

# **Section 4**

# **Wheat**

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## 4.1 Wheat Classification Procedure

The following procedure is to be used when classifying a load of wheat

1. Ensure you have the current season's Receival Standards Summary Chart.
2. Sample the load presented for delivery according to the Receival Sampling procedure, described elsewhere in this manual, to produce a representative **Grower Load Composite** (GLC) sample.
3. From the GLC sample draw a sub sample for **Protein and Moisture** testing. An 800-gram sample is needed for a whole grain Infratec instrument. Test the sample using the instrument provided according to the relevant operating instructions and record the results.
4. For all sites the following procedure is to be used for moisture determination.

### **In South Australia:**

If the moisture content, measured by the whole grain Infratec is less than or = 13.5% the classification can continue.

### **In New South Wales (NSW) / Victoria (VIC) excluding Private Stores:**

The initial maximum receival standard for moisture is 12.5% for all grades. DBS rules for moisture apply for all grades where loads up to 13.0% moisture may be received depending on the stack average.

5. Fill the ½ litre measure and test the sample for **Test Weight** and percentage of **Screenings** according to the ½ litre and Agtator procedure and record the results.
6. Closely inspect the screenings in the bottom catch pan for any **Defective Wheat Grains or Contaminants Subject to NIL Tolerance**. Pay particular attention for grain insects.
7. Inspect the grain in the top tray for excessive amounts of **Unmillable Material Above The Screen** (i.e. chaff, whiteheads (grain removed), weed seed pods, etc.). If you believe that an excessive amount is present then measure the unmillable above the screen as a % of the weight of the original ½ litre.
8. **Defective Grains** are assessed on grain remaining above the screen after the Unmillable material assessment. For grain defects with a NIL tolerance, the definition of "NIL" is a level of zero in the half litre sample representative of the entire load and / or not detected in the load or in / on the delivery vessel at any stage of the receival process. Loads containing defective grains for which there is a nil tolerance are to be rejected regardless of whether the defective grains are detected in the initial truckload, probe sample, half litre sample or any other sub-sample at any stage of the receival process.
9. Examine the sample under conditions of good lighting. Instruments of magnification (like the Maggy lamp) are permitted to assist the determination of the level of visually defective grains in a sample.
10. The ½ litre should be examined for defective grains for a period of 30 to 60 seconds.
11. If defective grains are found, or you suspect that **Sprouted** grain may be present due to the presence of swollen germs, then determine the percentage of defective grains in the sample by using the 300 grain Wheat Inspection Tray or otherwise specified.
12. There is no time restriction on the assessment of defective grains.
13. Use Photographic standards to determine grains that are defective. Loads are to be assessed for the following defective grains:
  - **Sprouted Grains (% by count)**
  - **Stained Grains (% by count)**Select grains with fungal staining on the germ and brush end or the crease according to the photographic standards for stained grain.

Turn each grain to clearly identify staining that may not be visible from only one side.

- **Pink Stained Grains (% by count)**
- **Dry Green, Sappy or Frost Distorted Grains (% by count)**
- **Heat damaged, Bin Burnt or Storage Mould Affected Grains (Entire Load)**
- **Field Fungi Affected Grains (count per ½ Litre)**
- **Black Field Fungi Affected Grains (count per ½ Litre)**
- **Rotted Grains (Entire Load)**
- **Ball Smut Affected (Entire Load)**
- **Insect Damaged (% by count)**
- **Grain Drying Influence**
- **Staining due to Moist Plant Material (% by count)**
- **Head Scab Affected (refer to Field Fungi)**
- **TakeAll Affected (% by count)**
- **White Grain disorder (refer to Field Fungi)**

14. Count the defective grains identified. For a 300 grain sample assessment divide by 3 to calculate the % defective grain.
15. Record the result on the transaction note. This is mandatory if a load is being downgraded.
16. Where **Sprouted** grain is found follow the **Sprouting Management Strategy**.
17. Partition Quality samples may require counts for specific defective grain, which must be recorded in the AusStock program Partition Quality.
18. Inspect the whole ½ litre sample for any **Weed Seed Contaminants**. Seed Contaminants are measured in the whole ½ litre.
19. Inspect the whole ½ litre sample (i.e. above and below the screen) for any **Contaminants**. The level of contamination is determined by counting the number of items present in the whole sample.

#### **Nil Tolerance**

**The definition of “NIL” is a level of zero in a ½ litre sample representative of the entire load and / or not detected in the load or in / on the delivery vessel at any stage of the receival process.**

Loads containing defective grains and / or contaminants for which there is a NIL tolerance in all grades are to be rejected. Loads are to be rejected regardless of whether the defective grains and / or contaminants are detected in the initial truckload, probe sample, half litre sample or any other sub sample or at any stage of the Receival process.

20. If levels of any defects or contaminants exceed the limits for the ASW1 bin grade then the appropriate test code must be recorded along with the result and a description of the problem. Test Codes for all the relevant contaminants and defects are listed on the Wheat Receival Standards or Test Codes and Commodities Receival Summary Standards charts.

Any wheat, which is classified as a payment grade below the ASW standard, is known as Under Quality Wheat. A sample of each load classified below the ASW1 standard should be kept on site in ABB sample bag and registered on the Under Quality Wheat Summary (1739) form.

21. Ask the driver for the **variety** of wheat in the load and the paddock name. Look up the variety code from the Wheat Variety Code chart and determine the highest grade allowable for that variety at your site. **If the highest grade for that variety is not available at your site, and the grain is of satisfactory quality, it is advisable to inform the grower of the nearest site that receives the higher grade. Likewise if there is a**

**special grade in place for under quality wheat at another site that will allow the grower to gain a higher return for the grain, the classifier should be aware of the special grade and make the grower aware.**

22. At Manual Load Entry (MLE) sites record the results of the quality tests along with the provisional pay and bin grades in the quality section of the Receival Transaction note according to the instructions in the Commodity Document Manual. Ensure that the quality test data entered is compatible with the classification; otherwise the transaction will be held in error, delaying payment to the grower until the information is corrected.

At Operational Management System (OMS) sites enter the variety code and test results into the computer according to the instructions in the OMS User Guide. The computer can derive a list of the acceptable pay and bin grades in order of rank. However it is important to remember that this is only an aid for the classifier and does not absolve the classifier from the responsibility of classifying the load.

