



Visual Recognition Standards Guide

FOR GRAIN COMMODITY SAMPLING & ASSESSMENT

Issued 1st August 2020



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Grain Trade Australia (GTA)

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TABLE OF CONTENTS

Introduction

Document Calibration

Printer Calibration

BARLEY

Varietal Identification

Common Defects

Sprouted

Dark Tipped (Germ End Stained-WA)

Shot

Field Fungi (Spotted/Field Fungi Affected-WA)

Skinnings (Skinned-WA)

Cleaved (front, back and side)

Dry Green or Sappy

Distorted

Broken

Heavily Discoloured-WA

Severely Damaged inc. Fusarium (except WA)

Pink Fungal Staining

Coloured Aleurone Layer (Blue or Black)

Insect Damaged

Pickling Compounds or Artificial Colour (Pickled Barley-WA)

CANOLA

Common Defects

Broken or Split

Sprouted

Heat Damaged, Bin Burnt or Badly Damaged

Weather Damaged

Mould

Frost Damaged

Green Seeds

CHICKPEAS, DESI

2 Common Defects 15

3 Bin Burnt and Heat Damaged 15

Frost Damaged, Shrivelled and Wrinkled 15

Broken, Chipped, Loose Seed Coat and Split 16

Insect Damaged 17

5 Hail Damaged 17

6 Sprouted 17

6 Mouldy and Caked 18

6 Green 18

6 Poor Colour 19

6 Stained and Weather Damaged 20

7 Fungal Affected (e.g. Ascochyta) 20

7

8

CHICKPEAS, KABULI

8 Common Defects 22

9 Poor Colour - Seed Coat 22

9 Insect Damaged 22

9 Broken, Chipped, Loose Seed Coat and Split 23

10 Mouldy and Caked 24

10 Sprouted 24

10 Frost Damaged, Shrivelled and Wrinkled 24

FABA BEANS

12 Common Defects 26

12 Bin Burnt and Heat Damaged 26

12 Fungal Affected (e.g. Ascochyta) 26

12 Mouldy and Caked 27

12 Sprouted 27

13 Insect Damaged 27

13 Broken, Chipped, Loose Seed Coat and Split 28

13



FABA BEANS (continued...)

Frost Damaged, Shrivelled and Wrinkled
Frost Damaged, Stained
Poor Colour
Green
Pea Seed Borne Mosaic Virus

LENTILS, RED

Common Defects

Frost Damaged, Shrivelled and Wrinkled
Broken, Chipped, Loose Seed Coat and Split
Insect Damaged
Mouldy and Caked
Bin Burnt and Heat Damaged
Sprouted
Poor Colour Seed Coat
Poor Colour Kernel - Dehulled Lentil
Blonde Kernel

Contrasting Colours

Fungal Affected
Stained and Weather Damaged

LUPINS, ANGUSTIFOLIUS

Common Defects

Broken, Chipped, Loose Seed Coat and Split
Manganese Deficiency
Frost Damaged, Shrivelled and Wrinkled
Insect Damaged
Poor Colour (Discoloured-WA)
Phomopsis
Bitter Dark (Bitter Variety-WA)
Mouldy and Caked
Sprouted
Pickling Compounds

MAIZE, FEED

29 Common Defects

29 Heat Damaged / Bin Burnt
30 Broken
30 Insect Damaged
31 Sprouted
Storage Mould
Fungal Affected

33 Dead

33 Pickling Compounds or Artificial Colouring
34 Field Fungi
35 Kernel Red Streak

OATS

35 Common Defects

36 Damaged Grains
36 Field Fungi (Spotted Mould Affected-WA)
36 Severely Damaged
37 Stained Grains (Heavily Discoloured-WA) inc. Septoria
38 Stained Groats
38 Insect Damaged
Dry Green or Sappy
Sprouted
Shot

40

PEAS, FIELD

41 Common Defects

41 Bin Burnt / Heat Damaged
42 Insect Damaged
42 Mouldy and Caked
42 Broken, Chipped, Loose Seed Coat and Split
43 Frost Damaged, Shrivelled and Wrinkled
43 Sprouted
43 Poor Colour

45

45
45
45
45
46
46
46
47
47

49

49
49
49
50
50
51
51
51

53

53
53
53
54
55
55
56



SORGHUM

Common Defects	58
Severely Damaged	58
Insect Damaged	58
Sprouted	58
Mould	59
Field Fungi	59
Honeydew	60
Sorghum Ergot	60

WHEAT

Durum	62
Durum Identification	62
Vitreous Kernels	62
Common Defects	63
Pink Stained	63
Stained	63
Insect Damaged	63
Distorted	64
Sprouted	64
Dry Green or Sappy	64
Field Fungi	65
Severely Damaged	65
White Grain Disorder / Head Scab	66
Ball Smuts	67
Pickling Compounds / Artificial Colouring (Pickled Wheat-WA)	67



INTRODUCTION

Defective Grains

This guide is produced to assist samplers and assessors of grain in the determination of defective grains which are covered by the Grain Trade Australia (GTA), Australian Oilseeds Federation (AOF), and Pulse Australia standards.

All images in this guide (unless otherwise identified) are defective. These photographs depict the minimum standard for a grain to be assessed as defective. If a grain defect does not meet the physical attributes depicted in the photograph, it is to be assessed as sound.

