Managing chemical cross contamination risks

Recent changes in grain marketing and residue monitoring have lead to a significant increase in the number of unacceptable chemical residues being detected. This may potentially have serious implications for the Victorian grains industry and their valuable export markets.

In the past, low level cross contamination incidents could have occurred when harvested grain came into contact with treated seed, or storage and transport infrastructure (such as silos, sheds, field bins, augers, shifters and trailers etc.), but these residues weren’t generally detectable. Today, improved laboratory capabilities can now detect chemical residues at extremely low levels which has resulted in this rise in residue detections.

An increase in direct off-farm container exporting, which takes away the dilution factor of bulk commodity consignments made up from several producers has also impacted the detection rate in both container and export sampling. Unacceptable residues have also been identified through spear samples of individual truck loads domestically, suggesting that the bulk of the load may be contaminated, or that there are significant contamination ‘hot spots’ in the load.

SEED AND FERTILISER TREATMENTS

Flutriafol is a fungicide used on wheat in seed treatments, in furrow fertiliser applications as well as application to control a variety of diseases including bunt smut, stripe rust, leaf rust and septoria blotch. Flutriafol residues in grain have been identified in the past and the use of infrastructure (such as augers or truck trailers) that haven’t been cleaned adequately since moving seed treated with this fungicide appears to be the most likely source of contamination.

Other potential causes include the failure to observe the directions for use on wheat when applying a spray (such as higher rate, not complying with a Withholding Period (WHP) a prohibitive “DO NOT” statement, or cross contamination from another paddock.

Failure to adequately decontaminate storage or transport infrastructure after treating seed could have huge ramifications to the industry if contaminated grain is sampled for residue testing. It is essential that good agricultural practice (GAP) takes place so all equipment and assets are maintained in a hygienic state.

Another fungicide residue that has been identified in grain and oilseed samples recently is fluquinconazole, which is used as a systemic seed dressing predominately for cereals and canola.

Grain sampling through the National Residue Survey (NRS) has identified this unacceptable residue in a number of canola consignments from across the state. Again, contamination of equipment with this chemical appears to be the origin of these residues.

STRUCTURAL TREATMENTS

Fenitrothion is an insecticide approved as a post-harvest treatment for cereal grains and as a structural treatment for the control of insects where grain is to be stored. In 2006/07 Australian canola exports were threatened after the detection of four unacceptable fenitrothion residues in canola seed consignments destined for Japan. After extensive traceback investigations the likely explanation for the persisting residues was that storage equipment and structures used to store the seed were previously treated with a fenitrothion product to prevent pest infestations in the grain.

After the grain was removed, the silos were then used to store canola without being decontaminated. The high oil content of this seed readily absorbed this oil soluble chemical, thereby becoming contaminated with chemical residue.

Victoria cannot afford to jeopardise our markets in this manner so it is essential that farmers monitor their use of all agricultural chemical products, regularly decontaminate equipment and storage facilities and ensure that appropriate residue risk management practices are implemented to
manage the risk of unacceptable chemical residues in the future.

WHAT CAN I DO TO MANAGE CROSS CONTAMINATION RISKS?

- Only use registered products and ensure the commodities and infrastructure you are treating are specifically approved in the label directions for use.
- Ensure you completely read and understand the product label before using any chemical product. Labels may contain information in relation to decontamination and segregation requirements.
- Take note of what commodities the product is approved for. Structural treatments approved only for cereal grain storage are unlikely to be appropriate for legume or oilseed storage.
- If using a contractor for seed cleaning, and they are applying a seed treatment, ensure they are adequately qualified. Anyone who uses an agricultural chemical for fee or reward is required to hold a Commercial Operator Licence (COL).
- Talk to your seed cleaner, reseller, consultant or product manufacturer about the specific precautions required for the decontamination of equipment and storage and transport of treated seed and fertiliser.
- Generally, any surface that is contacted by treated seed, fertiliser or sprayed for a structural treatment, should be decontaminated according to manufacturers’ specifications before a different commodity comes into contact with that surface. These surfaces may include, but not limited to:
  - augers; truck trailers; field bins; chaser bins; silos;
  - grain sheds; and grain shovels.
- All treated seed, either in bags or silos etc., should be clearly marked and separated from harvested grain to ensure mistakes do not occur, especially during busy periods such as harvest.

FURTHER INFORMATION

Agriculture Victoria chemical page:

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