

A short glossary

Note: You may close the Glossary or keep it open while you work through other parts of this web-CD. You can reshape both browser windows and place them side by side.

½ life 30°C, 50% RH, weeks

half life, in weeks, at 30°C and 50% relative humidity—a measure of the persistence of the insecticide residue

acute toxicity

immediate (short term) toxic effect

ADI

acceptable daily intake, expressed as mg per kg of bodyweight. Defines the residue hazard for consumers. For a compound to be internationally accepted as a grain protectant, the International Codex Committee on Pesticide Residues reviews data packages on toxicity, effectiveness and residues resulting from use of the compound according to good agricultural practice. The Committee sets an ADI for the compound and maximum residue limits for treated commodities.

admixture

mixing pesticides in with the grain

aeration

the slow passage of air through a bulk of grain, primarily to reduce the grain temperature

aflatoxin

a potent mycotoxin which develops in damp commodities in post-harvest storage or pre-harvest in maize and peanuts

alternariol

a mycotoxin found in weather damaged grain and oilseeds

alternariol monomethyl ether

a mycotoxin found in weather damaged grain and oilseeds

ambient aeration

aeration using normal air

ambient humidity

humidity of the surrounding air

ambient temperature

temperature of the surrounding environment

AOF

Australian Oilseeds Federation

AQIS

Australian Quarantine and Inspection Service

ARGT

annual ryegrass toxicity, a potentially fatal disease in sheep grazing on infected annual ryegrass (*Lolium rigidum*)

auger

Auger conveyors, sometimes called screw conveyors, are the most common method of handling grain on farms.

auger pitch

the distance between corresponding points on consecutive turns of the auger flighting

Aw (water activity)

the ratio of the vapour pressure of water in a product to the vapour pressure of pure water at the same temperature. Aw and ERH are numerically equivalent, but Aw is expressed as a fraction and ERH as a percentage.

bin-burnt grains

heat damage caused by poor storage conditions

black point

darkening of the germ end of the grain due to fungal infection or chemical change

bunt of wheat

Common bunt and loose smut are fungal diseases of wheat seed in which part or all of the grain is replaced by black smelly spores. Karnal bunt (*Tilletia indica*) is not present in Australia and is an object of quarantine.

calibrated

adjusted to be accurate when using samples of a known amount

canola

a type of oilseed rape developed for human consumption

CBHWA

Central Bulk Handling Western Australia

choke length

2 pitch lengths on auger

chronic toxicity

long-term toxic effect

Codex

The Codex Alimentarius Commission is a United Nations Organisation which sets internationally agreed general food standards. Codex limits for additives, pesticides and other contaminants must not be exceeded in commodities in international trade.

<http://www.fao.org/waicent/faoinfo/economic/esn/codex/default.htm>

combined negative/positive pressure

suck/blow or pull/push

comingling

mixing together

corrective action procedure (see HACCP)

pre-determined and documented set of corrective actions which are implemented when a deviation occurs (eg discard the commodity affected)

critical control point (see HACCP)

a point, step or procedure at which control measures can be applied and a food safety hazard can be prevented

critical limit (see HACCP)

a criterion which separates acceptability from unacceptability

CSG

NACMA commodity standards (grains)

CSO

NACMA commodity standards (oilseeds)

CSP

NACMA commodity standards (pulses)

dark discoloration

staining due to fungi

deviation (see HACCP)

failure to meet required critical limits

DON

a mycotoxin occurring in pre-harvest grains attacked by some *Fusarium* spp fungi

dry bulb temperature

normal temperature, measured with a dry bulb thermometer (see *also* wet bulb temperature)

ECO2FUME

a 2% mixture of phosphine in carbon dioxide

ELISA

enzyme-linked immunosorbent assay: a method of detecting substances by binding to specific antibodies and producing a colour reaction

ergot

a type of fungal damaged grain

ERH

equilibrium relative humidity: the degree of saturation of the air with water

falling number

provides an indication of weather damage or alpha amylase activity in grain. Low falling numbers indicate high enzyme activity which is associated with high levels of weather damage.

FFA

free fatty acid (results from breakdown of oils and fats)

FMCA

Flour Millers Council of Australia

frost-affected grains

distorted grains which may appear blue/grey

fumigant

a toxic gas or volatile liquid used to disinfest commodities or structures

fumigation

the process of killing insects in grain or structures using a toxic gas or vapour

fumonisin

a mycotoxin of pre-harvest maize caused by the fungus *Fusarium moniliforme*

fungi

moulds

g

gram or grams

GLC

gas-liquid chromatography: a method of analysis of food constituents and contaminants

grain hygiene

the maintenance of zero or low levels of contaminants (residues, toxins) in grain

grain protectant


group of insecticides used to protect grain in storage. The grain protectants have post harvest MRLs. No other insecticides must be used as grain protectants.

HACCP

Hazard Analysis By Critical Control Points is a planned method of quality assurance specifically directed at the control of food borne hazards. The HACCP system was initiated in the USA, later developed by a Codex Alimentarius Working Group, and the principles embodied in the HACCP approach are being adopted in many countries. A HACCP approach can be adopted at an industry or enterprise level. There are several broad areas of concern that require analysis, the results of which provide the basis of a *HACCP Plan* for the operation; the areas of concern are listed in *HACCP implementation—Prerequisite programs* [\[4\]](#). There are eight steps in developing a HACCP Plan:

1. Construct process Flow Diagram
2. List hazards associated with each step
3. Apply HACCP decision tree to determine CCP
4. Establish critical limit
5. Establish monitoring procedures
6. Establish deviation procedures

