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ABSTRACT

The study was conducted to determine the apparent digestibility of nutrients of sweet potato meal and commercial feeds supplemented with sweet potato in swine conducted at Banig, Tawang La Trinidad ,Benguet on February 2012.

A total of nine hogs weighing 85kg per head were distributed using the Completely Randomized Design (CRD) to the three treatments as follows: commercial feeds, 300g sweet potato per kilogram of feeds and sweet potato meal.

Analysis showed that sweet potato meal contains 87.46% dry matter, 3.84% ash, 1.29% crude protein, 5.11% crude fat, 5.00% crude fiber, 75.34% nitrogen free extract and 3,383 kcal GE/kg. The digestibility of nutrient in sweet potato meal were as follows: 90.06% for dry matter, 44.76% for ash, 86.01% for crude fat, 96.06% for nitrogen free extract, and 89.337% for gross energy. The digestibility of nutrients in the commercial ration were 76.66% for DM, 25.77% for ash, 80.233% for CP, 74.71% for CF, 85.96% for NFE, 77.270% for GE. The ration that contain commercial feeds and 300g sweet potato per kg of commercial feed contain 65.41% for DM, 11.75% for ash, 55.763% for CP, 54.42% for CF, 80.03% for NFE, and 65.437% for GE. The digestible nutrient per kg of

sweet potato meal was computed as follows: 787.89g dry matter, 17.19g ash, 20.04g crude fat, 723.73g nitrogen free extract and 3023.667g gross energy.

Statistical analysis showed there are highly significant differences in terms of digestibility of crude protein, crude fat, gross energy, nitrogen-free extract and the dry matter and in the digestible nutrient per kilogram of crude protein, crude fat, nitrogen free extract, dry matter.

INTRODUCTION

Sweet potato protein is of high nutritive value since it contains reasonable amount of amino acids. It can provide enough nutrients needed by the animal for maximum performance. The energy that pigs can get from the sweet potato storage root is similar to what they get from cassava meal and maize (Quinio, 1986). Although imported corn rather than sweet potato is widely and very efficiently used as a main carbohydrate source for pigs diets in our feed industry at the present time, continuous effort have been made to obtain better utilization of sweet potato as animal feeds. Grown the whole year round, it is used both food for human and as feed for domestic animals. Sweet potato roots posses several advantages to the use as a common animal feedstuff, a minimum of culturing manipulation. But farmer in the Cordillera have limited information in proper processing of sweet potato for animal feeds. To maximize the use of sweet potato as swine feedstuff, it is important to know how much of the nutrients sweet potato could be digested by swine.

Knowing the digestibility coefficient of nutrients in sweet potato in swine will provide a better understanding on how swine utilized sweet potato. It also provides a better basis for formulating ration using sweet potato meal as feed source. This information could be used by researcher, animal raisers and students interested in swine production.

The study aimed to determine the utilization of the nutrients in sweet potato meal through digestibility.

Specifically, the study aimed to:

1. determine the apparent energy, crude protein, dry matter, and ash digestibility of sweet potato root meal in swine; and

2. determine the apparent digestibility of energy, crude protein, dry matter, and ash in commercial feeds supplemented with sweet potato root meal in swine.

The study was conducted at Banig, Tawang, La Trinidad, Benguet on February 2012.

REVIEW OF LITERATURE

Measure of Nutrient Utilization

A knowledge and understanding of nutrient utilization is a necessary step in evaluating feed stuffs for defining nutrient requirements for the development of feeding standards for animals. Digestion trials are used to determine the proportion of the nutrient on the feed or diet that can be absorbed from the gastro-intestinal tract. There are many methods of digestion trial. One is the conventional or the total collection method, which is laborious and impractical for many animals. Another is the indicator method in which an indigestible substance like chromic oxide (Cr203) or natural constituents of feeds like lignin will be mixed with the diet. The concentration of this indicator substance on the feed and sample of feces will be determine and an estimate of digestibility will be derived. According to Mc Donald *et al* (2002), there are some associated terms derived from digestibility data, which are intended to provide a measure of the energy value of the food. One measure is the total digestible nutrient (TDN) constant of the food of digestible crude protein and digestible carbohydrate (crude fiber and N-free extractive), plus 2.25 times the weight of digestible either extract. Another derived measured of the energy content of food is the concentration of digestible organic matter in the dry matter.

