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Improving feed grains

Exploring future benefits for Western Australian grain growers and animal industries

Increasing recognition is being given to the nutritional value of feed grains and their effect on the profitability of animal enterprises. Dr Bruce Mullan reports on the research and negotiations currently under way to improve the quality and quantity of grain available for animal industries and, in turn, increase market opportunities for grain growers.

A considerable proportion of Australia's cereal grains and grain legumes are consumed by animal industries. Demand has traditionally come from the pig and poultry industries, though beef cattle in feedlots and dairy cows have added to this demand in recent years.

The demand for feed grains in Australia has been estimated at about 10 million tonnes a year. In addition, the aquaculture industry is likely to become an important consumer of grains in the future, both domestically and on the export market.

By early next century, the world's aquaculture industry will probably require between 3.5 and 6.6 million tonnes of feed, of which the Asian market will be by far the major consumer.

However, there appears to have been scant attention paid in the past by the grain industry to the specific needs of the feed industry. One reason may be that the feed industry has been an undemanding but constant customer, and relatively indiscriminate about its feed requirements.

Future trends

There is ample evidence that this situation has begun to change. In the past, animal industries may have used grains considered unsuitable for other industrial purposes, such as weather-damaged grains. This is no longer the case.

Far greater attention is being given to the effect that poor quality grains will have on animal performance and quality of the end-product. Since the cost of feed commonly represents 60 to 70 per cent of the total cost of production for many enterprises, every effort is being made to reduce the cost of the mixed diet while meeting dietary specifications.

Feedstuffs will be used in diets for animals if they supply the required nutrients, are cost-competitive with other available ingredients, and the user is confident they will produce the desired result. Ideally, grains should also store well, not bridge in silos, and not need further processing.
National feed grains research

In general there has been a lack of communication and co-operation between the grain and feed industries.

This was highlighted by the feed industry’s call in the Eastern States during recent droughts to permit the import of feed grains from overseas, and the counteracting argument by the grains industry that this could result in the introduction of new plant diseases and pests. The interchange was a clear signal that both groups needed to have a better understanding of each other’s needs and concerns.

In addition, the livestock industries have increased their demand for quality grain in recent years as part of their bid to maintain an internationally competitive edge.

As a result, the Grains Research and Development Corporation (GRDC) initiated a collaborative $2.5 million project to address the needs of both the feed and grain industries. The collaboration involves the meat, pig and dairy corporations and the chicken meat and egg industry research committees of the Rural and Industries Research and Development Corporation.

The project will run over three years to improve the quality and amount of grain available to the livestock industries, and to enhance the market opportunities for grain growers.

The project is designed to provide the information required by plant breeders, grain growers and the agribusiness industry to produce grains of appropriate quality that will increase the competitiveness of the Australian rural industries.

For grain growers to be attracted to production specifically for animals, there must be rapid and accurate procedures for establishing the nutritional value of grain for different livestock enterprises. Prices can then reflect the grain value in terms of animal performance.

Similarly, animal industries will benefit from accurate knowledge of grain nutritional value, as well as the improvements that can be made through processing and storage procedures.

This major research project has three principal objectives:

- Identify the range of and reasons for differences between the nutritional value of grains for ruminants, pigs and poultry, so that improvements in grain quality can be achieved through plant breeding and through grain processing
- Develop rapid tests suitable for the site of grain collection and/or use that will measure the nutritional value of grains, and allow them to be priced in accordance with their suitability as an animal feed
- Develop and upgrade computer simulation models for ruminants and pigs to predict accurately the consequences of grain characteristics, grain processing and
storage on the productivity of animals and the profitability of animal enterprises.

**Western Australian feed grains strategy**

The Meat Program of Agriculture Western Australia is addressing the feed grain issue with the development of a feed grains strategy. The scope and objectives of the strategy have yet to be finalised, but it is likely to work in tandem with the national project coordinated by the GRDC and include issues of particular concern for Western Australian industries.

**Feed database**

Associated with the development of improved analytical techniques to measure grain quality is the need for a comprehensive database of key nutritional parameters.

The Australasian Livestock Feed Ingredient (ALFI) database is being developed by scientists from the Pig and Poultry Institute at Roseworthy, South Australia, in consultation with scientists from Agriculture Western Australia and other Australian research institutes.

The database will enable the development of national base standards for feed grains and will provide information to growers on the feed grain quality requirements of each livestock species. It will also identify gaps in our knowledge by highlighting those grains with limited nutritional information and those nutritional parameters with a high degree of variation.
Conclusions

Clearly, to encourage grain growers to focus their production systems towards feed grains, it is important to first identify the reasons for variation in the nutritional value of grains and then to develop rapid, cheap, and accurate methods of measuring these factors.

The analytical methods should ideally be suitable for application either at the site of grain delivery from the farm or within the place of stockfeed manufacture. This will mean the nutritional value of the grain can be known before it is used.

The rational marketing of feed grains could then be achieved, with the benefits from more efficient animal production being shared between the grain grower and animal producer.