



## agriculture & environmental affairs

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Department:  
Agriculture  
& Environmental Affairs  
**PROVINCE OF KWAZULU-NATAL**

### **GROWTH RATES OF PIGS FED ON INCREMENTAL LEVELS OF *ACACIA TORTILIS* LEAF MEAL-BASED DIETS**

**M. Khanyile<sup>1</sup> and M. Chimonyo<sup>2</sup>**

<sup>1</sup>*Department of Agriculture and Environmental Affairs, Makhathini Research Station,  
P.Bag X004, Jozini, 3969.*

<sup>2</sup>*Animal and Poultry Science, University of KwaZulu-Natal, P. Bag X01 Scottsville 3209,  
Pietermaritzburg, South Africa*

#### **Introduction**

Smallholder pig production in Southern Africa is constrained by feed shortages and the demand for cereals to feed the ever-growing human population in Southern Africa makes it imperative to identify alternative feedstuffs for feeding pigs. Leguminous leaf meal inclusion in pig diets can reduce the soybean proportion in conventional pig diets. *Acacia* leaves, for example, have a relatively high crude protein (CP), favorable mineral concentration. The objectives of the current study were to evaluate nutritive value of *Acacia* leaf meals and to determine the response in growth performance of finishing pigs fed on incremental levels of *Acacia tortilis* leaf meal.

#### **Materials and method**

Eight trees of each of the following five dominant leguminous trees; *A. tortilis*, *A. robusta*, *A. nilotica*, *A. nigrescens* and *A. xanthophloea*, were individually hand harvested from the same grazing camp at Makhathini Research Station, Jozini, South Africa. Leaves were harvested by cutting branches off the tree, drying under shady for 3- 4 days to prevent damage of heat sensitive nutrients. Dried branches were careful

beaten by stick to release leaves. Leaves were sieve through 2mm sieve to get rid of thorns and twigs and bagged in airtight bags until needed for chemical analysis. Following the evaluation of leaf meals on chemical composition, *A. tortilis* was selected. Thirty finishing male F<sub>1</sub> hybrid (Landrace × Large White) pigs with an initial weight of 60.6 (s.d. = 0.94) kg were randomly allotted to six dietary treatments containing 0, 50, 100, 150, 200, 250 g/kg DM inclusion levels of *A. tortilis* leaf meal. Each treatment diet was offered *ad libitum* to five pigs in individual pens for 21 days.

## **Results and Discussion**

*Acacia tortilis* and *A. xanthophloea* leaf meals had the highest CP and fat content among all the *Acacia* species. The Neutral Detergent Fibre (NDF) and Acid Detergent Fibre (ADF) concentrations in the leaves varied significantly across *Acacia* species. Average daily feed intake (ADFI), average daily gain (ADG) and gain: feed ratio was measured every week. There was an increase in both ADFI and ADG as *A. tortilis* leaf meal increased, before they started to decrease. Using piecewise regression (broken-stick analyses), it was observed that *A. tortilis* leaf meal can be included up to 150 g/kg DM in finisher pig diets. The gain: feed ratio was linearly reduced with incremental levels of *A. tortilis* leaf meal in the diets.

The high CP content, moderate ADF, NDF and proanthocyanidins composition of the leguminous forages in the current study concur with earlier reports in the literature. . The observed increase in ADFI and ADG when leaf meal was included in the ration up to 150g/ kg DM concurs with a recent report by Halimani et al. (2005). Inclusion of leaf meal above 150g/ kg was associated with depressed ADFI and ADG.

### **Take home message**

*Acacia tortilis* leaf meal can be included up to 150 g/kg DM in finisher pig feeds, without negatively affecting animal performance. The ability with which pigs utilize leaf meal-based diets improves with duration of exposure (adaptation) to such diets.