Feeding Value

Dominguez (1998) found out that sweet potato root meal contains 5.0% of crude protein, 0.2% of calcium, 0.14% calcium, and 0.2% of phosphorus. On other study conducted by Giang et. al. (2002) they analyzed that sweet potato root meal contain 4.0% of crude protein, 4.0% of calcium and 23% of phosphorus in dry basis.

Yang et al (1975) reported that the crude protein contents of sweet potato varied from 3.5% to 7.1% on dry weight basis and that protein and lysine contents are significantly influenced by variation between varieties. The digestible energy (DE), metabolizable energy (ME), and net energy (NE) of sweet potato chips and corn for pigs have been estimated by Wu (1980) as cited by Villareal et al (1982). The DE and ME of sweet potato chips were 91% of those corn while NE of sweet potato chips was only 79% of that of corn. Thus sweet potato chips are not comparable with corn as a pig diet in terms of either quantity or quality of digestible energy.

Koh *et al* (1976) have reported that a daily crude protain intake of 334g and a daily gross energy intake of 8.5 Mcal result in satisfactory growth performance for growing-finishing pigs fed diet containing raw sweet potato or dried sweet potato chips. Raw sweet potatoes as a feed for growing-finishing pigs needs more added soybean meal or some other protein supplement to obtain satisfactory performance than does a feed of dried sweet potato chips. The cost per gain of the former is also higher than that of the latter. The above result indicates that the utilization of sun-dried chips is more economical than use of raw sweet potatoes. The results of many feeding experiment (Koh *et al* 1960; Tai and Lei 1970) confirmed that the performance of pigs fed with dried sweet potato chips was not comparable to that of pigs fed diet with corn, but daily gain and feed-to-gain ratio were slightly superior when the pigs were fed diets formulated with drieds sweet potato chips substituting 25% of the corn in the ration.

All plant parts of sweet potato are utilized as feeds for hog, cattle, rabbit, and goat. Fresh and sun-dried sweet potato chips that contain about 334g crude protein and 8.5 Mcal

can be given daily to pigs. Sun-dried sweet potato chips are more economical than the fresh one. Back fat is significantly thinner in pigs with diets containing sweet potato (Koh, 1979)

In Korea sweet potato silage is utilized as feed. It was found to be not only a good feed for hogs but also improves the meat quality (Choon-Jeong, 1992). The silage is mixed with crushed sweet potato root and rice brain at a ratio of 80:20 (w/w), or crushed sweet potato roots, vines and leaves and rice brain of a ratio of 60:30:10 (w/w/w) and stored for one month silos. The mixtures can be use to comprise up to 60% of the total feed requirement for hog fattening.

MATERIALS AND METHODS

Materials

The materials used in the study were the following: 9 hogs about four months old weighing an average of 85 kg, pig pen, weighing scale, record book and pen, stick broom, dehydrator, foil tray, feeding trough, commercial feeds, non- marketable sweet potato and chromic oxide serve as the indicator.

Experimental Design and Treatment

The animals were confined and distributed at random into four treatments following the Completely Randomized Design (CRD). Each treatment was replicated three times with one pig serving as a replicate and confined in one pen. Each of the experimental animals was given sweet potato root meal depending on the treatment.

The different treatments were as follows:

$T_{0.}$ Commercial feeds

$T_{1.}$ Commercial feeds + 300g Sweet Potato root meal

$T_{2.}$ Pure Sweet potato root meal

Preparation of the Ration

The sweet potato storage root "tocano" was collected at Bad-ayan Buguias, Benguet and washed. After washing, it was grated and sundried to remove the excess water. Finally, it was weighed based on the specific amount before it was given to the animals. Feeding was done twice a day, in the morning and in the afternoon. The dried sweet potato was mixed to the commercial feeds before giving to the animal.

Fecal Collection

Fecal collection was made over a period of five days commencing when pigs reach their finishing stage, indicator method was used in this study. The chromic oxide which serves as the indicator was mixed with the ration. To determine the digestibility of the pure sweet potato meal, the experimental animal was given the ration for a total of ten days continuously. The first seven days serve as the pre-experimental period for the animal to get use to the feed. And the next three days was the collection period. Feces were collected as frequently as necessary each day. Collected feces was placed in plastic bags and stored at -10^0C.

At the end of the collection period, the feces from each pig were oven dried, thoroughly mixed, and sampled. Approximately 50g feces were taken, the collected samples were sent to UPLB for analysis.

