

Provision of Bangun-Bangun Leaf (*Coleus Amboinicus* Lour) on the Feed Pregnancy Sow to Increase Productivity

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ABSTRACT

In Bali, pig livestock that is maintained by the community, especially people in rural areas. There are two types of maintenance to produce seeds and meat (fattening). Pigs are prolific animals, which capable to produce many piglets in every birth. Constraints that often arise are the limited amount of milk produced that often interfere the growth of piglets. *Bangun-bangun* leave is one of million plants that have many benefits and one of them can launch milk during sows breastfeeding. The study was conducted in Puhu village, Payangan district, Gianyar, using 24 pregnant sows divided into three treatments. P0: started from pregnant sows and breastfeeding sows was feed as the same as farmers do (control). P1: feed was added with bangun-bangun leaves by 1% of the weight of the feeds. P2: like P1 plus Bio B 2 cc/l drinking water. The results showed that the birth weight of each treatment (P0, P1 and P2): 0.78, 1.36 and 1.50 kg/head, respectively and between P0 and P1 and P2 were significantly different ($P < 0.05$), while weaning weight achieved from each treatments were: (P0): 8,35, (P1): 9,53 and (P2): 10,8 kg/head also significantly different among treatment ($P < 0,05$). Piglet mortality between control (P0) and other treatments each P1 and P2 were 18.43%, 17.39% and 14.58%, respectively.

Keywords: Bangun-bangun leaves, milk, pigs, birth weight, weaning weight

INTRODUCTION

Pigs are one source of meat and very efficient nutrition fulfillment source among the other livestock. Pigs are very peridi (prolific), every bearing piglet can be 6-12 tail. Each sow can breed 2.5 times within a year. But the problem is the high level of piglet mortality caused by various factors such as diarrhea cases and low milk production. In the field, heaps usage of hormone oxtocin to stimulate the launch of breast milk, but if this is done continuously will result in livestock / sow becomes insensitive to this hormone so that it is not effective anymore. On the other side, research on the use of bangun-bangun plants as a stimulator of mammary glands to produce milk has been done by Pollung H.Siagian, et al (2014).

As a meat-producing livestock, Disnakkeswan (2014) reported that pig population in Bali from 2009-2013 continued to decline from 925,290 (2009) to 860,117 (2013) or decreased by 7.58%. The shrinking of this population is due to the sharply increased number of cuts from 1,538,082 heads in 2009 to 1,780,055 in 2012 which is not comparable with the annual population increase. This matter shows that pigs have great potential to be developed (Budaarsa, 2014). The slow increase in pig population in Bali is caused by the low interest of the community, especially small farmers (BPS Bali, 2012). This condition arise because of the increasing price of feed ingredients which is almost 70% of the cost of production, therefore, the efforts needed to find the alternative feeds that are cheaper and available on site

and the use of additional feed such as probiotics so as to gain more benefits for the breeders, so it can encourage in increasing the pig population. Farmers in rural areas tend to use kitchen waste as animal feed in order to anticipate the increasing price of commercial feed to obtain protein and carbohydrate sources for their livestock. In Bali, particularly in rural areas, the utilization of local food sources such as sweet potato leaves, taro leaves, banana leaves and stem as pig feed is still widely used as pig feed (Parwati, et.al. 2015).

A good quality feed will greatly affect the basic necessities of life, production and reproduction of a livestock. The nutrients contained in the Pig feed are expected to meet the needs at the time of pregnancy and breastfeeding. The need for feeds during lactation depends on the number of pigletren being breastfed, because the more pigletren the greater the incentive of mother's milk production. The effort to make the milk production increase, is by giving bangun-bangun leaves flour in the feed. Bangun-bangun flour not only has an alternative antibacterial function but also helps in digestion, increases appetite (Gunter and Bossow, 1998), also enhances reproductive growth and appearance (Khajareru and Khajareru, 2002). Therefore, in this study will be described pigs productivity that are given bangun-bangun leaves flour on the rations.

MATERIALS AND METHODS

Location and Time of Study

The study was conducted in Puhu village, Payangan sub-district, Gianyar regency, research time for 10 months from March to December 2015.

The Procedure of Bangun bangun Leaf Flour (TTB)

Bangun-bangun Plants before they're dried, should be aerated beforehand, then balanced and dried with the help of sunlight or in an oven at a temperature of 60⁰C until dry. Built-up plants that have been dried and then smoothed with springkler tool, then sifted so as to produce Bangun-Bangun Leaves Flour (TTB).

Research Plan

Livestock used in this study was pregnant sow ≥ 107 days until giving birth as many as 3 piglets, each treatment consisted of 10 replications so that the number of pigs studied are 30 head in the 2nd part - 3. Before the study of pregnant pig sow 70-75 days was vaccinated with ETEC 2 ml / tail was repeated at gestation time 100-105 days. The study used Randomized Group Plan (RAK) with three feeding treatments:

- P0 : pregnant sow until breast feeding the feed are given by farmer (control).
- P1 : Pigs are given bangun-bangun leaves flour 1% of feed weight.
- P2 : like P1 + Bio B 2cc / liter drinking water.