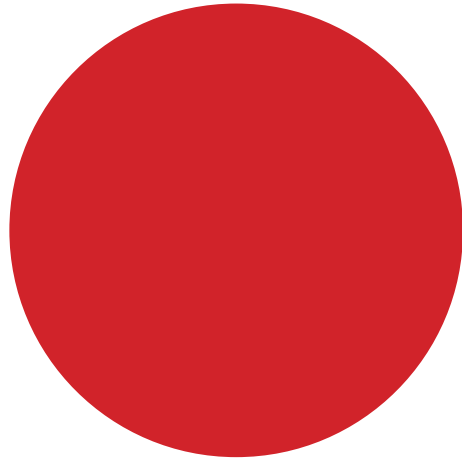


Pictures shown at this size are an approximate size of the original grain only.
These pictures are enlarged to assist in illustration of the defect.

Calibration

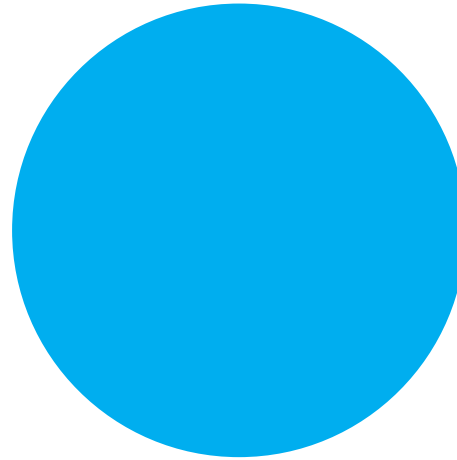
A calibration sheet is provided for those who are downloading and printing these guides. Careful calibration of these photographs is vital as monitors and printers may vary.

DOCUMENT CALIBRATION



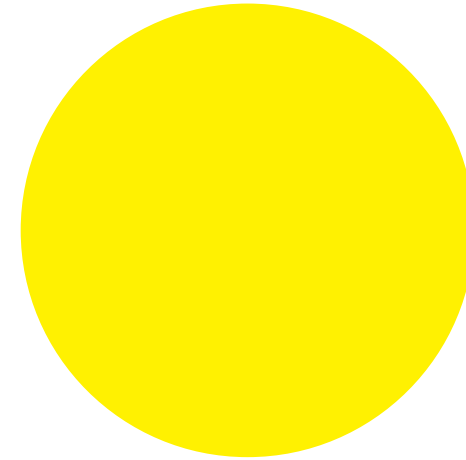
CMYK Value:
C=0 M=100 Y=0 K=0

Minolta Value:
L= 48.59 a= +51.21 b= +31.27



CMYK Value:
C=100 M=0 Y=0 K=0

Minolta Value:
L= 55.41 a= -17.28 b= -43.99



CMYK Value:
C=0 M=0 Y=100 K=0

Minolta Value:
L= 87.53 a= -10.50 b= +80.56

NOTE: The hardware (monitor, graphics card, etc.) Used to display the images in Inspector Standardisation content influences the appearance of the images. As a result the images may have a slightly different appearance when viewed on different makes/models of computer and display. These images were created using a Dino-Lite Pro AM-413T, calibrated LCD display with 1680x1050, 32 Bit, 60 Hz resolution and the following calibration settings:

Brightness: 0 Contrast: 50 Gamma: 1.0 Hue: 0 Saturation: 0

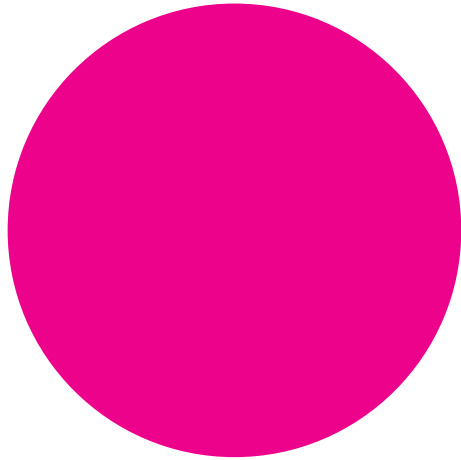
The VRSG should be viewed using a computer with digital video (DVI) output and an EIZO CG19, EIZO S1921, EIZO S1932, EIZO S1961, or EIZO CE210W display.

Paper Type for Printing: Brand: Office Elements GSM: 80gsm Colour: White

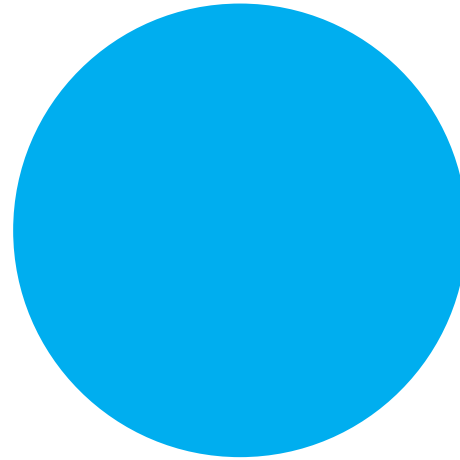
Laminate material: Brand: OfficeMax 125 Micron laminating pouches Re-Order Code: 1950630

Disclaimer: The mention of firm names or trade products does not imply that they are endorsed or recommended.