The following data were gathered:

1. Weight of the pigs at the start of collection (kg). This was the weight of the experimental animal at the start of the study or experimental period.

2. Feed intake(kg). This was the total feed intake of the individual animals during the study wherein their fecal outputs were being collected.

3. Fecal output(kg). This was the total fecal output of the animal or the total amount of feces voided by the animal during five days collection period.

From the above data, the following were computed

1. Nutrient content of feed and feces. The % dry matter, % crude protein, % crude fiber, % ash, and % crude fat content of both feed and feces were determined using appropriate analytical procedures in proximate analysis (AOAC, 1965). The % nitrogen

free extract was determined by difference. The energy content of both feed and feces was determined by Bomb calorimetry. The specific procedures were as follows:

a. Dry matter. Dry matter determination of feed was done by using the oven for 24 hours at 102^0.

$$\% \text{ dry matter} = \frac{\text{Original weight} - \text{Oven dried weight}}{\text{Original weight}}$$

b. Crude protein. This was determined by using this formula % CP= %N x 6.25, where nitrogen was determined using the Microkjedahl method. Percent nitrogen was then computed using the formulas:

$$\%N = \frac{(T-B) \times N \times 0.014}{S} = 100$$

Where T= Sample ml

B= Blank ml

N= Normality of Standard Acid – Titrant

S= weight of Sample in Grams

c. Crude fiber. This was determined by using an ether- extracted sample, boiling in dilute acid, boiling dilute base, filtering, drying, and burning in a furnace.

d. Gross energy of feeds and feces. This was determined using the bomb-calorimetry technique.

e. Ash. This was determined by the residue remaining after all the combustible material has been burned off (oxidized completely) in a furnace heated to 500 to 600^0 C.

f. Nitrogen free extract. This was determined by the difference by the original sample weight and the sum of weights of water, ether extract, crude protein, crude fiber, and ash.

2. Apparent digestibility of nutrients. This was computed using the formula:

$$AD\% = 100 - \left[100 \times \frac{\%\ \text{Indicator in feeds}}{\%\ \text{Indicator in feces}} \times \frac{\%\ \text{Nutrient in Feces}}{\%\ \text{Nutrient in Feeds}} \right]$$

3. Digestible nutrient of feeds and feces. This was determined by using the formula.

Digestible nutrient
Per kg of feeds = 1000g x nutrient in feeds x % digestibility

RESULTS AND DISCUSSION

Nutrient Content of Feed Sample

The nutrient content of the different diets used in the study is presented in Table 1. Analysis showed that the commercial feed contains 92.32 % DM, 4.43% ash, 14.27% CP, 5.90% CF, 3.36% CFi, 64.26% NFE, and 4,078kcal GE/kg. The ration in which 300g sweet potato was added to 1 kg of commercial contains 90.60% DM, 4.40% ash, 10.84% CP, 5.11% CF, 5.00% CFi, 65.34% NFE, and 4031kcal GE/kg. On the other hand, sweet potato meal contains 87.46% DM, 3.84% ash, 1.29% CP, 5.11% CF, 5.00% CFi, 75.34% NFE and 3,383 kcal GE/kg.

Sauvant *et al*., (2004) reported that dried sweet potato tuber that contains 87.8% dry matter has the following nutrient content: 4.25% CP, 2.6% CFi, 0.08% EE, 2.8% ash, 0.2% insoluble ash, 8.0% neutral detergent fiber, 4.2% acid detergent fiber, 0.8% acid detergent lignin, 64.5% total sugars and 15.2 MJ/kg gross energy.

Dry matter. The nutrient contents of the commercial feeds, 300g sweet potato per kilogram, and sweet potato contain 92.32%, 90.69%, 87.46% DM. The commercial feeds obtained the highest percentage in DM followed by the mixture of sweet potato and Commercial feeds.

Table 1. Nutrient composition of feed of experimental ration

TREATMENT	%DM	%ASH	%CP	%CFAT	%CFI	GE Kcal/kg
Commercial feeds	92.32	4.43	14.17	5.90	3.56	4078
300g sweet potato / kg + Cf	90.69	4.40	10.84	5.11	5.00	4031
Pure sweet potato	87.46	3.84	1.29	2.33	4.66	3383

On the other hand sweet potato contains the lowest value of DM. When the commercial feed mixed with 300g sweet potato the value of the DM decrease compared to the value of commercial feed due to the low DM content of the sweet potato.