The rations/feed given is a combination of concentrate produced by charoen phokphand consisting of concentrate CP 152: 20%, 50% rice bran and 30% corn. The pigs are kept in a cage which is a suitable cage for the sows. The feed is administered twice daily with the amount given according to the standard quantity of feed required (± 3 kg / head / day), while drinking water is given *ad libitum*.

Note: Bangun-bangun plants can be given in the form of flour or fresh leaves (adjusted field conditions). When given in dried form (flour) is given 1% of the total feed, when given in fresh leaves form given 5% of the total feed.

Parameter and Data Analysis

The observed variables, liter size, birth weight, piglet mortality and weaning weight, mature feed consumption, number of weaning piglets. The research was conducted using Randomized Group Plan (RAK) consisting of three treatments and ten replications. Data

were analyzed by using anova scans according to Gomez and Gomez (1995). And if there is a significant difference then proceed with “Duncant Multiple Test”.

RESULT AND DISCUSSION

Nutritional Content of Pregnant Sow

Feed is one of the most important factors in the cultivation of pigs. Feed requirements including type, quantity and quality of feed ingredients given directly to pigs, will be able to affect the production and productivity level of pigs livestock that are maintained. Feed or ration is food given to certain animals for 24 hours, giving the feed can be done once or several times during 24 hours. The perfect feed is a combination of several foods that, when consumed normally, supply nutrients to the livestock in the ratio of numbers, shapes, in such a way that the physiological functions of the body run normally (Parakkasi, 1983). The feed consumption level is influenced by the balance of available energy and protein (North, 1984). Pigs livestock need good or perfect nutritional feeds to get an optimal reproduction and meat production. Pigs are monogastric livestock which capable in changing foodstuffs efficiently. Pig feeds in the assessment groups (P0, P1 and P2) the type and composition of feed given as follows:

Table 1. Composition and type of feed given to treatment pigs

Treatment	Type of Feed				
	Corn (%)	Concentrate (%)	Rice bran (%)	TTB (%)	Bio B
P0	30	20	50	0	0
P1	30	20	50	1	0
P2	30	20	50	1	2 cc/1 liter of water

Total feeding of cattle / pregnancy sow is 3-3,5 kg / head / day. Based on the analysis conducted in the nutrition and animal feed laboratory of UNUD, the nutritional content of each treatment can be seen in Table 2.

Table 2. Pig Feed Content of Nutrition in Treatment Group

Treatment	Total (%)					
	CP	ME (kcal)	Ash	Calcium	Phospor	CF
P0	12,55	3085,00	10,30	0,21	0,46	6,61
P1	12,67	3085,00	10,42	0,21	0,47	6,86
P2	12,67	3085,00	10,42	0,21	0,47	6,86

Source: Analysis Results Lab. UNUD

The results showed that crude protein content, Metabolism Energy, ash, Calcium, Phospor and Rough Fiber in P0 treatment (farmer way) respectively were 12.55%; 3085 kcal; 10,30,21%; 0.46% and 6.61%. While in P1 and P2 respectively were 12.67%; 3085 kcal; 10.42; 0.21%; 0.47% and 6.87%. The nutrient content in the pigs feed of 'well-treated farmers' (P0) and treatment group (P1 and P2) treatments is close to the standard of nutritional requirements for pregnant and lactating pigs by NRC (1998), which says that crude protein requirement for the mains pregnant and lactation is 13.0%, Metabolic Energy of 3100 kcal / kg, Ash by 9.8%, Calcium 0.75-1% and phospor available 0.45%, while maximum amount of crude fiber is 7.0%, to maximize its utilization so as it works optimally

in add probiotics on treatment P2. While Mathius and Sinurat (2001) states, the nutrient content of a material is highly needed in making the formula of feed, in accordance with the needs of livestock. For concentrate feed ingredients, the main information required is dry matter, crude protein, crude fiber (NDF and ADF) and energy.