All tests and results performed that alter the grade shall be included on the transaction. In order to perform this quickly and efficiently the codes listed below shall be used. These codes are also listed on the Wheat Receival Summary Standards Chart.

Draw the appropriate amount of sample from the GLC sample to add to the Partition Quality Sample or Bin Grade Composite samples and collect any other samples requested by Quality and Technical Services or Ceretech.

\*Refers to a mandatory test and these results shall be included on the transaction.

\*\* Subsequent mandatory tests required on the transaction for all Durum Receivals only.

TEST	CODE	TEST	COD
Commodity - Wheat	WH	Weed Seed Contaminants Type 1	S1
<b>Variety</b>	<b>VR*</b>	Weed Seed Contaminants Type 2	S2
<b>Moisture</b>	<b>MO*</b>	Weed Seed Contaminants Type 3a	3A
<b>Protein</b>	<b>PR*</b>	Weed Seed Contaminants Type 3b	3B
<b>Screenings (below)</b>	<b>SC*</b>	Weed Seed Contaminants Type 3c	3C
<b>Test Weight</b>	<b>TW*</b>	Weed Seed Contaminants Type 4	S4
<b>Bread Wheat (Durum ONLY)</b>	<b>BR**</b>	Weed Seed Contaminants Type 5	S5
Black Field Fungi	BF	Weed Seed Contaminants Type 6	S6
Dead Grain Insects	DI	Weed Seed contaminants Type 7	S7
Earth	EA	<b>Weed Seed Contaminants Type 8 (Durum ONLY)</b>	<b>S8**</b>
Earcockle	EC	Unmillable Material (above)	SA
Sand	ES	Snails - Conical	SNC
Falling Number	FN	Snails - Round	SNR
Field Fungi	FF	Sprouted Grains	SP
Field Insects	FI	Small Foreign Seeds	SS
Fungal Stained Grains	FS	TakeAll Affected Grain	TA
Dry, Green, Sappy or Frost Distorted	GS	Vitreous Kernels	VK
Heat damaged and Bin Burnt	HD	Wheat Ergot	WE
Insect Damaged Grains	ID		
Loose Smut	LS		
Other Non-Objectionable Material	OM		
Pink Fungal Stained Grains	PF		
Ryegrass Ergot	RE		

## 4.2 AWB Wheat Receival Standards

The following standards apply to all Australian Wheat Board wheat receivals and to wheat receivals for other clients wishing to adopt these standards. The standards are broken into the following parts:

- Wheat Receival Standards Definitions
- Nominated Variety List
- Weed Seed Tolerances
- Summary Charts which detail tolerances for each quality parameter.

### 4.2.1 Wheat Receival Standards Definitions

To following definitions apply to all AWB Ltd wheat receivals and to wheat receivals for other clients wishing to adopt these standards.

#### 4.2.1.1 Variety

Check the Wheat Varity Summary chart for maximum achievable grade for the variety declared.

#### 4.2.1.2 Test Weight

Test Weight is the measure of the density of wheat reported in kilograms per hectolitre kg/hl.

#### 4.2.1.3 Moisture

The amount of water measured in a sample of wheat, representing a load of wheat tendered for delivery. Measured as a % by weight.

##### South Australia

Dynamic Bin Strategy (DBS) for moisture does **NOT** apply in South Australia.

##### New South Wales / Victoria

The following Dynamic Binning Strategy rules apply.

Initial Receival Standard	When stack average is:	Then loads accepted:
Maximum 12.5%	Above 12.0%	Maximum 12.5%
	12.0% & below	Maximum 13.0%

The initial receival standard (maximum 12.5%) applies to first 500 tonnes received of all grades.

Monitoring is based on a 500 tonne basis.

#### 4.2.1.4 Protein

Protein content of wheat measured as a % by weight. Recorded as a % based on 11% moisture content.

#### 4.2.1.5 Unmillable Material

Unmillable material is determined using an Agtator, with the results reported as % by weight basis. The various components of Unmillable material are determined by placing the weighed ½ litre sample over the 2.00mm slotted screen and shaken 40 times on the agtator.

#### 4.2.1.4.1 Unmillable Material Below the Screen - Screenings (below)

Screenings is the total (including small foreign seeds) material passing through a 2.0mm screen into the catch pan. Determined on a weight-by-weight basis with the result expressed as a percentage.

#### 4.2.1.4.2 Unmillable Material Above the Screen

Measures the light material that usually rises to the top of the sample in the screening process. Includes whiteheads (with grains removed), chaff, backbone, wild radish, milk thistle, or other seedpods. It excludes other contaminants for which tolerances have been stated in these standards.

Measured as a percentage of the weight of the original ½ litre sample with the results expressed as a percentage.

#### 4.2.1.4.3 Small Foreign Seeds

Small Foreign Seeds are all seeds other than wheat and which do not have a tolerance in type 1-8 weed seeds that fall through the 2.0mm screen and collect in the catch pan during the screening process.

These include but are not limited to the following:

Hedge Mustard (*Sisymbrium officinale*), Ryegrass (*Lolium spp*), Lesser Canary Grass (*Phalaris minor*), Maltese Cockspur (*Centaurea melitensis*), Canola / Rapeseed (*Brassica rapa*), Wild Radish Seed (*Raphanus raphanistrum*) and Wild Red / Brown Turnip Seed (*Brassica tournefortii*).

A full list of small foreign seeds is listed in the Tolerances for Seed Contaminants later in this section.

Small foreign seeds are assessed on a weight-to-weight basis.

#### 4.2.1.5 Defective Grains

Defective grains are wheat grains that have been damaged to some degree. All defective grain tolerances are assessed on the grain remaining above the screen after the unmillable material assessment has been completed, except for those defects, which have a NIL tolerance.

The definition of NIL is a level of zero level in the ½ litre sample representative of the entire load and / or not detected in the load or in / on the delivery vessel at any stage of the receipt process. Loads containing defective grains for which there is a nil tolerance are to be rejected regardless of whether the defective grains are detected in the initial truckload, probe sample, ½ litre sample or any other sub-sample at any stage of the receipt process.

##### 4.2.1.5.1 Sprouted Grains

Sprouted grains are those in which the covering of the germ is split. It includes early and any further advanced stage of growth of the germ. Kernels exhibiting early stages of sprouting are those where the covering of the germ is split but without further development of the shoot.