Ash. The ash contents of the commercial feed, 300g sweet potato per kilogram of commercial feeds and sweet potato diet were 4.43%, 4.40%, and 3.84%. Commercial feed has the highest ash content of 4.43% followed by of 300g sweet potato per kilogram of commercial feeds and sweet potato meal which contain 4.40% and3.84% respectively. The commercial feeds and sweet potato the value of the mixture decreased compared to the commercial feeds alone and this is because of the low ash content of the sweet potato.

Crude protein. Based on analysis result it shows that the commercial feed has the highest crude protein content of 14.17% followed by 300g per kilogram of commercial feeds that contain 10.84%. The value of sweet potato has the lowest crude protein content of 1.29% compared to the other dietary. The percent CP content of sweet potato of 1.29% is much lower than the 4.25% reported by Sauvant et al, (2004). Likewise, on the dry matter basis, sweet potato has lower %CP of 3.5% compared to 7.1% reported by Yang *et. al.* (1975). The lower CP content of the mixture of 300g sweet potato meal and commercial feeds decreases due to the fact that sweet potato has the lowest CP content compared to the other ration.

Crude fat. The Analysis shows that commercial feed has the highest CF content of 5.90% followed by mixture of 300g sweet potato per kilogram of commercial feeds which has a value of 5.11%. But the sweet potato has the lowest CF value of 2.33%. When mixing the commercial feeds and sweet potato, the CF of the mixture decreased compared to the commercial feeds because of the low CF content of the sweet potato.

Crude fiber. The analysis shows that the 300g sweet potato per kilogram of commercial feeds has the higher value of CFi which is 3.56% and the sweet potato obtains 4.66%. The lowest value attained from commercial feeds which contain 5.00% of CFi. The content of the CFi of the mixture of commercial feeds and sweet potato increased compared to the CFi content of the commercial feeds due to the high crude protein of the sweet potato.

Gross energy. Commercial feeds have the highest value of 4078 kcal/kg followed by the combination of 300g sweet potato per kilogram of commercial feed which has a value of 4031 kcal/kg. Lower GE value was obtained in sweet potato with the value of 3383 kcal/kg. The GE content of commercial feeds and sweet potato mixture decreased compared to the GE content of commercial feed due to the reason of lower gross energy content of sweet potato. The GE content of sweet potato meal obtained in this study of 3,383kcal GE/kg is equivalent to 15.16 MJ GE/kg, considering that 1 Cal is equivalent to 4.1855 Joules (Pond et al., 2005). This is comparable to the gross energy value of sweet potato meal reported by Sauvant et al. (2004).

Apparent Digestibility of Nutrient

The apparent digestibility of nutrient in the different test ration in 85 kg hogs weighing 85 kg. is presented in table 2. The digestibility of nutrients in the commercial ration were 76.66% for DM, 25.77% for ash, 80.233% for CP, 74.71% for CF, 85.96% for NFE, and 77.270% for GE. The ration that contain commercial feeds and 300g sweet potato per kg of commercial feed contain 65.41% for DM, 11.75% for ash, 55.763% for CP, 54.42% for CF, 80.03% for NFE, and 65.437% for GE. The digestibility of nutrient in the sweet potato meal were 90.06% for DM, 44.76% for ash, 86.01% for CF, 96.06% for NFE, and 89.337% for GE.

Dry matter. Statistical analysis revealed highly significant differences in the apparent DM digestibility of the experimental diet obtained from 85 kg hogs. Sweet potato meal had the highest DM digestibility which is 90.09% followed by commercial feeds ration of 65.41%. While 300g sweet potato had lowest DM digestibility of 65.41% were digested by the hog fed. When the commercial feeds and sweet potato were mixed, the dry matter of the mixture decreased compared to the commercial feeds because of the low dry matter content of the commercial feeds.

Ash. Statistical analysis revealed no significant differences in the apparent ash digestibility of the three experimental diets obtain from 85 kg hogs. It means that the digestibility of ash in hogs fed with the different dietary treatment were more or less the same. The pure sweet potato has the highest ash digestibility sot means that 44.76% of ash is being digested by the animal followed by the commercial feeds. While hogs fed with 300gram sweet potato per kilogram commercial feeds have the lowest digested nutrient of 11.75%.

