What the wheat market wants

Clean grain is one of Indonesia's top reasons for sourcing wheat from Australia. In the future, insect resistance to storage chemicals could make our largest wheat purchaser think twice about buying our product

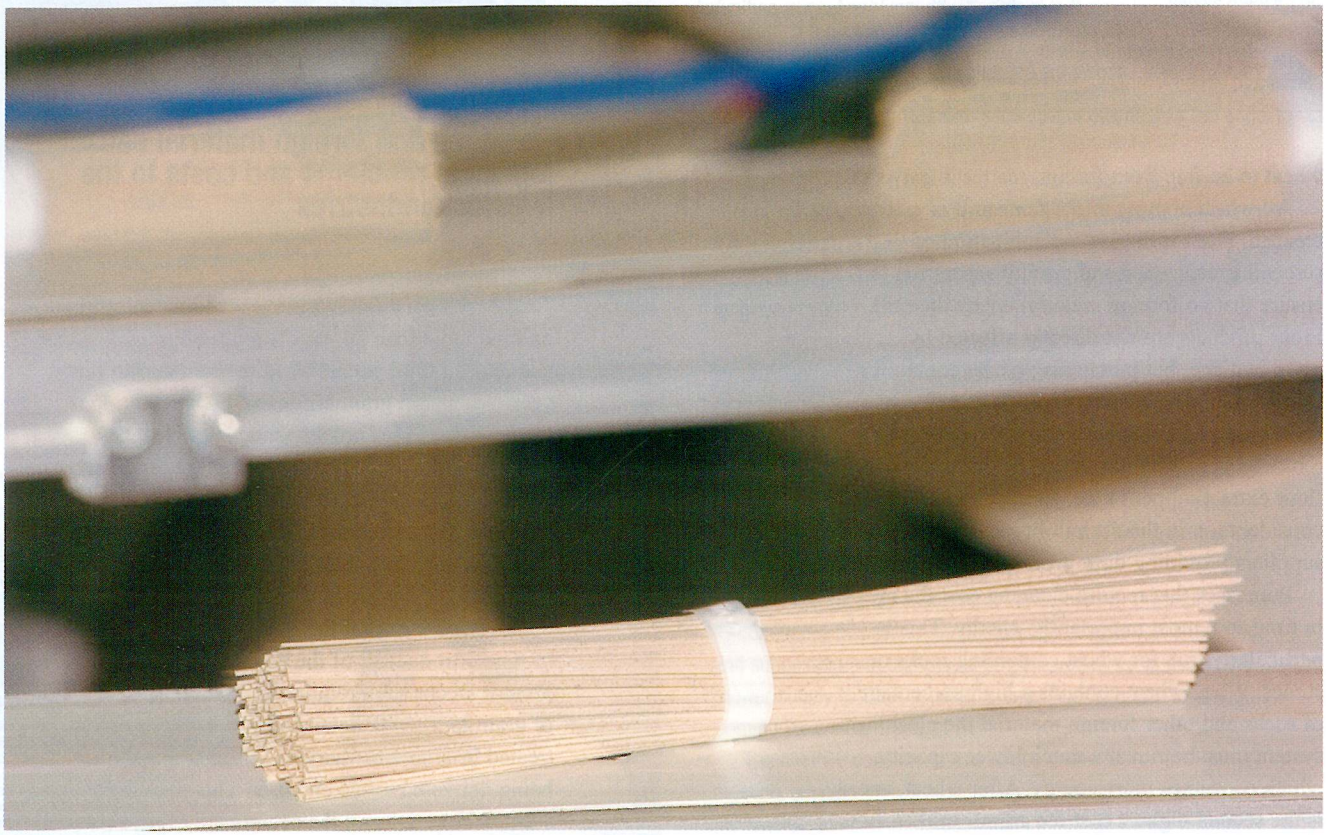

PHOTO: BRAD COLLIS

Flour colour is a key requirement. Colour can be affected by grain stained with mould or fungus.

"We buy American and Canadian wheat because of its superior protein, gluten and baking quality; we buy wheat from India, China and the Ukraine because it's cheap; and we buy Australian wheat because it's clean, dry and white – and this combination of qualities makes it perform very well in a flour mill."

– David Capper, assistant CEO, PT Eastern Pearl Flour Mills

AFTER SEVERAL YEARS working for Co-operative Bulk Handling (CBH) in positions involved with technical grain quality, and serving on the GRDC's Western Panel, David Capper has a broad understanding of the grain-hygiene issues faced by the Australian grains industry. However, now he is looking at the issue from the other side of the fence – working in Indonesia for Eastern Pearl Flour Mills.

The first, second and fourth-largest flour mills in the world are all located in Indonesia and this creates a big demand for wheat. The Indonesian milling industry relies heavily on American and Canadian wheat to provide the gluten and baking qualities required for high-end baked products.

However, the qualities that make Australian wheat a preferred choice for Indonesian millers are its low moisture, bright white colour and high extraction. For Australian wheat, a reasonable level of protein and gluten are still expected by the Indonesian market.

The Eastern Pearl flour mill where David works is located in Makassar, Southern Sulawesi, and is part of the Interflour Group. The mill has a maximum production capacity of 2500 tonnes of flour a day.

Each year Eastern Pearl imports approximately 700,000t of wheat. About 20 to 30 per cent of this is sourced from the US and Canada, 60 per cent from Australia (mostly Australian Hard (AH), Australian Premium White (APW) and some Australian Standard Wheat (ASW)) and the remainder is sourced from various countries, including Argentina, India, China and the Ukraine.

"Eastern Pearl produces nine flour products, marketed under various brands, which cater for all types of baked goods, as well as dry instant noodles, biscuit and wafer products," David says.

Although each product requires specific qualities from the wheat (Table 1, page 4), the requirement for

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. □

More information: David Capper, +62 81 1410 7754, david.capper@epflour.com

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