Grains, which have had the germ, knocked off or scalloped out due to header damage or grains with pinholes, are not included in this definition of sprouted grains.

The ABB method of assessment for sprouted grain is outlined in the procedure - Sprouting Management Strategy. The method allows for the assessment of sprouted grain based on an initial tolerance for a percentage of sprouted grain provided that the falling number of the partition can be monitored on a daily basis to ensure that the grade minimum is achieved.

**Individual loads will not be assessed by Falling Number equipment.**

It is therefore essential that you contact your supervisor or the Business Centre as soon as you suspect that sprouted grain is likely to be delivered, so that the Sprouting Management Strategy procedure can be implemented.

Be aware that during weather conditions that may result in significant sprouting of grain, growers may choose to implement grain drying operations. The grain defect - grain drying influence is a result of overheating of grain during artificial drying and a sample exhibits significant sprouting, however the Falling Number is above the grade minimum. Grain damage in the drying process shall be classified as FEED.

#### 4.2.1.5.1.1 Sites Without Falling Number Equipment

Active Stack Management using the Sprouting Management Strategy procedure on visually assessed sprouted grain can only be implemented with the authority of Quality and Technical Services department. Download the latest version of the procedure from the ABB intranet.

Where Falling Number equipment is not available determine the percentage of sprouted grains in the ½ litre sample using the visual method described in the Wheat Classification Procedures.

#### 4.2.1.5.1.2 Sites With Falling Number Equipment

Where a Falling Number unit is used the Falling number overrides the visual sprouting assessment.

#### 4.2.1.5.1.3 Grain Affected by Grain Drying

Refers to a grain defect caused by the overheating of grain during artificial drying. It can be detected where grain exhibits significant sprouting (greater than 10%) or other evidence of weather damage but no corresponding decrease in Falling Number. Grain damaged in the drying process shall be classified as FEED.

For all grain deliveries, grain temperature must not exceed 50°C.

#### 4.2.1.5.2 Stained Grains

Refers to a grain defect caused by either exposure to wet and damp conditions during the growth and maturation phases or a stress related biochemical reaction, which causes individual grains to become visually discoloured.

The definition of stained grains includes kernels that display the following:

1. A distinct dark brown to black discolouration on the germ end that, in severe cases, may progress to other parts of the grain such as the crease. These grains are commonly referred to as black point or black tip.
2. A light grey to black mould like discolouration that usually extends from the brush end of the grain, but does not cover more than 50 % of the entire grain surface. Kernels with greater than 50% of a mould-like discolouration are to be classified under Field Fungi Affected Grains.

Grains that exhibit small dots covering less than approximately 5% of the surface area of the kernel (i.e. small proportion) are not to be classified as Stained Grains and are otherwise whole sound grains.

The above-mentioned “Mould-like discolouration” refers to a relatively slow-growing mould that is harmless (i.e. does not produce mycotoxins) but does affect the appearance of the grain. It does not refer to the more serious storage moulds.

#### 4.2.1.5.3 Pink Stained

Pink Stained grains are those arising from infection by certain *Fusarium spp*, *Eppicoccum spp* or *Drechslera spp*. Included in the tolerance for Stained grain.

These grains have a pink discolouration usually concentrated along the crease and the brush end of the grain. Because of the risk of confusion with pickling compounds, any loads with pink / red-discoloured seeds should be temporarily declined until the reason for the discolouration can be determined.

#### 4.2.1.5.4 Dry, Green, Sappy or Frost Distorted Grains

Dry, green, sappy or frost distorted grains are those arising from the harvesting of grain before it has matured, affected by frost during the maturation phase, affected by or during drying operations, or by any distortion occurring during plant growth due to the use of herbicides.

The definition does not include grain pinched as a result of dry conditions or disease during maturation.

#### 4.2.1.5.5 Heat Damaged, Bin Burnt or Storage Mould Affected Grains

Heat Damaged or Bin Burnt grains refer to kernels that have become discoloured due to exposure to severe heat during storage or an incorrect artificial drying technique. Affected grains appear reddish-brown or in severe cases blackened.

Storage Mould affected grains refer to kernels that have been affected by the development of fungi or bacteria due to an increase in grain moisture levels during storage. Affected grains appear discoloured and visibly affected by mould. Grains that are soft and emit an odour are to be classified as Rotted.

Heat Damaged, Bin Burnt and Storage Mould affected grains have been categorised together as the differences between them can be difficult to distinguish.

#### 4.2.1.5.6 Field Fungi Affected Grains

Refers to individual kernels where the entire seed coat is greater than 50% discoloured with a mouldy substance caused by the development of fungi during periods of high moisture. The visible discolouration of affected grains can vary from white, grey to black in colour.

Grains that are less than 50% discoloured with a Mould-like substance are to be classified as Stained.

Grains that are soft and / or emit a mouldy odour are to be classified as Rotted.

Field fungi affected includes grains affected by Head Scab and by White Grain Disorder:

Head Scab - Grain defect caused by the fungus *Gibberella zeae*.

Wheat affected by head scab is very white, crumbles easily and the bran layer both outside and inside the grain appears stained. Diseased heads have a white powdery appearance. There may also be small dark spots and fungal growth with an orange to pink tinge. Affected grains may be lightly to severely shrivelled and the surface tends to be rough and scabby.

White Grain Disorder - Grains affected by "White Grain Disorder" are those, which have been affected by the fungus *Botryosphaeria* spp. Grains appear white and are visually very similar to frost affected grains.

#### 4.2.1.5.7 Black Field Fungi Affected Grains

Refers to individual kernels where the entire seed coat is greater than 50% discoloured with black mouldy substance caused by the development of fungi during periods of high moisture. This defect is included in the tolerance for Field Fungi Affected grains.

#### 4.2.1.5.8 Rotted Grains

Rotted Grains are those that have become severely affected by the development of fungi or bacteria due to high moisture conditions. Individual grains appear distinctly discoloured by mould and are swollen and soft. Affected grains will feel spongy under pressure and / or emit a mouldy odour.

#### 4.2.1.5.9 Ball Smut (Stinking Smut) Infected Grains

Grains infected with Ball Smut (common name Stinking Smut or Bunt) are those infected by the spores of the fungus, *Tilletia caries*.