Table 2. Ash, crude protein, crude fat, gross energy, nitrogen free extract, and dry matter digestibility (%)

TREATMENT	DM	ASH	CP	CFAT	NFE	GE
Commercial feeds	76.66^{b}	25.77	80.233^{a}	74.71^{a}	85.96^{b}	77.270^{ab}
300g sweet potato Per kg of CF	65.41^{b}	11.75	55.763^{b}	54.42^{b}	80.03^{b}	65.437^{b}
Pure sweet potato	90.06^{b}	44.76	-	86.01^{a}	96.06^{a}	89.377^{a}

When commercial feeds and sweet potato are mixed, the value of the ash digestibility decrease compared to the value of the commercial feeds due to the low ash digestibility content of commercial feeds.

Crude protein. Statistical analysis revealed highly significant differences between the digestibilities of crude protein of hogs given commercial feeds and 300g sweet potato per kilogram commercial feeds which are 80.233% and 55.763% respectively. Hogs fed with commercial feeds have the highest crude protein digestibility of 80.233% which is being utilized by the animal while 55.763% which is the lowest is digested by the hogs fed with 300gram sweet potato per kilogram commercial feeds which is the lowest. Due to some factors which affect the fecal sample of the hogs fed with sweet potato the value of the crude protein is negative.

Crude fat. Basing on the statistical analysis there were highly significant differences in the digestibility of crude fat in hogs fed with commercial feeds, 300gram sweet potato per kilogram commercial feeds and pure sweet potato. 85 kg hogs fed with pure sweet potato obtain the highest crude fat digestibility of 86.01% which is used by the animal followed by the commercial feeds of 74.71%. Hogs fed with 300g sweet potato per kilogram commercial feeds have the lowest crude digestibility of 54.42%. When the commercial feeds and sweet potato are mixed together, the crude fat value decreased compared to the crude fat value of commercial feeds due to the higher crude fat digestibility content of the sweet potato.

Nitrogen free extract. Statistical analysis showed that there are highly significant differences in the digestibility of nitrogen free extract of hogs among treatment. This shows that the hog fed with pure sweet potato has the highest nitrogen free extract digestibility of 96.06% followed by the commercial feeds of 85.96%, while 300g sweet potato per kilogram of commercial feeds has 80.03% which is the lowest among the treatment.

Gross energy. Statistical analysis shows that there were highly significant differences among treatment. It shows that the pig fed with pure sweet potato has the highest gross energy digestibility of 89.377% followed by the commercial feeds of 77.270%, while 300g sweet potato per kilogram of have the lowest digested gross energy of 65.437%.

Digestible Nutrient per Kilogram

Basing on the nutrient content of the diet and the percent digestibility obtained from 85kg hogs, the digestible nutrient in the different ration are present in the table 3. The digestible nutrients per kilogram of commercial in hogs contain 707.73g DM, 11.41g ash, 113.687g CP, 44.08g CF, 552.35g NFE, and 3151 GE. On the other hand, 300g sweet potato per kilogram of commercial feeds contain 593.22g DM, 5.17g ash, 60.447g CP, 27.81g CF, 522.91g NFE, and 2637.667g GE. The digestible nutrients of sweet potato contain 787.89g DM, 17.19g ash, 20.04g CF, 723.73g NFE, and 3023.667g GE.

Table 3. Digestible nutrients in 1000g of the ration

TREATMENT	DM	ASH	CP	CFAT	NFE	GE
Pure commercial feeds	707.73[a]	11.41	113.687[a]	44.08[a]	552.35[b]	3151.000
300g sweet potato + CF	593.22[b]	5.17	60.447[b]	27.81[b]	522.91[b]	2637.667
Pure sweet potato	787.89[b]	17.19	-	20.04[b]	723.73[a]	3023.667

Koh et al (1976) have reported that a daily crude protein intake of pigs is 334g and daily gross energy intake of 8.5Mcal result in satisfactory growth performance for growing

pigs. Based on the book value, the gross energy content of most feeds vary within a narrow range from 17% to 20% Mj/kg DM.

Dry matter. Statistical analysis revealed significant differences in the DM content among the 3 rations. Sweet potato has the highest digestible dry matter of 787.89g/kg followed by the commercial feeds which contain 707.73g/kg. The sweet potato and commercial feeds mixture contain the lowest value of dry matter of 593.22g/kg.

