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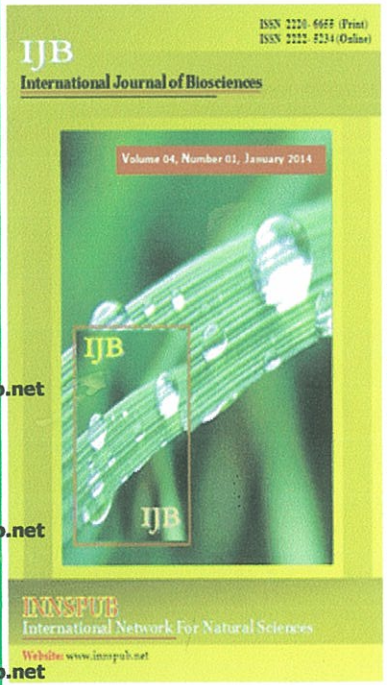

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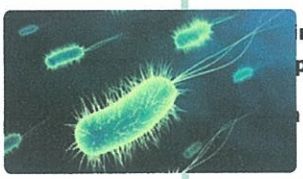

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Effect of locally produced honey on serum levels of glucose, triglyceride, cholesterol, HDL, VLDL, and LDL in alloxanized diabetic rats

Arash Alizadeh Yegani, Hamidreza Alipour Kheirkhah, Ahmad Ostovar, Vahid Koohi, Özge Öztürk

Int. J. Biosci. 6(3), 137-145. (Full Text) (http://www.innspub.net/wp-content/uploads/2015/02/IJB-V6No3-p137-145.pdf)

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Correlation between yield and other treats in sugar beet (*Beta vulgaris* L.) under application of different biofertilizers and irrigation

Amin Farnia, Gholamreza Hashemi

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Identification and isolation of a homolog of At*SEF* gene from apple (*Malus domestica*)

Naeimeh Maghsoudi, Nasser Mahna, NematSokhandan Bashir Bahram Baghban Kohnehrooz

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Effect of phosphate fertilizer on quality and quantity of berseem clover forage under pseudomonas strains inoculations

Mohammad Hossein Ansari, Shahrokh Ghadimi

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Correlation between yield and other treats in sugar beet (*Beta vulgaris* L.) under application of different biofertilizers and irrigation

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Introduction

Duck breeding is one of the possible means of breaking out from poverty in developing countries (Pym *et al.*, 2002). Ducks are efficient converter of small scale agricultural products besides legumes, vegetables and grain. Duck's eggs are profitable to the poor farmers and house wives, who can use it for education and health care of their children (Rahman *et al.*, 2010).

Ducks in Langowan, Minahasa, North Sulawesi, Indonesia provides self-employment for landless and small farmers. Breeding duck in this area give benefit for the farmers. The geographical location, climate and environmental condition of wetland paddy field area are favourable for succeed a duck production. This is due to the abundant natural feed resources and water logged areas. The natural feed resources such as aquatic weeds, various types of insects, tadpoles, earthworms, green forages and different fallen grains are good sources of nutrients for ducks (Farrell *et al*, 1985; Rahman *et al.*, 2010).

The farmers in Lanwongan plant three variety of *Oryza sativa L.* (IR64), Serayu and Super Win with or without grow enhancer as organic fertilizer. There is a great potential of improving the productivity of ducks egg in wetland paddy field through supplementary feeding. As duck egg is potential commodity in Indonesia, it contains relatively less water and higher percentage of proteins and fats in the yolk, albumen and total contents of egg compared to chicken eggs (USDA, 2002).

Duck farming have been familiar among the rice-field farmer, mostly raised in small-scale traditional technology as an additional activity between their rice crop routines. The farmers used grow enhancer as organic fertilizer in the farming area. The result shows significant different of paddy production when using grow enhancer. Therefore, we conducted this research to assess the profile of duck farmers and the effect of grow enhancer on duck's egg production. Increasing duck egg production is still challenging today. Manipulation of feeding management is one of the easiest and the cheapest strategy for increasing the duck's egg production. To know the significant effect of duck's egg production using grow enhancer, evaluation on treated and untreated duck is conducted in this research. Increasing duck egg production in Lanwongan was expected to contribute to their household income (Susilowati, 2014).

Material and methods

Experimental design and treatment

The experiment was conducted on January to March 2013 in the of wetland paddy Field of 33 respondents in Sub-district of Langowan, Minahasa Regency, North Sulawesi, Indonesia. Before the respondent's ducks were experimented with grow enhancer and compared to the untreated duck, the profile of duck farmers were surveyed to assess the distinction character of duck farmer in Lanwongan.

Ducks Feeding and Care

Feeds were supplied from wetland area. Proper care and management practices were referred to the traditional ducks care. The ducks farming manage by the researcher and farmers throughout the experimental period.

Data Collection and Data Analysis of Egg Production

The freshly laid eggs of ducks were counted as informed by the farmers. Statistical analyses were performed using the software package of SPSS for Windows (SPSS Inc., Chicago, IL).