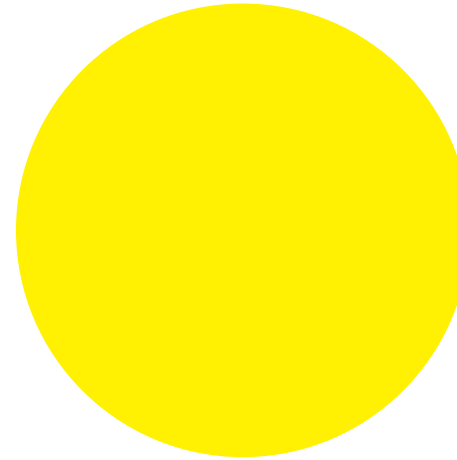
PRINTER CALIBRATION



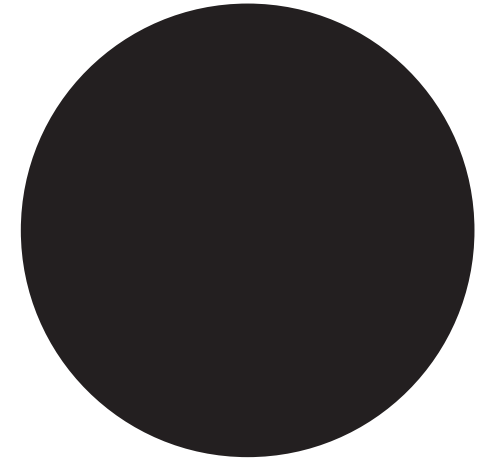
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CMYK Value:
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CMYK Value:
C=0 M=0 Y=100 K=0



CMYK Value:
C=0 M=0 Y=0 K=100

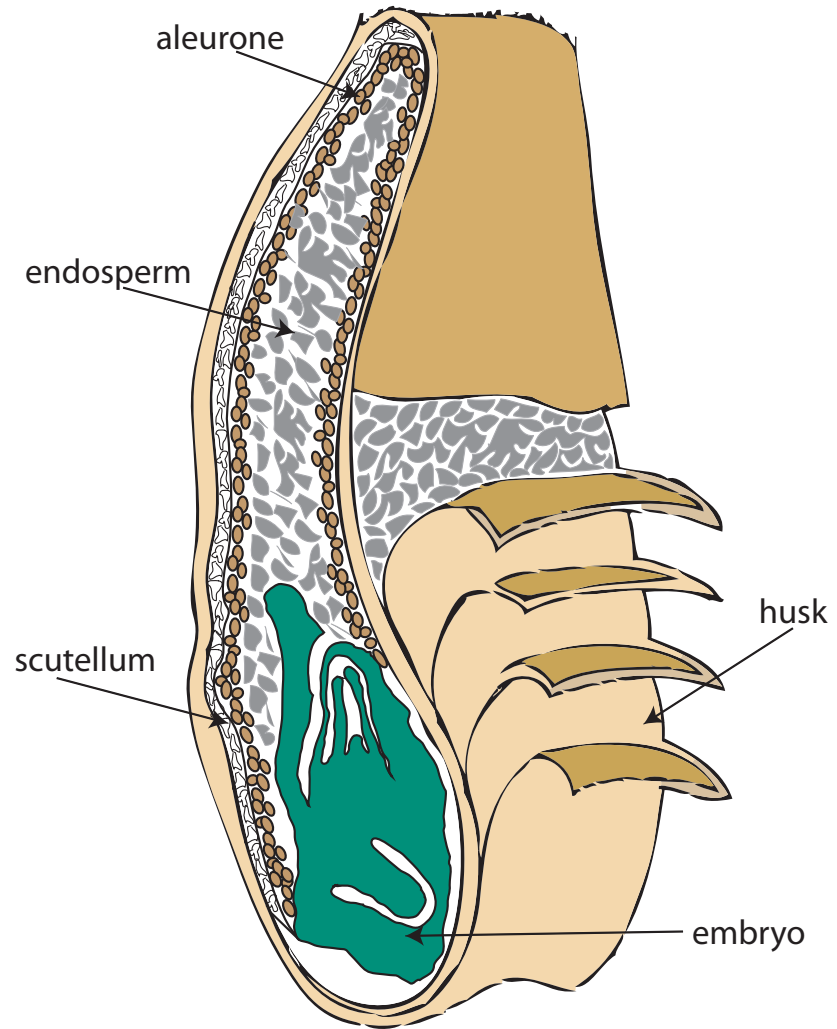
NOTE: This page is specifically for use by a commercial printer.