Ash. Statistical analysis showed no significant differences in the digestible ash content among the 3 experimental rations. 85kg Hogs fed with pure sweet potato obtained the highest digestible nutrient per kilogram of ash which contain 17.19% followed by the 11.41% commercial feed. The commercial feeds and sweet potato mixture contains the lowest ash value of 5.17% because the mineral like calcium and phosphorus is being absorbed and utilized by the animal fed with sweet potato.

Crude protein. Statistical analysis revealed highly significant differences in the digestible CP of the 3 experimental rations. Commercial feeds obtain the highest digestible nutrient in crude protein of 113.687 per kilogram followed by 60.447% 300g sweet potato per kilogram of commercial feeds. This mean that the amino acids, gycolipids and B-vitamins which are contain by crude protein in commercial feeds were absorbed and utilized by the hog fed with commercial feeds.

Crude fat. Highly significant difference is observed among the treatments as the statistical analysis revealed. The highest crude fat digestible nutrient of 44.08g is obtained by the pigs fed with commercial feeds followed by the 300g sweet potato per kilogram of commercial feeds.

Nitrogen free extract. Statistical analysis revealed highly significant differences among the treatment. The pigs fed with pure sweet potato have the highest digestible nutrient of nitrogen free extract of 723.73g. This is due to the fact that sweet potato contain high nitrogen free extract fraction which indicates its potential value as energy source.

Gross energy. The statistical analysis revealed that there is no significant difference among the treatment. It means that the digestible nutrient per kilogram in hogs fed with different dietary treatment were more or less the same. Commercial feeds obtained the highest digestible nutrient per kilogram of 3151kcal/kg followed by the 3023.667kcal/kg sweet potato while 2637.667 kcal/kg were obtain in the 300g sweet potato per kilogram of commercial feeds.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

The study was conducted to determine the apparent digestibility and digestible nutrient per kilogram of commercial feeds, 300gram sweet potato + commercial feed and pure sweet potato in pigs. In terms of ash, crude protein, crude fat, gross energy, nitrogen-free extract, and the dry matter.

Results showed that commercial feed contains 92.32 % DM, 4.43% ash, 14.27% CP, 5.90% CF, 3.36% CFi, 64.26% NFE, and 4,078kcal GE/kg, while the ration in which 300g sweet potato was added to 1 kg of commercial contains 90.60% DM, 4.40% ash, 10.84% CP, 5.11% CF, 5.00% CFi, 65.34% NFE, and 4031kcal GE/kg. On the other hand, sweet potato meal contains 87.46% DM, 3.84% ash, 1.29% CP, 5.11% CF, 5.00% CFi, 75.34% NFE, and 3,383 kcal GE/kg.

The digestibility of nutrients in the commercial ration were 76.66% for DM, 25.77% for ash, 80.233% for CP, 74.71% for CF, 85.96% for NFE, and 77.270% for GE. The ration that contains commercial feeds and 300g sweet potato per kg of commercial feed contain 65.41% for DM, 11.75% for ash, 55.763% for CP, 54.42% for CF, 80.03% for NFE, and 65.437% for GE. While the digestibility of nutrient in the sweet potato meal were 90.06% for DM, 44.76% for ash, 86.01% for CF, 96.06% for NFE, and 89.337% for GE.

The computed digestible nutrients per kilogram of ration were 707.73g DM, 11.41g ash, 113.687g CP, 44.08g CF, 552.35g NFE, and 3151 GE for the commercial feed; 593.22g DM, 5.17g ash, 60.447g CP, 27.81g CF, 522.91g NFE and 2637.667g GE for 300g

SPM/kg ration; and 787.89g DM, 17.19g ash, 20.04g CF, 723.73g NFE and 3023.667g GE for the sweet potato meal.

Statistical analysis showed there are highly significant differences in terms of digestibility of crude protein, crude fat, gross energy, nitrogen- free extract and the dry matter. In terms of digestible nutrient per kilogram, the crude protein, crude fat, nitrogen free extract, dry matter, statistical revealed highly significant differences.

Conclusion

From the result of the study, sweet potato is a good feed supplement to swine ration because it contains the necessary nutrient needed by the pigs for its optimum performance.

Recommendation

It is therefore recommended that sweet potato is a good supplement diet to pig. It is also recommended that further study in the digestibility of sweet potato using different stage of pigs from weanling to finishing to be conducted

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