TABLE 1 A SUMMARY OF WHEAT-QUALITY PARAMETERS REQUIRED FOR KEY PRODUCTS PRODUCED FROM FLOUR MARKETED BY EASTERN PEARL FLOUR MILLS

Bread	Gluten is most important, plus water absorption and baking qualities
Dry instant noodle	Colour is of utmost importance, as well as dough stability and extensibility – colour can be affected by grain that is stained with mould or fungus, particularly if it penetrates through to the endosperm
Wafer and biscuit	Almost the opposite characteristics to those required for bread – low gluten and low water absorption

wheat to be free from foreign matter is universal.

All wheat coming into a flour mill is extensively cleaned. Flour mills use a combination of screening, aspiration and gravity separation to ensure that no foreign material enters the mill. Flour products are not directly affected by grain hygiene, but purchasing wheat containing foreign material does have knock-on effects.

The more foreign material that needs to be removed per tonne of wheat, the lower the overall flour extraction per tonne. Extraction is a very high consideration in the desirability and price of wheat and suppliers providing dirty product quickly lose favour.

Purchases that require cleaning cost the mill in time and, most importantly, energy. This is particularly true for wheat containing rocks or stones. When wheat contains a high percentage of rocks and other foreign material the cleaning system must be run at a much lower capacity, which consumes more energy. After wheat, energy is the second highest cost for a flour mill.

At Eastern Pearl Flour Mills all organic material removed from the wheat during cleaning is hammer milled, mixed with bran and pollard (by-products of the milling process) and steam pressed into stock pellets. If the wheat contains toxins these will be concentrated in the stock pellets and could be dangerous to the livestock fed the pellets.

Another extremely important point is that the Indonesian milling industry relies on the same grain protectants that are used on-farm and in central storage systems in Australia and other countries around the world.

Eastern Pearl Flour Mills stores wheat for up to nine months. Being located in the tropics any small grain insect population can very quickly develop into a large infestation. As the entire supply chain from grower to miller uses the same grain protectants, managing insect resistance is extremely important. In the future, insect resistance to grain treatments, such as phosphine, will become an important characteristic for consideration when buying wheat from a particular location or supplier. □

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Livestock need clean grain too

Residues and foreign material cause logistical problems and costs to the livestock industries

By Jim Cudmore

THE MAJORITY OF cattle lot-feeding enterprises hold no more than 30 days' supply of grain on site and rely on third parties to store grain during the year. When that grain arrives at the weighbridge the lot feeder does not want any surprises in terms of grain quality or grain hygiene, and they certainly do not want any surprises once the grain has been transferred to their storage facilities.

Sadly, surprises such as pesticide residues, foreign matter and toxins (such as ergot in sorghum) can and do occur, and all cost the lot feeder time and money.

The introduction of the Safe Meat Commodity Vendor Declaration requires the producer or supplier of grain to provide details of how grain has been treated in-crop, post-harvest and in storage prior to being delivered to the end user. This declaration has substantially reduced the occurrence of pesticide-residue issues. Grain sampling at the point of delivery and laboratory screening have further assisted in the prevention of delivery violations.

Grain will not be accepted at National Feedlot Accredited Scheme (NFAS) feedlots without a Commodity Vendor Declaration. This form is completed by the grower or grain storage agent. Where these businesses have a third party and an independently audited quality assurance (QA) system in place, details of any post-farm treatment will be recorded and can be supplied to the lot feeder.

However, in the past lot feeders have experienced problems with grain residues.

The Australian Lot Feeders' Association (ALFA) has previously expressed some concern about the potential double dosing of grain with treatments of deltamethrin at different times. The situation could occur where an owner of the grain treats it with deltamethrin and then on-sells the grain to another party who also treats the grain with deltamethrin.

Lot feeders support the use of deltamethrin on grain, but only where whole-of-chain QA can substantiate the record of treatment.

The grains industry has several QA systems that have been developed, including Grain Care, and ALFA encourages the adoption of these systems by the grains industry.

Many lot feeders use tempering or steam flaking to process grain before feeding it to cattle, therefore it is essential that grain is free from foreign material that could interfere with processing equipment. For example, a knife off the harvester can do significant damage to grain-processing equipment if undetected.

While residues and foreign material cause logistical problems and costs, the receival of sorghum grain containing ergot can cause major production issues. When cattle eat grain contaminated with ergot, their weight gain and feed conversion can be severely reduced, in some cases by as much as 30 per cent, even with a low level of ergot contamination. During summer, this production loss can be further enhanced in high-heat-load events due to the animal consuming ergot on grain.

Communication and whole-chain QA are seen as vital tools to help grain growers, merchants and storage agents better meet the requirements of lot feeders. □

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THE AUSTRALIAN LOT-FEEDING INDUSTRY CONSUMES THREE MILLION TONNES OF GRAIN ANNUALLY – LARGELY SORGHUM, BARLEY AND WHEAT

Jim Cudmore: pesticide residues and foreign material in grain cause logistical problems for lot feeders, while toxins, such as ergot in sorghum, inhibit productivity.

PHOTO: ALFA

A COMMENT FROM THE NATIONAL WORKING PARTY ON GRAIN PROTECTION

BY BILL MURRAY

It is essential that growers have access to new chemicals in their continual battle against stored-grain pests. Deltamethrin has been fully evaluated as a grain protectant by the National Working Party on Grain Protection (NWPGP) and is a valuable chemical in the ongoing fight against insects.

Currently this grain protectant is not available to growers to control insects in farm-stored grain. It has been agreed with the meat industry, including the Australian Lot Feeders' Association (ALFA), that deltamethrin can be used by bulk-handling companies, and has been employed by them for several years without problems.

The grains industry has been in negotiations with the meat industry and various government agencies for several years regarding the inability of growers to access this valuable grain protectant. In these discussions it has been agreed by all parties that the risk associated with feeding deltamethrin-treated grain to livestock is low if a single treatment is employed. Current discussions are addressing the concerns of ALFA regarding the possibility of grain being treated twice.

ALFA has recently indicated a way forward in these discussions by confirming that better grain treatment compliance is required, and suggesting that this "could be achieved by an addendum to grower supply NACMA* contracts and minor changes to SAFEMEAT Commodity Vendor Declarations".

The NWPGP considered this advice from ALFA at its June 2008 meeting, welcomed ALFA's suggestion for progress, and has asked the NWPGP to continue to coordinate meetings with a view to resolution.

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