Paper Type for Printing: Brand: Office Elements GSM: 80gsm Colour: White

Laminate material: Brand: OfficeMax 125 Micron laminating pouches Re-Order Code: 1950630

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BARLEY



Barley Grain



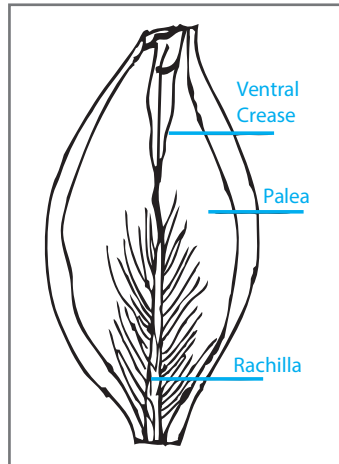
BARLEY: VARIETAL IDENTIFICATION

Issued: 1st August 2020

Definition: The main characteristic used in identifying barley varieties is the length of the hairs on the Rachilla. The Rachilla is white in colour and found running along the grain furrow from the germ end. There are two main types of Rachilla hair length, long hairs and short woolly hairs.



Long



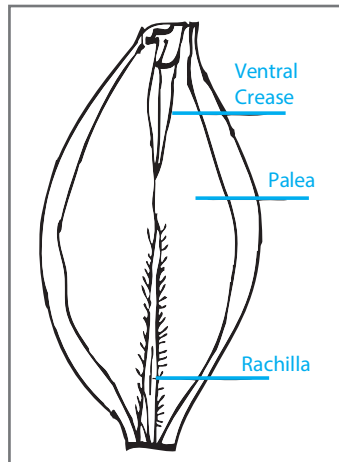
Long

Common Varieties include:

- | | |
|-------------|----------|
| Banks | Shepherd |
| Bass | |
| Baudin | |
| Compass | |
| Fairview | |
| Fathom | |
| Grout | |
| Leabrook | |
| Maximus CL | |
| Oxford | |
| Rosalind | |
| Scope (Cl.) | |



Short



Short

Common Varieties include:

- | | |
|-----------------|-----------------|
| Buff | Spartacus (Cl.) |
| Commander | Urambie |
| Fleet Australia | Westminster |
| Flinders | |
| Gairdner | |
| GrangeR | |
| Hindmarsh | |
| La Trobe | |
| Laperouse | |
| LG Alestar | |
| (RGT) Planet | |
| Schooner | |

Awn End of Grain



Dorsal (Back)



Ventral (Front)

Germ End of Grain



BARLEY: COMMON DEFECTS

Sprouted

Definition: Sprouted grains are those with any visible evidence of the shoot or root system beginning to emerge from the germ.



Side

Shot

Definition: Grains exhibiting the following outward signs of having commenced germination are classified as Shot:

- Opening of the grain at the germ end and/or
- The husk has 'tramlines' on both sides where the husk has begun to lift on each side on the back of the grain at the germ end.



"tramlines"

Dark Tipped (Germ End Stained-WA)

Definition: Grains exhibit a distinct brown to black discolouration. This mainly occurs at the germ end of the grain, however in severe cases it may progress to other parts of the grain. Discolouration originating at the awn end is not Dark Tipped, refer to Severely Damaged. Dark tipping equal to or greater than 1mm is classified as defective grain.

Note: image represents the minimal level of intensity of colour and 1mm length.



Field Fungi (Spotted/Field Fungi Affected-WA)

Definition:

- Seed coat has the appearance of black spotting occurring anywhere on the grain. Coverage greater than approximately 10% of the grain surface is considered defective, otherwise classified as sound.
- Grey surface discolouration of the kernel.



Black Spotting

Black Spotting

Grey Discolouration

BARLEY: COMMON DEFECTS

Skinnings (Skinned-WA)

Definition: Damage to the protective husk of the barley. Usually caused by mechanical damage to the grain during harvesting.

Each grain exhibiting one or more of the following characteristics is assessed as a skinned grain:

- Skinning - 1/3 or more of the total surface area of the husk is missing.
- Germ Exposed - The husk is removed from the germ end of the grain or been damaged other than Shot or Sprouted or the germ itself has been removed.
- Kernels may or may not be dark under the husk.



Cleaved (front, back and side)

Definition: A split along the crease or a split down the back, front or side of the grain exposing the white endosperm.

Any visible cleaving is considered defective.

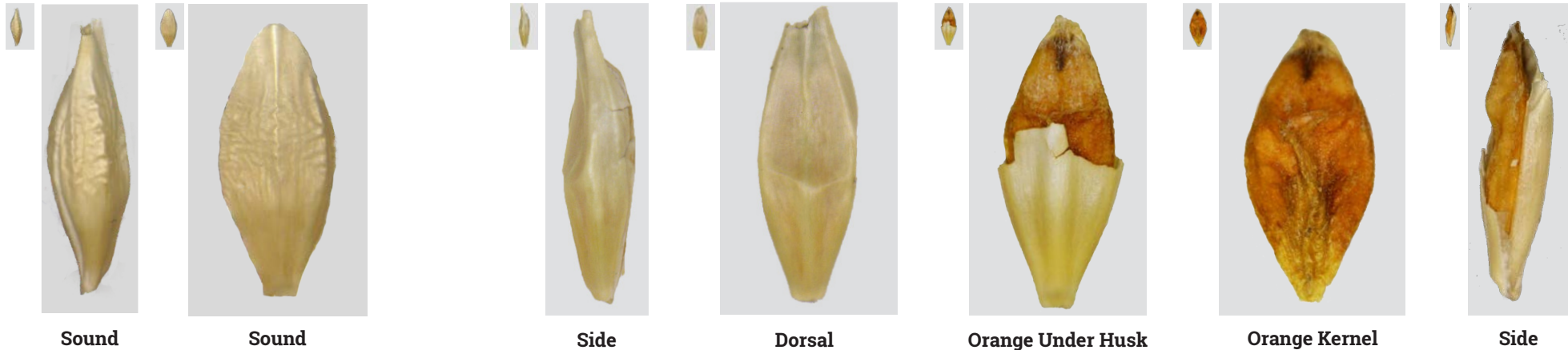


BARLEY: COMMON DEFECTS

Issued: 1st August 2020

Distorted

Definition: Grain which is collapsed on the dorsal side. Grains may also appear orange in colour.