They have the appearance of pale, plump, slightly oversized wheat grains. These grains are easily crushed between the fingers and contain a mass of black powder (spores) with a distinctive rotten egg smell.

#### 4.2.1.5.10 Insect Damaged Grains

Grains eaten in part by stored grain insects, and any field pest of wheat including *Heliothis* spp.

#### 4.2.1.5.11 Staining due to Moist Plant Material

A grain defect caused by the adherence to the grain of any material as a consequence of the grain becoming sticky. Frequently moist plant material such as milk thistle exudate adheres to the grain, thereby causing adherence of contaminants such as soil, dust, plant parts and other material.

#### 4.2.1.5.12 Take All Affected Grains

Grain defect caused by infection by the fungus *Gaeumannomyces graminis*, often resulting in distortion of the grain. This definition only applies to those which appear yellowish or white in colour and which have a hollowed-out appearance. The definition does not apply to those grains affected by frost or pinched as a result of dry conditions or other diseases during maturation.

### 4.2.2 Contaminants

Contaminants refer to material other than wheat in its natural state, in a delivery of wheat.

For contaminants with a NIL tolerance, the definition of NIL is a level of zero in a ½ litre sample representative of the entire load and / or not detected in the load or in / on the delivery vessel at any stage of the receival process. Loads containing contaminants for which there is a NIL tolerance are to be rejected regardless of whether the contaminants are detected in the initial truckload, probe sample, ½ litre sample or any other sub sample at any stage of the Receival process.

Where there is a tolerance set for a contaminant unless otherwise specified, deliveries are to be assessed for the presence of the contaminant in the entire 'as received' ½ litre sub-sample, whether above and / or below the screen.

Samples are to be examined under conditions of good lighting and there is no time restriction for this assessment.

#### 4.2.2.1 Pickling Compounds

Pickling compounds are those chemicals added to grain as a seed treatment or as a seed dressing prior to sowing, and are usually associated with a colouring agent. Grains contaminated in this way may be identified by the unnatural surface colour and / or colour that rubs off.

The chemicals include fenaminosulf, triadimenol, carboxin, flutriafol, bitertanol and any other fungicide added to grain as a seed dressing.

These compounds are deliberately coloured (usually red but sometimes blue) so that they can be easily identified. They are highly poisonous chemicals and any evidence of contamination in a grain bulk may result in that grain being rejected for human or animal consumption.

Some crop marker dyes can leave a red stain on grains when harvested. While these are non-toxic, all loads with evidence of red staining must be issued a temporarily decline notice.

#### 4.2.2.2 Chemicals Not Approved For Stored Grain

Chemicals not approved for stored grain, include

1. Chemicals used on the growing crop in the State where the wheat was grown in contravention to the label
2. Chemicals used on stored wheat in contravention to the label
3. Chemicals not registered for use on stored wheat
4. Grain containing any artificial colour, pickling compounds or marker dyes commonly used during crop spraying operations which have stained the grain
5. Grain treated with or contaminated by Carbaryl, Organochlorine compounds or Diatomaceous earth.

If a Grower indicates that the load has been treated with a chemical either shortly before harvesting or prior to delivery then the classifier should contact the Quality and Technical Services department to determine whether the chemical and the treatment rate are acceptable for receipt at your site.

Where the receipt agent believes that the visual appearance and / or odour of the grain suggests that it has been treated with a non approved chemical, the grain is not to be received until a representative sample has been tested by an approved independent laboratory and the presence and absence of non approved chemicals determined.

### 4.2.2.3 Foreign Seed Contaminants

Seed contaminants are defined as seeds of any plant that are not *Triticum aestivum* (in *Triticum aestivum* deliveries); not *Triticum tauschii* (in *Triticum tauschii* deliveries) or not *Triticum durum* (in *Triticum durum* deliveries). Seed contaminants are comprised of two groups, small foreign seeds and all other types under Types 1-8. Note bread wheat contamination of durum does not fall into this definition of seed contaminants.

Tolerances for Seed Contaminants apply to whole seeds or their equivalent in pieces in the half litre sample (above or below the screen) of the following species. Any seed pods detected must be opened and the seed counted for inclusion in the tolerances specified.

All seed contaminants have been defined and grouped into Types. The results are expressed on the total number of all seeds obtained in each Seed Contaminants Type (except for Type 1 in which the tolerance applies on an individual seed basis) or as a % Small Foreign Seeds whichever is applicable.

For a complete listing of the tolerances for all weed seeds and their scientific names refer to Tolerances for Seed Contaminants later in the chapter.

<b>Tolerance (maximum individual seeds per half litre)</b>
<b>TYPE 1</b>
Colocynth, Double Gees / Spiny Emex / Three Corner Jacks, Jute, Long Head Poppy, Mexican Poppy, Opium Poppy, Field Poppy, Horned Poppy, Wild Poppy, Parthenium weed, New Zealand Spinach

**Tolerances (Maximum Per Half Litre) below Refer To The Total Of All Seeds Named In Each Type**

<b>TYPE 2 - Nil Tolerance</b>
Branched Broomrape, Castor Oil Plant, Coriander, Crow Garlic / Wild Garlic, Darling Pea, Ragweed, Rattlepods, Starburr, St. John's Wort
<b>TYPE 3A</b>
Bathurst Burr, Bulls head / Caltrop / Cats head, Cape Tulip, Cottonseed, Dodder, Noogoora Burr, Thornapple
<b>TYPE 3B</b>
Vetch (Tare) Vetch (Commercial)
<b>TYPE 3C</b>
Heliotrope (Blue), Heliotrope (Common)
<b>TYPE 4</b>
Field Bindweed, Cutleaf Mignonette, Darnel (Drake Seed), Hexham Scent / Meliot (King Island)*, Hoary Cress, Mintweed, Nightshades, Paddy Melon, Skeleton Weed, Variegated Thistle
<b>* Hexham Scent (<i>Melilotus indicus</i>) may only be received if there is no discernible tainting odour imparted on the wheat</b>
<b>Type 5</b>
Knapweed (Creeping / Russian), Sesbania Pea, Paterson's Curse / Salvation Jane
<b>Type 6</b>
Colombus Grass, Johnson Grass, Saffron Thistle
<b>Type 7</b>
Chickpeas, Corn / Maize, Cowpea, Faba Beans, Lentils, Lupins, Field Peas, Safflower, Soybean, Sunflower
<b>Type 8</b>
Barley (2 row), Barley (6 row), Bindweed (Australian & Black), Durum*, Red / Spring Feed Wheats #, Oats (Black or Wild), Oats (Sand), Oats (Common), Rice, Cereal Rye, Sorghum (grain), Triticale, Turnip Weed, <i>Bifora Testiculata</i> (Monkey Face Or Carrot Weed), Other Weed Seeds Not Specified In Types 1-7 or else where in small foreign seeds or unmillable material above the screen
<b>*No Limit For Durum Wheat In FEED</b>
<b># Red / Spring Wheat contamination in Australian FEED is unlimited</b>