Liter Size, Birth Weight, Piglets Mortality and Weaning Weight

Study on breeding pigs (pregnant sow), with 3 treatments, each treatment consists of 10 replications, so the number of sows studied were 30 head. Giving bangun-bangun leaves (given in the form of flour) on pregnant sow with pregnancy age 107 days until weaning piglets are as much as 1% of total feed. The results show:

Tabel 3. Liter Size, Birth Weight, Piglets Mortality and Weaning Weight of pigs in the treatment group

Treatment	Liter size (tail/head)	Birth Weight (Kg)	Piglet Mortality (%)	Weaning Weight (Kg)
P0	10,85 ^a	0,78 ^a	18,43 ^a	8,35 ^a
P1	11,50 ^a	1,36 ^b	17,39 ^b	9,53 ^b
P2	11,66 ^a	1,50 ^c	14,58 ^c	10,8 ^c

Source: Primary Data Processed

Description: The different letters in the same column show a significant difference ($P < 0.05$)

From Table 3 above shows that the number of piglet born from all the three treatments have no difference, indicating that bangun-bangun plantings do not affect the number of pigletren born, because the allocation is done at the time of pregnancy 107 days, where the conception has occurred. While on birth weight and weight of weaning of bangun-bangun plant at pregnant sow 107 days significantly higher than P0 and when added probiotic bio B (P2) gives a higher effect when compared with P0 and P1, statistically different ($P < 0.05$), as well as in pre-weaning pigletren's death, allocation of bangun-bangun plants is able to press piglet mortality due to lack of breast milk. This result is consistent with the result of Pollung H. Siagian, et.al (2014) study that allocation of bangun-bangun leaves into the feed of 110-day-old pregnant sows can increase the birth weight of the piglet, since the bangun-bangun plant contains an active carvacrol compound known as Antiinfectives and anti-inflammatory coupled with the allocation of bio-B that serves to improve the work of reproductive organs so as to increase the productivity of pigs (Guntoro, 2008). This research showed that the role of nutrients in increasing the body weight of pigs is necessary, which is necessary needed in the fetal period. This result is also supported by Khajarern and Khajarern, (2002), which states that bangun-bangun leaves have three important components, namely, the first component are lactagogue compounds, which are components that can stimulate the production of mammary glands in the lactation sow.

CONCLUSIONS

From this study it can be concluded that bangun-bangun leaves and added Bio B probiotics to pregnant sow do not affect the number of piglets born but can increase the weaning weight of piglets and decrease the number of piglets death before weaning.

SUGGESTION

To find out how far the occurrence increasing volume of sow milk that is given bangun-bangun leaf feed and probiotics Bio B, it is needed a further study.

REFERENCES

- BPS Bali. 2012. Bali In Figures 2012. Bali Central Bureau of Statistics Bali. Denpasar
- Budaarsa, K. 2014. Potential of Pigs In Meat Fulfillment In Bali. Proceedings of National Seminar and Workshop on Pigs. The Role of Pig Farming in the Constellation of National Food Provider, Denpasar August 5, 2014. Faculty of Animal Husbandry Udayana University. Pages 12 - 30
Department of Animal Husbandry and Animal Health of Bali Province. 2014.
- Livestock Breeding Report in Bali Province 2014.
- Gomez.K.A and Gomez.A.A.1995. Statistical Procedures for Agricultural Research. Second Edition. Publisher University of Indonesia.
- Guntoro, S., N. Suyasa, A.A. Badung and M. Londra. 2008. The Influence of Probiotics (Bio B) on Growth and Chemical Composition of Broiler Chicken Carcass. Paper of Research Seminar-Bappeda in 2008. Denpasar. December 12, 2008. 8 p.
- Gunter. K.D. and H. Bossow. 1998. The effect of etheric oil from *Origanum vulgare* (Ropadiar®) in the feed of weaned pigs on their daily feed intake, daily gains and food utilization (abstract). Proc 15th Int Pig Vet Soc Congr, Birmingham. 1998: 223.
- Khajarearn, J. and S. Khajarearn. 2002. The efficacy of *origanum* essential oils in sow feed. Int. Pig Topics. 2002; 17: 17.
- North MO, Bell DD. 1984. Commercial Chicken Production Manual. 4th ed. Chapman and Hall, Washington DC.
- Parakkasi, A. 1983. Monogastric Nutrition and Food Science. Publisher: Angkasa, Bandung.
- Pollung H.Siagian, Agik Suprayogi and Pasaoran Silalahi. 2014. Effect of Bangun-bangun Additions (*Coleus Amboinicus* Lour) In Rations Against Flour Crop Reproductive Appearance of Pigs and Piglets Breastfeeding. National Seminar and Workshop of Pigs. Univ. Udayana Denpasar, August 5, 2014.
- Parwati Ida Ayu, Ngurah Badung, L. Budiari, N. Suyasa and N. Sugama.2015. Final report of pig accompaniment activities in Bali province. Bali Assesment Institute of Agriculture Technology (BPTP).
- Tiurma Pasaribu, I, M. Silalahii, D. Aritonangi, Dan K. Manihuruk. 1996. The Effect of Concentrate on Pharmacology and Breastfeeding on the performance of piglets in the People's breeding grounds. Journal of animal husbandry and veterinary Vol. 1 No.3 Th1996.
- Mathius, I.W. And A.P. Sinurat. 2001. Utilization of Unconventional Feed For Livestock. Wartazoa Vol. 11 No. 2 Th. 2001