Dry Green or Sappy

Definition Dry Green: Grain surface is distinctly green. Grains are usually dry and hard.

Definition Sappy: Grains are generally soft when pressed. They may or may not be green. Any level of sappiness is classified as defective.



Dry Green

Broken

Definition: Grain that has 1/3 or more missing from the Kernel.



Sound



BARLEY: COMMON DEFECTS

Issued: 1st August 2020

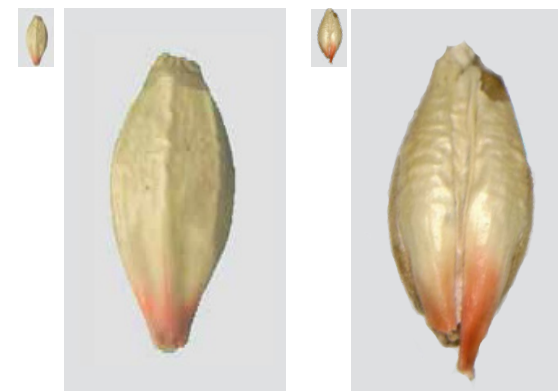
Heavily Discoloured-WA

Definition: Staining is dark in appearance. Usually affects more than the germ end.



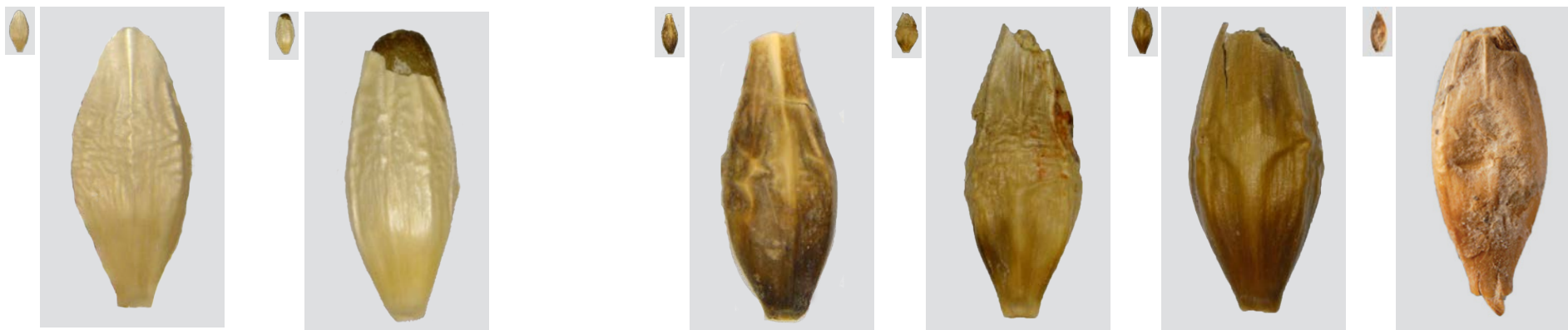
Pink Fungal Staining

Definition: Orange, pink to red discolouration found anywhere on the surface. Grains appear healthy otherwise.



Severely Damaged inc. Fusarium (except WA)

Definition: Mould, heat damaged / burnt, diseased or other serious visual defects. Grains that have become severely discoloured. Grains appear dark brown, or in severe cases, blackened. May also appear discoloured under the husk on the kernel. Does not include Field Fungi.



Sound

Sound Awn

Blackened

Fusarium

Heat damaged

Mouldy

BARLEY: CONTAMINANTS

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Coloured Aleurone Layer (Blue or Black)

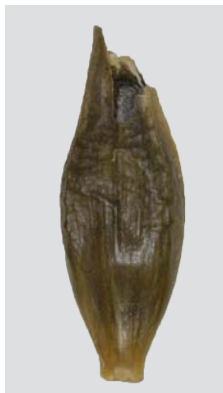
Definition: Grains which have a coloured aleurone layer in the kernel. The colour is generally blue or black.

It includes any blue or black colour to any degree that is obvious under the bran layer.

Also includes black hulled varieties.



Blue Aleurone Layer



Black Hulled

Insect Damaged

Definition: Any visible insect damage penetrating through to the white endosperm.