#### 4.2.2.4 Ergots

Ergot is a purplish-black fungal body, which contaminates cereal and ryegrass kernels when they are infected by the fungus *Claviceps purpurea*. Includes:

- Ryegrass Ergot *Claviceps purpurea* infection of ryegrass kernels. A grain contaminant determined by aligning all pieces end on end that are detected in the half litre sample and determining the total length in centimetres.
- Wheat Ergot *Claviceps purpurea* infection of wheat kernels. A grain contaminant that is determined by a count of the number of affected pieces in a half litre sample.

#### 4.2.2.5 Tainting Agents

Arises from contaminants imparting a smell or taint to wheat, including but not limited to plant parts and seeds of *Eucalytus* spp.

Tainting agents are NIL tolerance grain contaminants for which the grain is to be examined and physically smelt for the presence of any of these tainting agents. Loads affected by a Tainting agent that is detected at any stage of the receival process are to be rejected.

Tainting agents may be detected by various means such as odour, feel or touch of the grain or tainting agents may impart a sheen to the grain.

#### 4.2.2.6 Objectionable Material (Entire Load)

Is objectionable foreign matter that may or may not be otherwise stated in these Standards, which has the ability to degrade the hygiene of wheat or become a food safety issue of concern or has a commercially unacceptable odour. This includes but is not limited to the following

- a. Sticks: A stick is defined as ligneous material greater than 1 cm in length and 0.5cm in diameter. Note that Canola stubble greater than 3cm in length and 1cm in diameter is defined as a stick.
- b. Stones: A stone or gravel is defined as being greater than 2 mm in length and or diameter.
- c. Odour: A commercially unacceptable odour is defined as a sour or musty odour imparted on the wheat that is not considered natural, which may or may not be physically detectable through the presence of foreign material.
- d. Tainting Agents: Any contaminant that imparts a smell or taint to wheat, includes but not limited to, plant parts and seeds of *Eucalyptus* spp. Tainting agents may be detected by various means such as odour, touch or imparting a sheen to the grain.
- e. Restricted Animal Material: Presence of meat meal, blood meal, poultry offal meal or any other animal proteins. Restricted material also includes carcasses of dead animals such as rats and mice.
- f. Other: Foreign material such as animal excreta, glass, concrete or metal.
- g. Water: The addition of water to grain prior to delivery is a prohibited practice

All staff should ensure that objectionable material is not present on the surface of loads tendered for delivery or in any subsequent samples taken during the receival process.

Great care must be taken by the classifier and the grid attendant to ensure that wheat containing sticks and stones and / or excess dirt is not accepted into the silo system.

### 4.2.2.7 Other Non-Objectionable Material

Refers to other material not otherwise specified as having a tolerance in these standards that has the ability to degrade the quality of wheat and is at a commercially unacceptable level. It includes, but is not limited to the following:

1. Fine material such as dust and minerals.
2. Snail shells and stored grain insects. Include pieces of snail shell (less than half the entire shell) and pieces of stored grain insects, but not including field insects.
3. Other. Includes pieces of sticks less than 1cm in length and 0.5cm in diameter, and other non-vegetative material.

### 4.2.2.8 Sand

A grain of Sand is defined as being between 1/16th to 2mm in diameter. Smaller material is to be classified under Other Non-Objectionable Material.

### 4.2.2.9 Earth

Earth is defined as a clod of dirt, being less than 5mm in diameter. Following the screening process, earth material must be removed from above the screen for pieces of earth up to 5mm in diameter or from the catch pan for any earth material which may have fallen through the screen.

Pieces which are too small to count are to be assessed under Other Non-Objectionable Material.

### 4.2.2.10 Stored Grain Insects

Insect contaminants of grain that cause damage to stored grain. Standards exist for the following live and dead stored grain insects.

For a guide to Insect identification consult the "Insects of Stored Grain" pocket book or wall chart available in all sampling offices. If you are unsure of the identification of any insect detected in the sample then the load should be declined until it can be identified. Contact your Business Centre or Quality and Technical Services department for assistance.

COMMON NAME	SCIENTIFIC NAME
Angoumois Grain Moth	<i>Sitotroga cerealella</i>
Confused Flour Beetle	<i>Tribolium confusum</i>
Flat Grain Beetle	<i>Cryptolestes spp</i>
Granary Weevil	<i>Sitophilus granarius</i>
Indian Meal Moth	<i>Plodia interpunctella</i>
Khapra beetle	<i>Trogoderma granarium</i>
Lesser Grain Borer	<i>Rhyzopertha dominica</i>
Maize Weevil	<i>Sitophilus zeamais</i>
Psocids / Book Lice	<i>Psocoptera spp</i>
Rice Weevil	<i>Sitophilus oryzae</i>
Rust-Red Flour Beetle	<i>Tribolium castaneum</i>
Saw Toothed Grain Beetle	<i>Oryzaephilus surinamensis</i>
Tropical Warehouse Moth	<i>Ephestia cautella</i>
Warehouse Beetle	<i>Trogoderma variable</i>

### 4.2.2.11 Pea-Weevil

**NOTE: THERE IS A NIL LIMIT FOR ALL LIVE PEA WEEVIL IN ALL GRADES.**

Live Pea Weevil refers to live adult insects of the species *Bruchus pisorum*. Dead Pea Weevil refers to dead adult insects of the species *Bruchus pisorum*.

When peas are detected in a load after sampling, it will be necessary to confirm that they are free of live pea weevil. This means that the peas will need to be broken open. If peas are not found in the probed sample but are obvious on the surface of the load, several peas are to be collected at random in a safe manner and checked for pea weevil infestation.

