ACIAR action in Vietnam

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Utilisation of local ingredients in commercial feeds for pigs

This ACIAR project aims to bridge the gap by assessing locally available protein and energy sources as potential components of commercial pig diets. On-farm assessments and other extension activities will share these results with the commercial and smallholder sectors.

Project Overview

Pig production in Vietnam is an important industry for smallholder farmers, who supply 80 per cent of all pigs. The long-term viability of production is threatened by the high cost of feeds, most of which are imported. These high quality feeds are likely to continue to rise in price. The use of cheaper local feedstuffs is a viable solution, but is limited by a lack of knowledge of their suitability for pigs. This project aims to bridge the gap by assessing locally available protein and energy sources as potential components of commercial pig diets. On-farm assessments and other extension activities will share these results with the commercial and smallholder sectors.

Activities - Year One

Protein is frequently the main constraint for the improvement of pig performance in South-East Asia. Because of this most Asian pig production countries have a high dependence on importation of various protein meals. The long-term viability of such pig industries is dependent on the ability of these countries in the future to access cheaper local source of non-conventional feeds.

Rubber seeds (Hevea brasiliensis) from the Euphorbiaceae family (Njoku et al., 1998) are a substantial by-product of rubber production that currently have little use in animal feeding despite having a reasonable level of protein content. If the anti-nutritive component of rubber seed could be eliminated or have its impact on pig performance ameliorated then rubber seed meal would have a great potential for feeding pigs either by small holder producers or by inclusion in commercial diets.

In Vietnam according to the Vietnam Statistical book (2001), Vietnam has 420,000 ha of rubber trees with density of 500 tree/ha. Based on an estimated production of approximately 300 kg rubber seed /ha, it is then possible to collect nearly 130,000 metric tons rubber seed equivalent to 65,000 metric tons of rubber seed meal without hulls (pers com Kinh 2004) every year from this level of rubber production.

Objectives

The first project-planning meeting was held in Australia in late September 2004. A memorandum of agreed project work plan was developed. Progress thus far for Year 1.

Objective 1: Content

Currently, Vietnamese project staff are collecting samples of feedstuffs for batch analyses. An understanding of the initial level of toxins such as cyanide and gossypol present in the rubber seed and the changes that would occur in those levels as a result of time, handling and processing of the rubber seed is needed. This will enable the development of protocols for the elimination of the toxins present or provide data to assess their risks whilst maintaining maximum nutritive value of the feedstuff.

Objective 2: Treatment

A detailed literature review has been completed to provide essential preliminary information on anti-nutrients and their stability. The literature has shown that the source of the rubber seed will impact significantly on the toxins present and on the composition of the rubber seed. This suggests that variety or agronomy are important both for the nutritive animal feeding value of the meal and also for the use of the rubber seed oil in other industrial applications. This would impact on the economics of any industrial rubber seed processing. Particularly as high value oil would better facilitate investment in large-scale plants to process the rubber seed. Thus the chemical results of the samples being collected will provide data on the feeding values of meal produced and the best use option for Vietnamese rubber seed oil.

Objective 3: In vivo digestibility

Experimental protocol and animal ethics approval have been obtained for studies to be conducted in Australia and these will commence soon with supervision and training of Vietnamese project staff in Australia

Objective 4: Inclusion level

Planning phase

Objective 5 Commercial demonstration on farm

Not until Year 3

Partners

Commissioned Organisation :	Queensland Department of Primary Industries and Fisheries, Australia
Collaborating Institutions :	- Institute of Agricultural Sciences of South Vietnam, Vietnam - Southern Sub-Institute of Agricultural Engineering and Post-Harvest Technology, Vietnam

More details

Yes