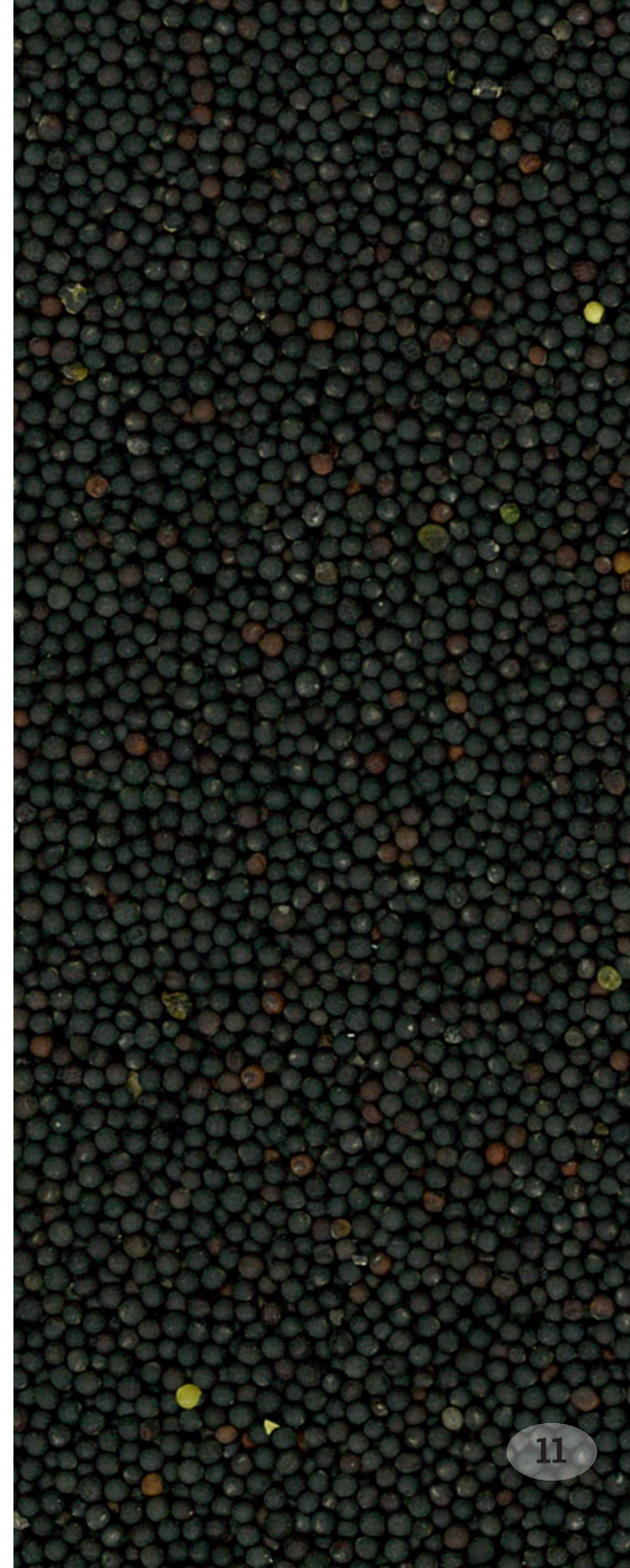
Pickling Compounds or Artificial Colour (Pickled Barley-WA)

Definition: An unnatural surface colour and/or colour that rubs off. Any grains that are artificially coloured, regardless of intensity, are defective.

Note: These photographs are to illustrate artificial colours and appearance only. A **nil tolerance** applies to any pickling compounds, regardless of intensity or coverage or colour.



CANOLA

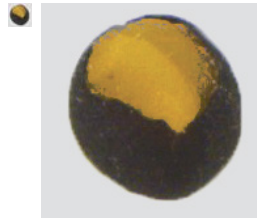


CANOLA: COMMON DEFECTS

Issued: 1st August 2020

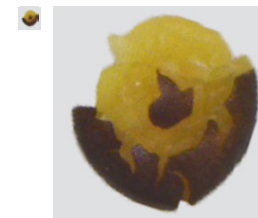
Broken or Split

Definition: All hulls, kernels or parts thereof, not otherwise damaged shall be classified as split or broken seed (except fines classified as Impurities). This includes Insect Damaged.



Heat Damaged, Bin Burnt or Badly Damaged

Definition: Seeds and pieces of seed that are materially discoloured and damaged by heat or have other serious visual defects. Seeds may have a heated odour or a brown powdery appearance when crushed.



Sound Crushed



Defective Crushed

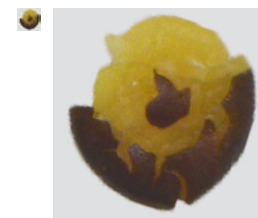
Sprouted

Definition: The seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off during the harvesting or handling process.

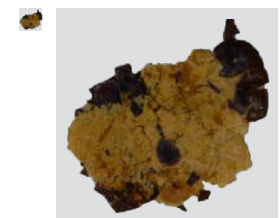


Weather Damaged

Definition: When seeds are crushed, they may have a grey washed out appearance and a chalky texture.



Sound Crushed



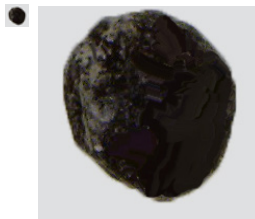
Defective Crushed

CANOLA: COMMON DEFECTS

Issued: 1st August 2020

Mould

Definition: Seeds may appear discoloured, rotten, swollen and soft, feel spongy under pressure, show the presence of fungal spores or visibly affected by mould on the seed coat. Includes Field Fungi seeds.