This is to be carried out using the Pea Crusher supplied. Up to 10 peas are placed into the cylinder and the piston rammed home to break open the peas. The peas are then inspected for pea weevil infestation. If no live pea weevils are found, the load can be classified.

Note: Should live infestations be evident, the load cannot be accepted. The grower must have the load fumigated before re-tendering, according to fumigation instructions on the label of the product to be used for fumigating the peas.

### 4.2.2.12 Earcockle

Contamination by darkened seed like nematode galls. These galls displace kernels in diseased heads and are caused by infection from the nematode *Anguina tritici*.

Earcockle affected grains are determined on grain remaining above the screen following the sieving process.

### 4.2.2.13 Field Insects

Insect contaminants of grain that do not cause damage to stored grain. Tolerances are for dead or live insects and refer to whole bodies or body portions for all field insects except grasshoppers. For grasshoppers, 6 legs, 3 body parts or 2 wings, or part thereof, constitutes one entire insect respectively. More than one of the same body part constitutes greater than one insect.

COMMON NAME	SCIENTIFIC NAME
Grasshopper	<i>Various</i>
Hairy Fungus Beetle	<i>Typhaea stercorea</i>
Ladybirds	<i>Various</i>
Minute Mould Beetles	<i>Corticaria species</i>
Sitona Weevil*	<i>Sitona species</i>
Desiantha Weevil	<i>Desiantha diversipes</i>
Woodbugs	<i>Various</i>
All other Field Insects	
* Individual tolerances apply	

#### 4.2.2.14 Snails

Snails refer to whole or substantially whole (more than half) snail shells irrespective of size. Standards exist for the following live and deal snail species

COMMON NAME	SCIENTIFIC NAME
Common White snail	<i>Ceruella virgata</i>
White Italian snail	<i>Theba pisana</i>
Pointed Snail	<i>Cochlicella acuta</i>
Small Pointed Snail	<i>Cochlicella barbara</i>
Any other snail species	

If pieces of snail shell are less than half the size of an entire shell then they are to be classified as Other Non-Objectionable Material.

Snails shall be determined from the whole ½ litre.

#### 4.2.2.15 Loose Smut

Loose Smut is the result of the fungus *Ustilago tritici* developing in wheat heads during the growing phase. Tolerances for this contaminant refer to the number of blackened pieces of the wheat ear per ½ litre.

#### 4.2.2.16 Bread Wheat contamination in DURUM

Bread Wheat contamination of Durum is a separate category of seed contamination and is only to be conducted on loads of DURUM tendered for delivery. The level of bread wheat in a Durum load is to be determined in a 300 grain sub-sample taken from grain remaining above the screen. Bread wheat can be visually distinguished from Durum by the fine hairs on the brush end which are only associated with bread wheat varieties.

Result expressed as a % by count basis.

### 4.3 Varietal Control Scheme

The quality of a load of wheat is largely determined by its variety and where it is grown. Some areas of the State are more suited to Soft wheat production while hard wheats produce better quality when grown in other areas. The varietal control scheme was instigated by the AWB to discourage growers from sowing varieties in areas where the AWB considered they were inappropriate. ABB achieves this varietal control scheme using segregations.

#### 4.3.1 Variety Codes

A list of the most common wheat varieties received in SA along with their variety code and Maximum achievable grade are supplied to each classification office.

If a variety being delivered is not present on the chart consult the expansive list below. If the variety is not included on this list then contact Quality and Technical Services Department.

#### 4.3.2 Varietal Codes, Highest Achievable Grades and Discounts for SA, Vic and NSW

1. Durum is downgraded directly to FEED if it does not meet Durum Standards
2. Prefix Code with "V" for Victorian varieties eg. A9 becomes VA9

3. Prefix Code with "SN" for New South Wales varieties (denotes **Southern New South Wales**)

### 4.3.2 Nominated Varieties

When each load of wheat is delivered the driver must nominate the variety of the wheat in the load. Where the driver indicates that the load is a mixture of varieties then the load is to be classified to the lowest variety. For example, if a load was to contain a mixture of Halberd (ASW1) and Machete (H1) then the entire load must be classified as ASW1.

The driver upon delivery nominates the variety of the load and although some varieties have distinguishing features, (i.e. Halberd has brown chaff rather than white) it is very difficult for the classifier to dispute the nomination. Therefore all deliveries should be accepted and classified as the variety nominated by the driver. If you suspect that the **correct variety has not been nominated** then you should question the driver if they are sure and then collect a sample to be submitted for varietal identification. Inform the driver that the AWB Ltd will check the variety and that penalties exist for false declarations.

Unfortunately the laboratory test to check varieties is long and complicated and it may not be possible for you to receive the results in time to act on future loads from that particular grower. However if you have a situation of particular concern then you should contact Quality and Technical Services Department for assistance. The AWB will take whatever action they consider to be appropriate directly with the grower concerned.

**NOTE: Please refer to the Summary Chart for a list of all acceptable wheat varieties and their designated grades.**

## 4.4 Tolerances For Foreign Seed Contaminants

The tolerances listed below are maximums and refer to the total of all seeds named in each group. These tolerances should be read in conjunction with the receival standards schedule.

\* = **Unmillable Material**      **S = Small Foreign Seeds**      **U = Unlimited**

Common Name	Botanical Name	TYPE
Amsinckia	<i>Amsinckia spp</i>	S
Australian Bindweed	<i>Convolvulus erubescens</i>	8
Australian Carrot	<i>Daucus glochidiatus</i>	8
Australian Phalaris	<i>Phalaris aquatica</i>	S
Ball Clover	<i>Trifolium glomeratum</i>	S
Ball Mustard	<i>Neslia paniculata</i>	S
Barley (6 Row)	<i>Hordeum vulgare</i>	8
Barley (2 Row)	<i>Hordeum distichon</i>	8
Barley Grass	<i>Hordeum leporinum</i>	8
Barnyard Grass	<i>Echinochloa crus-galli</i>	8
Bathurst Burr	<i>Xanthium spinosum</i>	3A
Beans (Faba)	<i>Vicia faba</i>	7
Bedstraw (Threehorn)	<i>Galium tricornutum</i>	8
Bifora (Monkey Face Or Carrot Weed)	<i>Bifora testiculata</i>	8
Billy Buttons	<i>Calocephalus platyphalus</i>	8
Bindy-Eye	<i>Calotis hispidula</i>	8
Bindweed (Australian)	<i>Convolvulus erubescens</i>	8
Bindweed (Black)	<i>Polygonum convolvulus</i>	8
Bindweed (Field)	<i>Convolvulus arvensis</i>	4