Result and discussion

Correlation between farming area and amount of duck

Before knowing the effect of grow enhancer in duck egg production, evaluation of duck farmers profile is important to assess the correlation on amount of duck that they had with the farming area for growing duck. Environment condition is important for duck's growing and increasing the duck egg production. The profile of duck farmers is summarized and presented in Table 1. It was found that the majority of the respondents (54.54%) are old farmer group (>50 years) then (42.42%) following by middle aged group

(35-50 years) and 3.03% were from young farmers (<35 years). They used paddy field area for farming the duck. Every respondent had different farming area for feeding their duck. There are correlation between the width of farming area and amount of the duck, as R= 0.77 (Figure 3). It means that the farmer that had wider area tend to have higher duck volume.

Table 1. Profile of duck farmer in Langowan, Minahasa.

Age (years)	Respondent (n)	Respondent (%)	average area width (m²)	Average duck volume (individu)
<35	1	3.03	400.00	100.00
36-50	14	42.42	4753.57	233.21
>50	18	54.54	6797.22	207.77

Effect of grow enhancer in duck egg production

Increasing egg production in duck is challenges for the duck farmer. The easiest and cheapest way for increasing egg production is managed the feeding, especially, the nutrition of feed. In this experiment, grow enhancer was used for triggering the egg production. There are two groups of farmer in this study. First, the farmers that do not use D.I ™ grow enhancer in duck feed. Secondly, the farmers that combine the feed with the D.I ™ grow enhancer (Supplementary 1). To know the significance effect from grow enhancer, we used statistical analysis of independent-sample T test (Supplementary 2). The result showed that egg production from treated duck was higher than untreated duck (Figure 2). Egg production from non D.I ™ grow enhancer feed was 31.91%, a half from D.I ™ grow enhancer modified fed duck for 68.08%. Previous studies have also shown that soy isoflavone supplementation improved egg production and egg quality (Saitoh *et al.*, 2001; Zhao *et al.*, 2005). In this experiment, increased duck egg production could be due to the nutritional addition of D.I ™ grow enhancer which affect to the duck egg production.

Based on statistical analysis, the effect of grow enhancer on the egg production is significant. It indicates by p value (0.000). P-value <0.05 means, grow enhancer that consumed by duck can increase the egg production significantly. Salam and Bulbul (1983) and Huque and Ukil (1994) reported egg production which ranged from 60-91 eggs/duck/year is affected by the quality of feeding; accordance with the current study. Several factors that most affect the egg production are: quality of feed, quantity of feed, water intake, lighting of cages, stress, the number of males ducks (Metzer Farms, 2014).Based on this significant result, the farmers in Lanwongan can change the management feed using grow enhancer. It will increase the economical condition in Lanwongan.

Conclusion

The majority of duck farmers is old aged group and there is correlation between farming area and amount of duck. The duck egg production can increased 2 times when treating with grow enhancer from 38% to 68%. There are great potentials for an improvement of duck egg production in Langowan Minahasa by means of nutritional and management engineering.

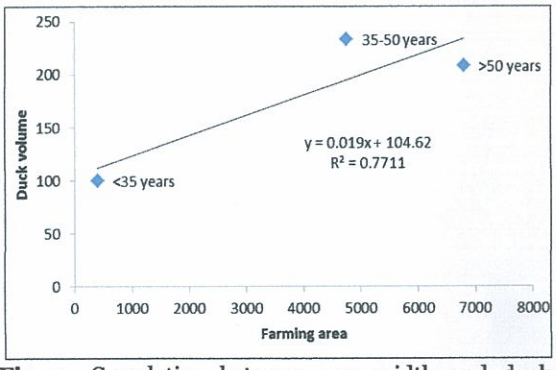

Fig. 1. Correlation between area width and duck volume.

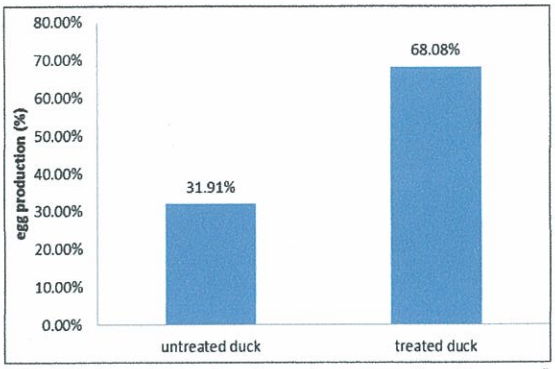

Fig. 2. The egg production of untreated and treated duck with D.I grow enhancer.

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http://dx.doi.org/10.1080/00071660500064808

Appendix

Supplementary 1. Statistic of untreated and treated duck with grow enhancer.

Group Statistics				
Experiment	N	Mean	Std. Deviation	Std. Error Mean
Untreated duck	33	7102.91	4489.675	781.552
Treated duck	33	15152.00	9525.802	1658.229

Supplementary 2. Independent-sample T test of treatment.

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	5.897	.018	-4.391	64	.000	-8049.091	1833.180	-11711.288	-4386.894
Equal variances not assumed			-4.391	45.548	.000	-8049.091	1833.180	-11740.078	-4358.104