

## Future Requirements for Stockfeed

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### Summary

Livestock production and hence stockfeed requirements are increasing significantly in Australia. The requirements for feed ingredients are therefore also increasing, but a number of legislative and non-legislative restrictions have important ramifications for these industries. The major legislative restriction in feed ingredients relates to the use of restricted animal material in ruminant diets due to the global Bovine Spongiform Encephalopathy (BSE) situation. These restrictions have increased the reliance on vegetable proteins in beef and dairy feeds. The continued expansion of the dairy and pig industries will place increased pressure on the availability of protein products. In the case of the dairy industry the availability of non-genetically modified (GM) products is paramount due to export market restrictions on the inclusion levels of these products. Similarly, there will be an increased requirement for high-fibre sources. Given that milling by-products from the wheat and rice industry are unlikely to be available at the required levels, other sources must be found. Finally, the importance of HACCP-based feed safety programs is reviewed. Australian agriculture and livestock production is heavily dependent on exports for on-going viability, and food safety must remain the number one priority.

### Livestock Production Expanding Rapidly

Livestock production is increasing significantly in Australia, predominantly in the dairy and pig industries. In addition, chicken meat consumption continues to increase at the expense of beef consumption. The Australian Dairy Industry is a major agricultural industry, ranking third behind wheat and beef industries in terms of value-added, worth over \$3 billion at farm gate prices. It employs about 46,000 people in related manufacturing, processing and farm establishments. The growth rate of the Australian dairy industry has averaged 5% over the past decade, and it is forecast to continue at similar levels at least until the year 2004.

From an industry that historically was predominantly pasture-based, it has moved to be a major user of concentrates and prepared feeds. The average supplementary feed usage varies between States and geographic regions with Victoria and Tasmania having the lowest usage level and Western Australia the highest. The aggregate composition of supplementary feed was estimated to be about 47% concentrates, 51% grains and 2-4% by-products (Dairy Farm Management & Technology Survey, 1993/94, ABARE), but there is considerable variation in actual composition due to price and availability of raw materials. Overall usage and feeding rates have increased to a level whereby the average consumption of supplementary feed has increased from less than 0.8 tonnes/cow/year to around 1.3 tonnes/cow/year. At these levels of usage the supplementary feed market for dairy cattle in Australia has increased to 2.5-3.0 million tonnes/annum, and will increase to over 3.5 million tonnes over the next 5-7 years.

Similarly, the pig industry is predicting significant expansion as exports to Singapore and Japan grow strongly. Sow numbers are predicted to increase from current levels of around 300,000 sows to 450-500,000 sows over the next 5-7 years.

These trends mean that Australian stockfeed requirements will reach 13-14 million tonnes by 2010, with total feed grain requirement to increase from current levels of 7.7 million tonnes to around 10 million tonnes by 2010. If major export countries continue to place restriction on the use of GM crop products in livestock feed, there could be significant shortages of available protein sources, assuming that cotton, soybean and canola are GM. This pre-supposes that there will not be the release of other GM crop products. Without a Identity Preservation (IP) system for these GM crop products such as canola, cotton and soybeans, the stockfeed industry must assume that all these products are of GM origin.

The continuing expansion of supplementary feeding in the dairy industry will place increasing pressure on the availability of fibre sources. At current inclusion levels for example, the use of the wheat milling by-product millrun (bran/pollard) will increase from current levels of around 600,000 tonnes to greater than 800,000 tonnes. However, based on flour requirements in Australia the level of millrun will not match this expansion, and will be capped at around current levels. It is clear that additional fibre sources will have to be found to meet these requirements.

### Availability of Raw Materials

The Australian stockfeed and livestock industries are facing similar pressures on the use of feed ingredients to those that exist elsewhere in the world. The Bovine Spongiform Encephalopathy (BSE) outbreak in Europe has seen Australia move quickly and decisively to prevent the use of bovine-derived meat and bone

meal in ruminant diets in 1997, and all animal products were banned for use in ruminant diets in 2001 (exceptions are tallow, gelatin and milk products).

Australia is free of BSE and other spongiform encephalopathies and is one of only five countries judged by the European Commission to meet 'Category 1' status for BSE freedom, the result of a package of soundly based preventive measures and a cooperative approach by governments and industry in implementing them.