<b>Common Name</b>	<b>Botanical Name</b>	<b>TYPE</b>
Black Bindweed	<i>Polygonum convolvulus</i>	8
Black Oats	<i>Avena fatua</i>	8
Bladder Soapwort	<i>Vaccaria hispanica</i>	S
Brome (Great)	<i>Bromus diandrus</i>	8
Brome (Soft)	<i>Bromus mollis</i>	8
Brome (Sterile)	<i>Bromus sterilis</i>	8
Broomrape	<i>Orobanche ramosa</i>	2
Buchan Weed	<i>Hirschfeldia incana</i>	8
Bulls Head	<i>Tribulus terrestris</i>	3A
Burr Grass (Spiny)	<i>Cenchrus tribuloides</i>	8
Burrweed (Yellow)	<i>Amsinckia spp</i>	S
Caltrop	<i>Tribulus terrestris</i>	3A
Canary Grass (Lesser)	<i>Phalaris minor</i>	S
Canary Grass (Wild)	<i>Phalaris canariensis</i>	S
Canola	<i>Brassica rapa</i>	S
Cape Tulip	<i>Homeria spp</i>	3A
Carrot (Australian)	<i>Daucus glochidiatus</i>	8
Castor Oil Plant	<i>Ricinus communis</i>	2
Cats Head	<i>Tribulus terrestris</i>	3A
Celery (Slender)	<i>Apium leptophyllum</i>	S
Cereal Rye	<i>Secale cereale</i>	8
Charlock	<i>Sinapis arvensis</i>	S
Chickpeas	<i>Cicer arietinum</i>	7
Clover (Ball)	<i>Trifolium glomeratum</i>	S
Clover (Pods)	<i>Trifolium spp</i>	*
Clover Broomrape (common)	<i>Orobanche minor</i>	S
Cockspur (Maltese)	<i>Centaurea melitensis</i>	S
Colocynth	<i>Citrullus colocynthis</i>	1
Colombus Grass	<i>Sorghum alnum</i>	6
Coriander	<i>Coriandrum sativum</i>	2
Corn	<i>Zea mays</i>	7
Corn Gromwell	<i>Buglossoides arvensis</i>	8
Cottonseed	<i>Gossypium spp</i>	3A
Cowpea	<i>Vigna unguiculata</i>	7
Creeping Knapweed	<i>Acroptilon repens</i>	5
Crow Garlic	<i>Allium vineale</i>	2
Cutleaf Mignonette	<i>Reseda lutea</i>	4
Darling Pea	<i>Swainsona spp</i>	2
Darnel (Drake)	<i>Lolium temulentum</i>	4
Dock	<i>Rumex spp</i>	S
Dodder	<i>Cuscuta spp</i>	3A
Double Gees	<i>Emex australis</i>	1
Drake (Darnel)	<i>Lolium temulentum</i>	4

<b>Common Name</b>	<b>Botanical Name</b>	<b>TYPE</b>
Durum^	<i>Triticum durum</i>	8
Evening primrose	<i>Oenothera stricta</i>	
Faba Beans	<i>Vicia faba</i>	7
Fat Hen	<i>Chenopodium album</i>	S
Fescue	<i>Festuca spp</i>	S
Field Peas	<i>Pisum sativum</i>	7
Galvanised Burr	<i>Sclerolaena birchii</i>	8
Garlic (Crow) Garlic (Wild)	<i>Allium vineale</i>	2
Grain Sorghum	<i>Sorghum bicolor</i>	8
Great Brome	<i>Bromus diandrus</i>	8
Gromwell (Corn)	<i>Bugglosoides arvensis</i>	8
Hares Ear	<i>Conringia orientalis</i>	S
Hedge Mustard	<i>Sisymbrium officinale</i>	S
Heliotrope (Blue)	<i>Heliotropium amplexicaule</i>	3C
Heliotrope (Common)	<i>Heliotropium europaeum</i>	3C
Hexham Scent (Melilotus)*	<i>Melilotus indicus</i>	4
Hoary Cress	<i>Cardaria draba</i>	4
Horehound	<i>Marrubium vulgare</i>	S
Horned Poppy	<i>Glaucium flavum</i>	1
Indian Weed	<i>Sigesbeckia orientalis</i>	8
Johnson Grass	<i>Sorghum halepense</i>	6
Jute	<i>Corchorus olitorius</i>	1
Khaki Weed	<i>Alternanthera pungens</i>	8
Knapweed (Creeping & Russian)	<i>Acroptilon repens</i>	5
Knotweed	<i>Polygonum aviculare</i>	S
Lentils	<i>Lens culinaris</i>	7
Lesser Canary Grass	<i>Phalaris minor</i>	S
Lettuce	<i>Lactuca spp</i>	S
Linseed	<i>Linum usitatissimum</i>	8
Long Headed Poppy	<i>Papaver dubium</i>	1
Lucerne (Pods)	<i>Medicago sativa</i>	*
Lucerne (Seed)	<i>Medicago sativa</i>	S
Lupin	<i>Lupinus spp</i>	7
Maize	<i>Zea mays</i>	7
Mallow (Marsh)	<i>Malva spp</i>	8
Maltese Cockspur	<i>Centaurea melitensis</i>	S
Medics (Pods)	<i>Medicago spp</i>	*
Medics (Seeds)	<i>Medicago spp</i>	S
Melilot (King Island)*	<i>Melilotus indicus</i>	4
Mexican Poppy	<i>Argemone mexicana</i>	1
Mignonette (Cutleaf)	<i>Reseda lutea</i>	4
Milk Thistle (Pods)	<i>Sonchus oleraceus</i>	*
Milk Thistle (Seeds)	<i>Sonchus oleraceus</i>	S