7. Establish verification procedures
8. Establish record keeping/documentation.

(Click [here](#) for a more detailed explanation of these steps )

half life 30°C, 50% RH, weeks

half life, in weeks, at 30°C and 50% relative humidity—a measure of the persistence of the insecticide residue

hazard

the potential to cause harm: a biological, chemical or physical property that may cause food to be unsafe for human consumption or may lead to the deterioration of an edible commodity

HPLC

high performance liquid chromatography: a method of analysis of food constituents and contaminants

intergranular air

the air between grains

kg/hl

kilograms per hectolitre

larva(e)

mobile pre-adult insect stage

LD50

lethal dose 50: the dose in mg of toxin per kg of bodyweight which would kill 50% of a population of test animals. Defines the acute toxic hazard for handlers of the chemical.

life cycle (insect)

development egg–larva–pupa–adult, which takes about 25 days

m/s, m/sec

metres per second

m³/h

cubic metres per hour

manometer

instrument which measures pressure

mg/kg

milligrams (thousandths of a gram) per kilogram

mm

millimetres

moisture content

the amount of water in a given mass of grain expressed as a percentage of the whole grain

moisture migration in storage

moisture movement in grain caused by day–night variation in temperature or by insect infestation and may result in condensation occurring at the grain peak

monitoring

1. the act of conducting a planned sequence of observations or measurements of control parameters in a HACCP analysis
2. checking

MPC

maximum permitted concentration in food of a natural or synthetic contaminant

MRL

permitted maximum residue level set at a national or international level. Usually applies to residues of crop protectant chemicals. International (Codex) limits for pesticides and other contaminants must not be exceeded in commodities in international trade.

mycotoxins

toxins produced by fungi which typically cause liver damage or damage to the immune system and may cause cancer

NACMA

National Australian Commodities Marketing Association. The NACMA standards are given in commodity information under the appropriate commodity.

negative pressure

suction or vacuum

ng/kg-bw

nanograms per kilogram body weight (1ng = 10⁻⁹ grams)

nil-tolerance standard

an outturn standard stipulating no detectable live insects in a commodity

NIR

near infrared reflectance

NIT

near infrared transmittance

ochratoxin

a potent mycotoxin which is formed in damp grain in storage, especially in cool conditions

organic grain

grain which has been grown and stored without the use of synthetic crop protection chemicals

outturn standards

standards applied by marketers for grain outturned from storage to transport and processing

Pa

Pascal, a measure of pressure
1kPa is 1000 Pa
1mmHg = 133.3Pa

PA

pyrrolizidine alkaloid. A group of highly toxic chemicals found in the seeds of some common weeds (common heliotrope, Pattersons curse).

phomopsin

a commonly occurring mycotoxin of lupins

phosphine

currently the only toxic gas available for disinfesting grain on-farm

phostoxin

a formulation of aluminium phosphide which produces phosphine when exposed to air. Similar formulations are Gastion, Celphos, Quickphos, Detia etc.

pink discolouration

a discolouration of grain caused by some species of *Fusarium* and *Drechslera*

positive pressure

blowing or pushing

ppb

parts per billion. 1 ppb = 1 ng/g or 1 μ g/kg (microgram, that is, millionth of a gram, per kilogram)

ppm

parts per million. 1ppm = 1 μ g/g or 1 mg/kg

PRF

pesticide residue-free grain, a definition for grain which has been grown with normal pesticide use, but stored without the use of post-harvest pesticides

psychrometric chart

a chart which is used to determine the suitability of the air for cooling, given the grain and air temperatures and humidities

PTWI

provisional tolerable weekly intake: an internationally agreed limit for a level of contaminant in a diet. Similar to an ADI.

pulse

grain legume

pupa(e)

insect stage, not usually mobile, e.g coccooned stage

Quality Farms Australia

an organisation recently formed for the specific purpose of encouraging the development of practical QA systems for the farming sector

resistance

the development of insect strains which can survive doses of insecticide or fumigant which would kill non-resistant strains

respirator

protective face mask

retro-sealing

converting an unsealed silo into a sealed one after construction

risk

an estimate of the likely occurrence of a hazard (how often?)

SACBH

South Australian Co-operative Bulk Handling Ltd

safe moisture content

the moisture level in commodities which is equivalent to an ERH of 65-70% and at which fungi cannot grow on the commodity

screenings

total material passing through the screen

segregation

separate storage of different types or grades of grain

severity

an estimate of the seriousness (potential for damage) of a hazard

significance

the significance of a hazard is determined by combining risk and severity

SIROFLO

a method for fumigation in silos which cannot be fully sealed, in which a low concentration of phosphine gas is passed continually through the grain

specific capacity

t/kwh (tonnes per kilowatt hour)

sprouted grains

grains in which the germ covering has split open and the root has emerged

STEL

short term exposure limit: the maximum level of a toxic gas (fumigant) which can be tolerated for a short period defined as 15 minutes

T2-toxin

a mycotoxin occurring in grains and fodder due to the growth of some *Fusarium* species

tenuazonic acid

a mycotoxin found in weather damaged grain and oilseeds

thorax

insect body section between head and abdomen

tolerances

maximum allowable limits

TWA-TLV

the maximum level of a toxic gas (fumigant) which can be tolerated for continuous exposure in the workplace

um

micron (1 millionth of a metre)

verification

methods, procedures or tests used to determine whether the HACCP system is in compliance with the HACCP plan, and whether the HACCP plan needs modification

volumetric

determination of a quantity by volume

water activity (*A_w*)

the ratio of the vapour pressure of water in a product to the vapour pressure of pure water at the same temperature

wet bulb temperature

the temperature given by the wet bulb of a wet and dry bulb thermometer which, when compared with the dry bulb temperature, is used to calculate the air humidity

zearelenone

a mycotoxin occurring in grains due to the growth of some *Fusarium* species

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