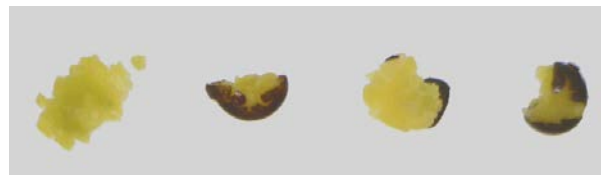
Frost Damaged

Definition: Frost damaged seeds are included in Impurities.

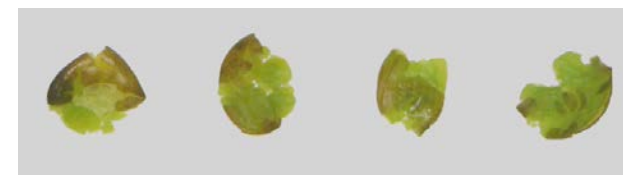


Green Seeds

Definition: Green seeds are those that are distinctly green when crushed. Seeds that are yellow-green are not considered green.



Sound Crushed
Yellow when crushed



Defective Crushed
Green Seed – distinctly green when crushed

CHICKPEAS, DESI



CHICKPEAS, DESI: COMMON DEFECTS

Issued: 1st August 2020

Bin Burnt and Heat Damaged

Definition: Seed coat appears reddish-dark brown and blackened or burnt, in severe cases. Grains may be similar in appearance to Poor Colour brown seeds. An Objectionable Odour must not be detected. Refer also to Mouldy & Caked.



Sound

Frost Damaged, Shrivelled and Wrinkled

Definition: Visible damage to the seed coat or size and shape of grain whereby the grains are severely distorted and/or shrunken. Seed coats may tightly adhere to the kernel or be brittle. Seed coats may show a level of discolouration depending on the extent of damage. Grains are often smaller than the majority in the sample.



Sound

CHICKPEAS, DESI: COMMON DEFECTS

Issued: 1st August 2020

Broken, Chipped, Loose Seed Coat and Split

Definition: Breakage, cracking, peeling or splitting of the seed coat or chipping and splitting of the kernel in various forms as follows.

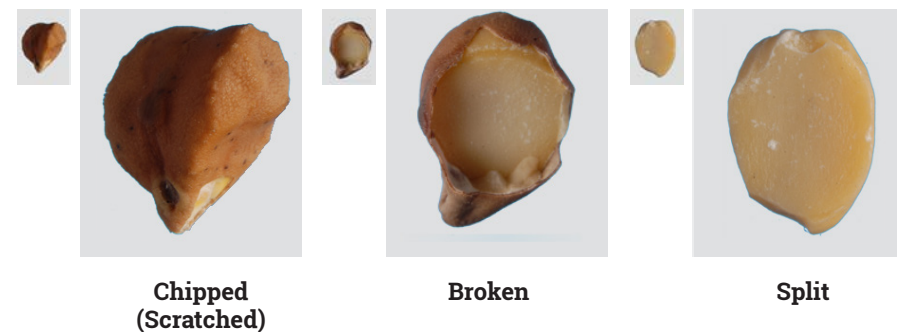
Seed Coat:

- Split Seed Coat - A split in the seed coat running more than half the entire length or across the entire width on one or both sides.
- Skin Damaged - A hole in the seed coat where more than 20% of the seed coat on any one side is missing.
- Loose Seed Coat (Peeling) - Where the seed coat is visibly falling off the kernel to any extent and not adhering tightly to the kernel.
- Missing Seed Coat - Where the entire seed coat is missing but the kernel remains intact.



Kernel:

- Chipped (Scratched) – A part of the kernel is damaged or removed.
- Broken - A split kernel with the seed coat still attached.
- Split – A split kernel with no seed coat attached.



CHICKPEAS, DESI: COMMON DEFECTS

Issued: 1st August 2020

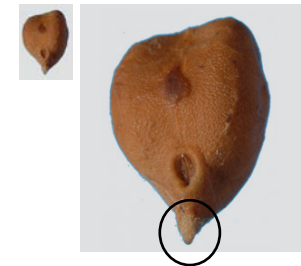
Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



Sprouted

Definition: The seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off.



Hail Damaged

Definition: Damage to the seed coat or kernel. Damage to the seed coat can appear as bruising (darkening) or in more severe cases splitting of the seed coat. This may cause discoloration and damage to the kernel. Damage to the kernel can vary from bruising (darkening) to physical damage such as crushing of the entire kernel.



Sound

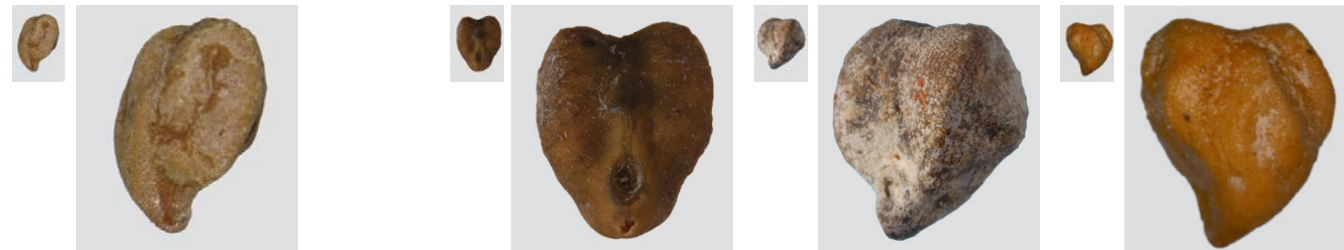
CHICKPEAS, DESI: COMMON DEFECTS

Issued: 1st August 2020

Mouldy and Caked

Definition: Grains appear discoloured or affected by mould. Grains may be soft but may also appear hard after drying out. Fungal growth may be visibly apparent on the seed coat as a fungus of various colours. Foreign material may adhere to the seed coat and visually detract from the appearance. Seed coats may be similar in appearance to Poor Colour or Bin Burnt & Heat Damaged.