<b>Common Name</b>	<b>Botanical Name</b>	<b>TYPE</b>
Millet (Japanese)	<i>Echinochloa utilis</i>	8
Mintweed	<i>Salvia reflexa</i>	4
Muskweed	<i>Myagrurn perfoliatum</i>	8
Mustard	<i>Sisymbrium spp</i>	S
Mustard (Ball)	<i>Sisymbrium spp</i>	
Mustard (Indian Hedge)	<i>Sisymbrium orientale</i>	S
New Zealand Spinach	<i>Tetragonia tetragonoides</i>	1
Nightshades	<i>Solanum spp</i>	4
Noogoora Burr	<i>Xanthium pungens</i>	3A
Oats (Black)	<i>Avena fatua</i>	8
Oats (Common)	<i>Avena sativa</i>	8
Oats (Sand)	<i>Avena strigosa</i>	8
Oats (Wild)	<i>Avena fatua</i>	8
Onion Weed	<i>Asphodelus fistulosus</i>	8
Opium Poppy	<i>Papaver somniferum</i>	1
Paddy Melon	<i>Cucumis myocarpus</i>	4
Paradoxa Grass (Glumed)	<i>Phalaris paradoxa</i>	8
Paradoxa Grass (Seed)	<i>Phalaris paradoxa</i>	S
Parthenium Weed	<i>Parthenium hysterophorus</i>	1
Paterson's Curse	<i>Echium plantagineum</i>	5
Peas (Field)	<i>Pisum sativum</i>	7
Peppergrass	<i>Lepidium spp</i>	S
Phalaris (Australian)	<i>Phalaris aquatica</i>	S
Poached Egg Daisy	<i>Calocephalus platycephalus</i>	8
Poppy (Field)	<i>Papaver rhoeas</i>	1
Poppy (Horned)	<i>Glaucium flavum</i>	1
Poppy (Mexican)	<i>Argemone mexicana</i>	1
Poverty Weed (Yellow)	<i>Calocephalus sonderi</i>	8
Radish (Wild) Seed	<i>Raphanus raphanistrum</i>	S
Radish (Wild) Pod	<i>Raphanus raphanistrum</i>	*
Ragweed	<i>Ambrosia spp</i>	2
Rapeseed	<i>Brassica rapa</i>	S
Rattlepods	<i>Crotalaria spp</i>	2
Red / Spring Feed Wheats #	<i>Various</i>	8
Rice	<i>Oryza sativa</i>	8
Russian Knapweed	<i>Acroptilon repens</i>	5
Rye (Cereal)	<i>Secale cereale</i>	8
Ryegrass	<i>Lolium spp</i>	S
Safflower	<i>Carthamus tinctorius</i>	7
Saffron Thistle	<i>Carthamus lanatus</i>	6
Sage (Wild)	<i>Salvia verbenaca</i>	S
Saltbush	<i>Atriplex spp</i>	S
Salvation Jane	<i>Echium plantagineum</i>	5

<b>Common Name</b>	<b>Botanical Name</b>	<b>TYPE</b>
Sand Oats	<i>Avena strigosa</i>	8
Sesbania Pea	<i>Sesbania cannabina</i>	5
Sheepweed	<i>Buglossoides arvensis</i>	8
Skeleton Weed	<i>Chondrilla juncea</i>	4
Slender Celery	<i>Apium leptophyllum</i>	S
Small Burrgrass	<i>Tragus australianus</i>	8
Sorghum (Grain)	<i>Sorghum bicolor</i>	8
Sorrel	<i>Rumex acetosella</i>	S
Sowthistle	<i>Sonchus spp</i>	S
Soybean	<i>Glycine max</i>	7
Spear Grass	<i>Bromus diandrus</i>	8
Spear Thistle	<i>Cirsium vulgare</i>	8
Spiny Burr Grass	<i>Cenchrus tribuloides</i>	8
Spiny Emex	<i>Emex australis</i>	1
Starburr	<i>Acanthospermum hispidum</i>	2
St. Johns Wort	<i>Hypericum perforatum</i>	2
Sunflower	<i>Helianthus annuus</i>	7
Thistle Milk (Pods)	<i>Sonchus oleraceus</i>	*
Thistle Milk (Seeds)	<i>Sonchus oleraceus</i>	S
Thistle (Saffron)	<i>Carthamus lanatus</i>	6
Thistle (Spear)	<i>Cirsium vulgare</i>	8
Thistle (Variegated)	<i>Silybum marianum</i>	4
Tick Grass	<i>Tragus australianus</i>	8
Thornapple	<i>Datura spp</i>	3A
Three Cornered Jack	<i>Emex australis</i>	1
Threehorned Bedstraw	<i>Galium tricornutum</i>	8
Triticale	<i>Triticosecale spp</i>	8
Turnip (Mediterranean)	<i>Brassica tournefortii</i>	S
Turnip (Wild)	<i>Brassica rapa</i>	S
Turnip Weed (Ball)	<i>Rapistrum rugosum</i>	8
Urochloa Grass	<i>Urochloa panicoides</i>	S
Variegated Thistle	<i>Silybum marianum</i>	4
Verbena	<i>Verbena spp</i>	S
Vetch (Commercial)	<i>Vicia spp</i>	3B
Vetch (Wild Tare)	<i>Vicia sativa</i>	3B
Wards Weed	<i>Carrichtera annua</i>	8
Wheatgrass	<i>Agropyron spp</i>	8
Wild Canary Grass	<i>Phalaris canariensis</i>	S
Wild Garlic	<i>Allium vineale</i>	2
Wild Oats	<i>Avena fatua</i>	8
Wild Poppy	<i>Papaver hybridum</i>	1
Wild Radish (Seed)	<i>Raphanus raphanistrum</i>	S
Wild Radish (Pod)	<i>Raphanus raphanistrum</i>	*

<b>Common Name</b>	<b>Botanical Name</b>	<b>TYPE</b>
Wild Sage	<i>Salvia verbenace</i>	S
Wild Turnip	<i>Brassica rapa</i>	S
Wireweed	<i>Polygonum aviculare</i>	S
Yellow Burrweed	<i>Amsinckia spp</i>	S
Yellow Poverty Weed	<i>Calocephalus sonderi</i>	8

\*Hexham Scent (*Melilotus indicus*) may only be received if there is no discernable tainting odour imparted on the wheat

^Durum (*Triticum durum*) contamination of bread wheat (*Triticum aestivum*)

# Red / Spring Wheat contamination in Australian feed is unlimited

## 4.5 Wheat Receiving Chart

You may add the current Wheat Receiving Standards Reference Charts to this section. Refer to the Intranet for the latest revision of the Reference Chart.