

Dolo (*Fragracea cochinchinensis*) Leaf Meal as Deworming Agent and Component of Swine Ration

Tony F. Basilio and Rogelio V. Lopez Jr. DVM
Western Philippines University
College of Agriculture
Aborlan, Palawan

ABSTRACT

This study focused on determining the effects of a ration with varying levels of dolo leaf meal against gastrointestinal nematodes and on the growth performance of swine. Twelve (12) growing pigs were fed with three (3) different rations containing 0%, 5%, and 10% dolo leaf meal, respectively following the Completely Randomized Design (CRD). Feeding period lasted for 95 days. Data on the effects of the rations on the growth performance of the swine were obtained.

No significant differences on the initial weight, final weight, total feed consumption, average bi-weekly weight gain, total gain in weight, average daily gain, feed conversion efficiency, feed cost per kilogram in weight were obtained from different treatments. But, there was a highly significant difference in the percentage reduction of worm egg per gram count between control and the two treatments (ration with 5% and 10% dolo meal)

Keywords: dolo, Fragracea cochinchinensis, gastrointestinal nematodes,

INTRODUCTION

Parasites have long been a problem for swine producers. These parasites can cause economic loss to the producer in many ways including: decrease feed efficiency, increase time to market, and decrease carcass value. They further cause irritation, impaction, indigestion and lack of appetite. Parasites also cause nutrient deficiency by competing with the host and by causing poor digestion, gut ulceration and even blood loss. Even a small number of the large roundworm, *Ascaris suum*, depress feed intake and daily gain and cause a depression in weight gain.

Herbal medicine is commonly used to prevent and control diseases in animals. Some herbal plants had been proven for ethno veterinary practices among them is the *Fragracea cochinchinensis*, commonly called dolo. This plant is endemic to Palawan especially in the municipality of Roxas, Taytay, Aborlan and Bataraza. The plant is made of 10.5% protein, 3.10% fat, 13.2% fiber, 5.9%

moisture, 6.80% ash and 60.5% NFE based on the proximate analysis conducted by the Bureau of Plant Industry (LDC, 2003). This plant is also claimed by some farmers to be useful against internal parasites of pigs. Thus, this study was conducted to evaluate the effects of swine ration with varying levels of dolo leaf meal against gastrointestinal nematodes and on the growth performance of swine.

METHODOLOGY

Twelve (12 heads) of weanling were divided into three (3) treatments as follows: T₁: ration with 0% dolo leaf meal, T₂: ration with 5% dolo leaf meal and T₃: ration with 10% dolo leaf meal following the Completely Randomized Design (CRD) with each treatment containing four (4) observations.

Draw lots were used to randomly assign the experimental animals in their respective pens and to determine the designation of the treatments to the pen.

The sun dried and thoroughly milled dolo leaves were mixed with rice bran, corn meal, fish meal, copra meal and soybean meal. The formulated feed ration for each treatment is shown in Table 1. Individually, the animals were fed twice a day with the amount required by the feed consumption standard.

Table 1. Experimental ration for starter, grower and finisher.

Ingredients	Ration for Starter (18% CP)			Ration for Grower (16% CP)			Ration for Finisher (14% CP)		
	T ₁	T ₂	T ₃	T ₁	T ₂	T ₃	T ₁	T ₂	T ₃
Rice bran	48.57	45.48	48.57	48.57	45.48	42.40	53.95	50.84	47.74
Corn meal	32.38	30.32	32.38	32.38	30.32	28.26	35.97	33.89	31.82
Dolo leaf meal	-	5.00	-	-	5.00	10.00	-	5.00	10.00
Fish meal	6.67	6.72	6.67	6.67	6.72	6.80	4.54	4.62	4.70
Copra meal	4.76	4.78	4.76	4.76	4.78	4.81	2.52	2.57	2.62
Soy bean meal	7.62	7.70	7.62	7.62	7.70	7.73	3.02	3.08	3.12
Total	100	100	100	100	100	100	100	100	100

The data gathered were the pigs' initial weight, final weight, bi-weekly weight gain, average weight gain after the feeding period, average daily weight gain, mortality rate, average feed consumption, feed conversion efficiency, egg count and egg per gram count.

Egg per gram count per pig was obtained using the Modified McMaster Technique. Percentage reduction in egg per gram count was derived by dividing the difference of initial and final egg per gram count to the final egg per gram count multiplied by 100.

All data gathered were subjected to Analysis of Variance (ANOVA).

RESULTS AND DISCUSSION

Growth Performance

The pigs fed with ration containing 5% dolo leaf meal had the highest average final weight compared to the pigs fed with purely (0% dolo leaf meal) ration and ration with 10% dolo leaf meal. However, ANOVA showed that the average final weight of pigs among treatments is statistically the same which implies that incorporation of dolo leaf meal (5% and 10%) in the ration neither increase nor decrease the final weight of swine after 95 days of feeding.

Table 2. Average final weight (AFW), bi-weekly average weight gain (BWA WG), average weight gain (AGW), average daily weight gain (ADWG), average feed consumption (AFC) and average feed conversion efficiency (AFCE) of pigs and percentage reduction of worm egg count of pigs (PREWC).

