet of egg of old age 62-69 is one alternative to obtain balanced digestive channel and improve the *layer* productivity performance. Probiotic is additive diet in the form of life non-pathogenic microbe which would give good effect by enhancing balanced microbe population in digestive channel of livestock's (Fuller, 1992). Most of probiotic are acid lactic and primer species that is believed has probiotic character is *Lactobacillus casei*, *Lactobacillus acidophilus*, and *Bifidobacteria* (Krishnakumar dan Gordon, 2001 in Shah, 2001).

Many researches showed the probiotic addition to *layer* gave positive result (Mohan *et al.*, (1995), Santoso *et al.*, (2001); Sjojfan (2003); Kalavathy *et al.*, (2004). These authors reported the result that by probiotic addition improved hen day production, diet consumption, improved diet conversion in *layer*, and egg weight of *layer*.

The objectives of this research is to know the effect of probiotic addition in the form of bacterium of *Lactobacillus* sp. in *layer* aged 62-69 week old diet in order to maintain and improve *layer* production appearance.

## MATERIALS AND METHODS

100 Brown strain *layer* 62-69 week old put down at individually battery cage where each fairish cage of length 37 cm, width 20 cm, height 34 cm, with open system cage and monitor system type roof, provided with illuminator, place of diet, and drink which put down outside cage. Place of diet made of plastically stuff with diameter 14 cm, while place drink in form of nipple with diameter of nipple 4 mm, one nipple to two heads *layer*. Probiotic (*Lactobacillus* Sp.) Is used with concentration equal to  $5,6 \times 10^9$  CFU /g

Research of Method that used in this the research is spacious attempt method by using Random Complete Design with 5 treatments 4 restating and each restating use 5 *layer* tails. The obtained data to be will be analyzed with covariance. Measurement of energy digest and EM use of old age *layer* 69 week. Measurement of energy digest this conducted by after measurement of appearance of production conducted by using Complete Random Device consist of 5 treatment and 4 restating, each restating consist of one *layer* so that totalize *layer* the used is 20 tail. Procedure intake of sample consume diet and conversion diet was conducted every one week; enumeration of HDP, heavy mean egg, mass egg and of mortality were conducted every day; measurement of energy digest and protein of energy metabolism was conducted by the end of research during 3 total day of collection. In the event of difference between treatments hence continued with Different Test of Smallest Reality. As for treatment of research shall be as follows: P0: basal diet without P1 probiotic: basal diet + probiotic (*Lactobacillus* sp) 0,1 % P2: basal diet + probiotic (*Lactobacillus* sp) 0,2 % P3: basal diet + probiotic (*Lactobacillus* sp) 0,3 % P4: basal diet + probiotic (*Lactobacillus* sp) 0,4 %. Variable perceived were : consumption of diet, Hen Day Production ( HDP), Heavy Mean of egg, Egg Mass, Diet conversion, protein digestibility, metabolizabel energy, and Mortality.

## RESULTS AND DISCUSSION

From statistical analysis result indicate that addition of probiotic give difference which do not reality ( $P > 0,05$ ) to consumption of diet (g/tail/day), HDP (%), heavy mean of egg (g), mass egg (g/tail/day), and conversion of diet. Results of research giving difference reality that do not to consumption of diet between treatments can be caused by consumption of metabolic energy (EM) and protein consumption at this research that not differ. Pursuant to estimation requirement of EM *layer* of egg / tail / day relate to body weight (mean and kg) produce the egg (%) the can be said that there no difference to *layer* body weight so that thereby no difference also at consumption of diet. According to Leeson *al et.*, (1992) which is quoted by Summer (1995) and Wahju (1997) difference of consumption of diet at some livestock nations more cause the difference of body weight and growth rate of from difference of genetic between *layer* strain of egg.

Additions of probiotic this research give difference reality that do not to consumption of diet therefore give level produce egg that do not differ also. Mullah (2003) expressing that there which is positive between consumption of diet with egg production. *Layer* of Egg will consume more diet compared to the requirement of life of to support egg production (NRC, 1994).

Table 1. Effect addition of probiotic to appearance of production, protein digestibility, (%) and EM (kcal/kg)

Variables	Treatments				
	P <sub>0</sub>	P <sub>1</sub>	P <sub>2</sub>	P <sub>3</sub>	P <sub>4</sub>
Diet Consumption (g/tail/day)	114,84±1,7	113,35±1,7	112,69±2,2	110,28±1,6	113,81±4,6
HDP (%)	81,95±10,6	85,82±5,2	81,89±8,9	86,35±8,6	82,83±13,0
Egg of Weight (g)	64,55±0,5	63,83±1,1	64,22±1,0	63,96±1,2	64,55±0,7
Egg Mass (g/tail/day)	51,83±2,1	55,62±1,6	52,50±1,3	55,07±2,5	53,45±3,5
Diet conversion	2,30±0,2	2,06±0,1	2,19±0,1	2,10±0,1	2,18±0,2
Protein Digestibility (%)	59,94±7,5	58,59±5,2	62,99±8,4	61,59±6,7	66,00± 8,8
EM (kcal/kg)	2941±141,3	3008±106,6	2976±196,0	2935±155,8	3184±215,9

Table 2. The calculation of consumption of EM and protein.

Treatments	EM Consumption (g/tail/day)	Protein Consumption (G/tail/day)
P <sub>0</sub>	336,6269	12,6261
P <sub>1</sub>	343,2128	12,3022
P <sub>2</sub>	333,9667	13,0073
P <sub>3</sub>	338,6697	13,0766
P <sub>4</sub>	362,7531	13,8348

Additions of probiotic give difference realities which do not to protein digesting and of EM (Tables 1) and also [at] consumption of EM and protein (Table 2) so that will cause [at] egg production which do not differ. This matter can be caused by the make-up of concentration of *Lactobacillus* sp. in *layer* small intestine getting treatment not yet enough

yield enzyme with well-balanced concentration with concentration of substrate existing in digestive channel, so that give influence which do not differ reality to improvement of EM and protein digestibility because do not happened real improvement in carbohydrate ingestion of diet as protein source and protein as source of] amino. According to Anggorodi (1985) and Wahju (1997) factor which of vital importance influencing big of egg is protein of amino acids and also linoleate acid in diet the enough ness. It can be said that with addition of this probiotic do not give addition of] linoleat to ingestion of diet is so that got heavy mean of same egg also. Mass Egg influenced by HDP and egg weight, if one of [the] or both excelsior factor hence mass egg also progressively mount as well as on the contranadary. In this research of HDP and heavy mean *layer* of egg give difference reality that do not so that mass egg that is resulted also differ [do] not reality. Pursuant to energy result digest protein that as described at Tables 1. Can know that with addition

## CONCLUSION

It can be concluded that addition of probiotic ( *Sp Lactobacillus.*) in the diet biologically does not have an effect on the appearance of layer production but give influence at calculation economically. Addition 0,1% probiotic in diet can improve advantage equal to Rp.326,53 / yielded egg.

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