Three key measures ensure Australia remains protected:

Strict controls and restrictions on imports of live animals, genetic material and animal feedstuffs

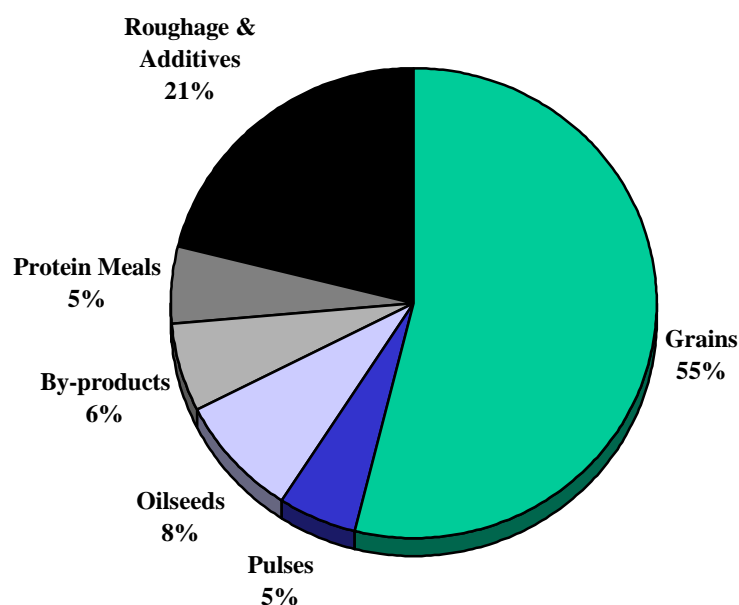
A ban on feeding meat and bone meal (MBM) to ruminant animals was implemented in 1997 by legislation, with further 2001 legislative changes banning the use of bloodmeal, macropod meal, poultry offal meal and fish meal, and

A national surveillance program established by AQIS and now the responsibility of individual States Governments.

These restrictions on animal products mean that ruminant diets must be based exclusively on vegetable-based protein sources and cereal grains or vegetable by-products.

There are non-legislative restrictions on the inclusion levels of genetically modified products in some livestock diets, notably those for dairy cattle, due to export market considerations. Australia is a net exporter of grain, vegetable and animal protein commodities, but a number of factors have combined to place pressure on the domestic availability of these products, in particular the continued expansion of our livestock industries, and the fickle nature of crop yields due to variability in seasonal conditions.

An approximate breakdown of the usage of crop products in livestock feed in Australia is shown in the figure below:



Stock feed ingredients that may have been derived from genetically modified plants or microbes that could currently be in use are:

- Soybean meal (particularly soybean meal imported from the US)
- Cottonseed and cottonseed meal
- Canola meal imported from Canada
- Possibly some amino acids
- Some feed enzymes
- Vitamins

In the not too distant future, canola seed, canola meal and maize can probably be added to this list of GMO-derived stockfeed ingredients, while work continues on GMO field peas and lupins.

A number of Australian dairy companies have imposed maximum inclusion level restrictions on the use of GM products in prepared dairy feed. This is predominantly based on export marketing requirements.

For example, one dairy company has set a maximum limit of 5% inclusion of GM products in dairy feed, based on the assumption that supplementary feeding represents approximately 20% of total dry matter intake on pasture-based systems, thus meeting a requirement of a 1% maximum on GM intake in cows producing milk for export purposes.

When combined with the bans on feeding restricted animal materials these restrictions significantly reduce the range of feed ingredients for use in dairy feeds in Australia. If GM Canola is released then there will be considerable pressure on the availability of feed ingredients for dairy production, at a time when the level of supplementary feeding is increasing significantly.

Major issues have emerged in relation to the use of GM crop products in the stockfeed industry, namely:

- Indemnity is a key issue and the industry will need to maintain stringent processes and utilise tolerances;
- Risk assessment and how the industry covers these risks, in particular with the Stockfeed Declarations that must be made by the industry;
- Risk minimisation (such as localised raw material production) must be a major consideration for all members of the production chain.
- Identity Preserved (IP) programs overseas are signature based at this stage (ie. signed declarations). Contractual agreements are now being considered.
- Testing technology is still a limitation in this whole process. Specific gene tests at grain receipt are still 1-2 years away from commercialisation.

#### **Importance of Hazards Analysis and Critical Control Points (HACCP) Feed Safety System**

The European feed manufacturing and livestock industries have faced severe food safety issues throughout the last two decades. Some of these issues, such as the outbreak of BSE, were impossible to predict, whereas others were more straightforward in their etiology.

The Belgium Dioxin Crisis, which occurred in 1999 due to contaminated fat supplied to stockfeed manufacturers, is an example of the latter. There are a number of other incidents from around the world that show the importance of feed safety in ensuring the safety of human food.

Currently, the stockfeed and livestock industries have the highest possible profile in the food supply chain, a situation that is likely to continue into the future.

There has been increased focus on feed as a source of bacterial contamination of livestock production units. What has become very clear, particularly since the mid-1990's, is the crucial importance of stockfeed in the overall food supply chain. Finished product checks remain essential as the major focus is on stringent identification of potential hazards and preventing them during manufacture.

Over the past decade, Australian agriculture has embraced the principles of food safety, and has recognized at every level, from farm to fork, the importance of implementing food safety programs.

Australia's increasing dependence on export markets will continue to place heavy emphasis on feed safety programs, as mentioned above. The "Clean and Green" nature of Australian livestock production must be strenuously guarded in order to ensure that these export markets remain viable for our livestock products.