Treatment	AFW (kg)	BWA WG (kg)	AGW (kg)	ADWG (kg)	AFC (kg)	AFCE (kg)	PREWC (%)
I - 0% DLM	67.75	5.25	31.50	0.33	155.30	4.99	10.97
II - 5% DLM	73.25	6.20	37.25	0.39	149.32	4.02	100.00
III - 10% DLM	65.00	5.46	32.75	0.34	136.42	4.16	100.00

Furthermore, pigs fed with 5% dolo leaf meal registered the highest bi-weekly average weight gain, average weight gain after 95 days of rearing, and average daily gain compared to those fed with 0% dolo leaf meal and 10% leaf meal (Table 2). Nevertheless, statistical analysis revealed that the differences of mean in terms of the three (3) measures of weight gain among the three (3) treatments are not significant. On the other hand, pigs fed with purely ration (0% dolo leaf meal) posted the highest average feed consumption and average feed conversion efficiency compared to those pigs that consumed ration with 5% and 10% dolo meals. Analysis showed that the treatments were not statistically different in terms of average feed consumption and average feed conversion efficiency. The above data indicated that dolo meal ration do not influence the growth performance of swine.

Effect on Gastrointestinal Nematodes

The nematode eggs were identified and counted using the Modified McMaster Technique. The morphological appearance of the eggs observed resembled the morphological appearance of *Ascaris suum*, which have rough bile stained, and external protein layer; *Metastrongylus spp.*, which are small subglobular and contain a vermiform embryo; and *Macracanthorhynchus hirudinaceus*, which have three cementic ellipsoidal shell surrounding an embryo. An outer egg shell which is thinner at the poles was also observed.

Feed ration with 5% and 10% dolo leaf meal reduced the egg worm count of pigs by 100% while only 10.97% reduction in egg worm count was observed in pigs that were fed with ration containing 0% dolo leaf meal (Table 2). ANOVA analysis revealed that the differences in the mean percentage reduction of worm egg count among treatments are highly significant. Figure 1 shows that there was a sharp decrease in the bi-weekly reduction of egg worm count of pigs that consumed ration with dolo leaf meal as ingredient (5% and 10%).

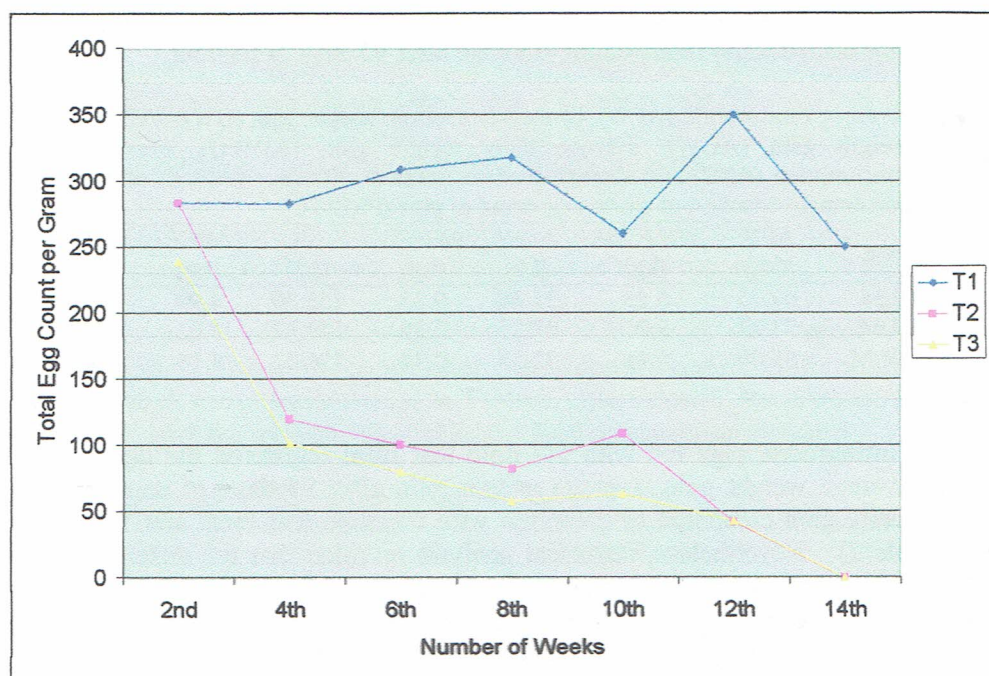


Fig. 1. Bi-Weekly Reduction in Egg Count.

Conclusion

On the basis of the results of the study, dolo leaf meal can be used as feed ration for swine by up to 10% to reduce gastrointestinal nematodes without impairing the growth performance of swine.

LITERATURE CITED

- Getty. 1975. The Anatomy of the Domestic Animal. pp. 1306 -1307.
- Kennedy, Tom (1999). Common Internal Parasites of Swine. University Extension. University of Missouri-Columbia.
- Lawrence.1951. Taxonomy of Vascular Plants. Macmillan Publishing Co., Inc. pp. 669-670.
- LDC Technical Bulletin No. 1. 2003. Swine Raising. Department of Agriculture. Livestock Development Council, Elliptical Road, Diliman, Quezon City.
- Levine, Norman D. 1978. Nematodes. Textbook of Veterinary Parasitology. Burgees Publishing Co. p. 223.
- Madulid, Domingo A. 2002. A Pictorial Guide to the Noteworthy Plants of Palawan. Palawan Tropical Forestry Protection Programme. p. 63.