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Effect of grass silage supplemented in pig diet on growth performance in Kadon pigs

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ABSTRACT

Pig production, feed are an important factor for growth and main capital. This experiment was conducted to determine the effect of substitute grass silage for growing pig diet on feed intake growth rate nutrient digestibility of Kadon pigs. Twenty four growing pigs, age 60 days average weight 9.24±0.80 kg, were divided into 4 groups which each group were consisted of 3 female and 3 male pigs. First group was fed commercial growing pig diet and another group was fed commercial growing pig diet with 5%, 10% and 15% grass silage. The results were found that growing pigs fed diet without or with grass silage were no effect on feed intake. However, growth rate of growing fed diet with grass silage 5% were higher than pigs fed other diets ($P<0.05$).Feed cost was decreased when replacement of growing pig diet by grass silage. (**Key words:** Kadon pig, grass silage, growth performance).

INTRODUCTION

In livestock industry, feed accounts for over 60 percent of the production cost. Although considerable variation exists, cereal grains are the usual sources of carbohydrates in most of the animal feeds and these cannot be economically supplemented with other sources. Recent cassava, rice bran and broken rice prices have risen to high levels (Office of Agricultural Economics, 2009., increased from 4.43 to 7.95, from 6.48 to 9.47, and from 9.93 to 12.29 baht / kg, respectively). Because the biofuels industry continue to expand to utilize the increased supplies of carbohydrate sources.

Silages from plants represent a low-cost feed which can be distributed during the dry season (Len, 2008). Through good ensiling practices, the use of high quality in grass silages can markedly improve: the nutrient utilized cause the acidification. it is possible that pigs could eat grass silage. Takahashi and Horiguchi (2005) that when soiling rice crop silage was mixed into formula feed to up to 10% (on a dry weight basis), the dry matter intake of pig was approximately 2/3 compared with the formula feed (control), and the nutritional value was not affected, although the digestibility of the fibrous components. However, the point of interest in the grass silage is low-cost, easy to find in local area. It should be use in swine production to reduce the cost of production. Thus, this experiment aims to study the effect of replacing grass silage in the diet of native pigs. To reduce the production cost of renewable raw materials and animal feed that can be used.

MATERIALS AND METHODS

Experimental design and Measurements

The experiment was performed at the Experimental Unit of the Rajamangala University of Technology Isan Sakon Nakhon Campus and received prior approval from the Animal Protocol Review Committee of the Institution. A total of 24 native (Kadon) growing pigs excluded from receiving feed, 9.2±0.8 kgBW and 60±5d old, were randomly allocated to 24 pens in an environmentally open room. Experimental treatments were as follows: control diet (commercial diet), commercial diet + 5% grass silage, commercial diet + 10% grass silage, and commercial diet + 15% grass silage. Feeding regimen, Controls and Sampling according to standard methods. Grass silage made from guinea grass 90 day old (Bureenok et. al., 2005).

For 90 day, the animals were allowed ad libitum access to feed and water, and growth performance was monitored weekly to evaluate

average daily gain (ADG), dry matter feed intake feed efficiency (feed/gain)and feed cost for 1 kilogram of weight gain

Statistical analysis

Data were analyzed as a complete randomized design. All means presented are least squares means. Significance was determined at $P<0.05$, and trend was assumed at $0.05<P<0.10$.

RESULTS AND DISCUSSION

The chemical compositions of feed ingredients were shown in Table 1. Dry matter and crude protein of experimental diets were slightly reduced when increasing level of grass silage in diet.

There were no significant difference in dry matter feed intake (DMI) and feed conversion ratio (FCR) between dietary treatments. Average daily gain (ADG) of pigs fed diet with 5% grass silage was higher than other treatments ($P<0.05$). Increasing grass silage in diet was not decreased feed cost linearly when compared with control. It may be explained by the more fiber in diet were limited growth rate (Fevrier et.al., 1988; Len, 2008; Yen et.al., 2004).

Table1 Chemical composition of the experimental diets

	DM (%)	CP	EE	NDF	ADF	Ash	Price (Baht/kg)
		----------(% DM)----------					
Grass silage	24.88	6.82	1.94	74.64	27.53	3.02	1.50
Growing pig diet	88.39	16.62	3.07	19.10	6.16	7.56	15.33
Growing pig diet+ Grass silage5%	85.21	16.13	3.01	21.88	7.23	7.33	14.87
Growing pig diet+ Grass silage10%	82.04	15.64	2.96	24.65	8.30	7.11	14.40
Growing pig diet+ Grass silage15%	78.86	15.15	2.90	27.43	9.37	6.88	13.94

DM = dry matter, CP = crude protein, EE = ether extract, NDF = neutral detergent fiber, ADF = acid detergent fiber

Table2 Growth performance and feed conversion ratio of Kadon pig (mean±sd)

Diets	Con. diet	Con. Diet +silage 5%	Con. Diet +silage10%	Con. Diet +silage15%	P-value
Initial weight (kg)	9.5+0.5[b]	8.3+0.4[a]	9.6+0.5	9.6+0.8	0.001
Final weight (kg)	30.7+1.1	32.3+2.5	31.2+1.0	31.4+1.3	0.445
DMI (g/d)	599.0+11.7	611.8+15.8	587.6+14.1	595.3+47.3	0.492
ADG (g/d)	235.5+10.9[a]	267.2+26.4[b]	239.7+6.1[a]	242.4+19.8[a]	0.030
FCR	2.5+0.1	2.3+0.2	2.5+0.1	2.5+0.3	0.248
FCG[1] (Baht/kg)	39.0+1.2[b]	34.3+2.7[a]	35.3+1.5[a]	34.5+4.4[a]	0.043

ADG =average daily gain, DMI= dry matter intake, FCR =feed conversion ratio, [1] FCG =feed cost for 1 kilogram of weight gain

Kenneth et al. (2010) reported that could replaced grass silage into the pig diets not more than 20%. Ly et al. (2011) reported that Inclusion of ensiled cassava KM94 leaves in diets for growing pigs was shown to decrease average daily gain when included up to 20% of the diet. However, feed costs per unit of live weight gain were lowest on the highest inclusion level providing a more cost effective alternative for pig farmers in Vietnam.

The cost of feed decreased when used grass silage into the pig diets 2 baht per kilogram body weight gain of pigs. It may not help keep costs down in a cost-effective for produced pigs. However, in the future when cost of pig feed is go up to high level that can be used grass silage instead of pig feed for investment results.

CONCLUSION

In this study, addition of grass silage in growing pig diet was no effect on growth performance However; it can be decreased feed cost to get a profit.

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