

HACCP plans for on-farm storage

What is HACCP? What's it got to do with me?

HACCP—*Hazard Analysis Critical Control Points*—is a planned method of quality assurance, that is, a risk management process, used in QA (quality assurance) for food safety. The HACCP system was initiated in the USA, later developed by a Codex Alimentarius Working Group [x](#), and the principles embodied in the HACCP approach are being adopted in many countries, including the USA and the European Union.

We suggest HACCP principles would be useful as a basis for designing best practice grain storage, taking conditions on the particular farm into account.

Storage issues are also food safety issues

Growers need to pay special attention to their storage and transport of grain if they want to meet the food safety quality requirements of end-users. The food safety standards concern:

- chemical residues and toxins
- foreign matter such as stones
- animal matter and insects
- bacterial or fungal infection

Food safety forms the basis of the commonsense, whole-farm HACCP-based QA protocols developed by Quality Farms Australia Ltd (go to Bodies and organisations for contact details—[□](#)). *Great Grain*, a quality management program based on HACCP principles, has been developed by Quality Wheat CRC, The Australian Oilseeds Federation and Pulse Australia to be consistent with the Quality Farms Australia and ANZFA draft standards. The system utilises records which growers are already keeping, enabling them to identify and manage critical levels of control. The Great Grain program combines an agreed standard with independent verification to allow grain producers to demonstrate to customers and consumers that they are growing crops safely and responsibly. For information, phone the freecall hotline 1800 226 125 or mail PO Box R818, Royal Exchange NSW 1225.

The FMCA (Flour Millers Council of Australia) is one of several organisations committed to the development of on-farm QA systems. (Contact details in Bodies and organisations—[□](#); email fmca@hyp.com.au.) The FMCA considers that in future, cereal growers will need to meet minimum QA and HACCP requirements to enable them to maximise their returns and maintain or increase sales to current and new markets.


What's HACCP got to do with me?

If the FMCA is right, it won't be long before there will be minimum QA (quality assurance) and HACCP requirements to meet, if growers are to receive top

money for their produce. If this is what the industry is moving towards, it is in growers' interests to prepare themselves in advance. Careful planning based on sound analysis of the present situation seems to be a vital management strategy. This CD can be viewed as a tool to help you with your analysis and planning.

In this section, the information has been set out in the form of a Management Plan which is modelled on a HACCP plan to encourage you to adopt a HACCP approach to farm management. We will be taking a broad view of hazards. Hazards include any possible threat to the quality of your produce, and therefore to the income you will receive. As you work through this section, do some lateral thinking; include anything that threatens the ongoing ability of your natural resources and your human resources to produce a satisfactory output.

What is a HACCP plan?

A HACCP Plan  is a document which describes the defined procedures to be followed by an individual enterprise. The steps in a HACCP plan are listed in the following table. The idea is to identify steps at which decisions need to be made, and to manage the process so that damage is always minimised.

Steps in a HACCP plan

Risk minimisation based on the HACCP process

- 1. Construct a process flow diagram. Break the job down into tasks and draw a diagram showing how they affect each other.**
- 2. Identify the potential hazard or risk to quality**
e.g. damp grain may lead to fungal damage
- 3. Identify the critical control points (CCPs). If you control these, then you can prevent other problems later on**
e.g. if temperature and humidity are correctly controlled by aeration, insects won't breed, moulds won't grow, and flour quality won't be damaged.
- 4. Set limits of acceptability for each CCP—what makes the grade?**
e.g. temperature below 20°C (15°C is better, but difficult to achieve) and humidity below 12.5%–13% for control of insects, moulds and flour quality
- 5. Create a plan for monitoring so that you will detect problems early. Include the equipment needed and a list of tasks to be done, in order.**
- 6. Identify ways to prevent problems arising, and what action should be taken if problems are found through monitoring.**
- 7. Design in checks to ensure the system is working.**
- 8. Keep all appropriate records of methods, including chemicals used, and results.**

(Adapted from Codex Alimentarius Food Hygiene Basic Texts, FAO/WHO 1997, Rome.)

Two other definitions which occur in HACCP discussions are:

- **Risk**—an estimate of the likely occurrence of a hazard (how often?); and
- **Severity**—how serious are the consequences (how damaging?).

Risk and severity are combined to determine the significance of a hazard.

These steps are not all immediately applicable to the management of grain storage on farm but they will encourage orientation to a QA approach in farm storage.

Software is available to assist HACCP planning and QA system design. See Performance Management Systems in Industry contacts ([□](#)).

Useful HACCP web links

Other useful websites relating to HACCP are:

<http://ifse.tamu.edu/haccpqa.html>

<http://ifse.tamu.edu/alliance/haccpmodels.html>

Implementing a HACCP approach

Prerequisite programs

Prior to the development of HACCP plans, enterprises are required to have put programs in place to control factors that support the HACCP plans. These programs relate to:

- **Premises**—maintain in a manner to prevent conditions which may result in contamination of food
- **Transportation and storage**—ensure that materials are transported, stored and handled in a manner to prevent conditions which may result in contamination of food
- **Equipment**—use equipment that is designed for the production of food, and maintain in a manner to prevent conditions which may result in contamination of food
- **Personnel**—monitor and control all elements, e.g. communicable diseases
- **Sanitation and pest control**—monitor and control all elements and maintain appropriate records.

The guidelines in the following tables are based on the *HACCP Guidelines for On-Farm Storage and Farm to Mill Delivery* prepared for the Quality Wheat CRC by David Rees, CSIRO Australia, Division of Entomology. They will be updated in line with national guidelines.

Now, from the sidebar, select the phase you wish to examine. A number of hazards are listed within each phase. An analysis of each hazard, recommended action and suggested reading is detailed in a series of tables.

If you would like to print off a blank hazard control table, click here—[□](#). (Instructions on printing from the screen are in Introduction/How to use this web-CD.)