Does not include Fungal Affected.



**Not Mould.
Refer Stained and
Weather Damaged.**

Green

Definition: Green is included in Poor Colour.

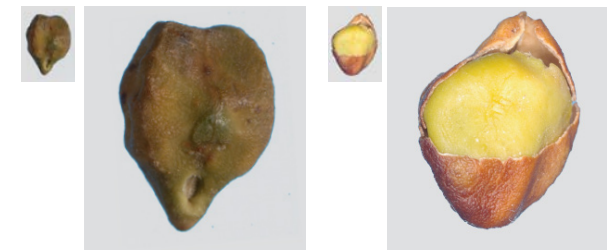
Seed Coat

Seed coat appears green. More than a slight greenish tinge must be present on the seed coat to be classified as defective.

Where any greenish tinge is present on the seed coat, it is recommended the kernel also be inspected.

Kernel

Any level of green is classified as defective.



Green Kernel

CHICKPEAS, DESI: COMMON DEFECTS

Issued: 1st August 2020

Poor Colour

Definition: Green is included in Poor Colour. Stained and Weather Damaged is included in Poor Colour.

Seed Coat

Seed coats vary from dark brown to black, but may be depicted by other colours. Seed coats may be similar in appearance to various other defects such as Bin Burnt & Heat Damaged or Mouldy and Caked.

Where any poor colour is present on the seed coat, it is recommended the kernel also be inspected.

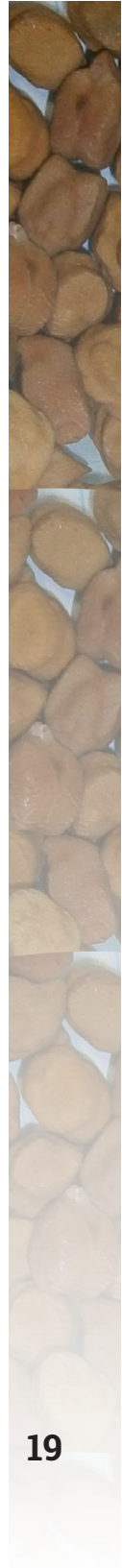


Kernel

Any level of discolouration on the kernel is classified as defective.



**Not Poor Colour
Kernel.
Refer Poor Colour
Seed Coat.**



CHICKPEAS, DESI: COMMON DEFECTS

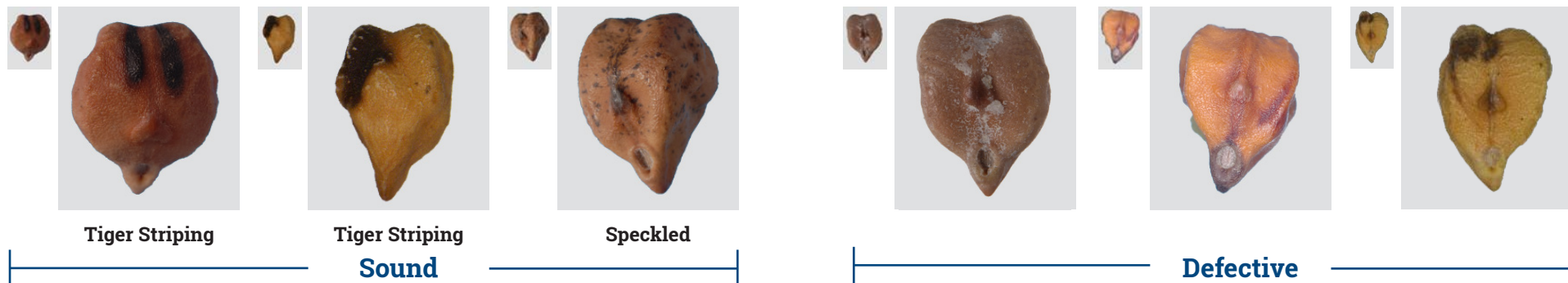
Issued: 1st August 2020

Stained and Weather Damaged

Definition: Stained and Weather Damaged is included in Poor Colour.

A general term used to describe visible damage to the seed coat that may or may not otherwise be defined or be distinguishable from other defects in the Standards. Seed coats may be discoloured or altered in size or shape. Weather Damage may also lead to a Loose Seed Coat, Shrivelled and Wrinkled.

Any degree of Tiger Striping or Speckled is not considered Poor Colour, but is considered sound. Tiger Striping or Speckling on the kernel is to be classified as Poor Colour Kernel.



Fungal Affected (e.g. Ascochyta)

Definition: Lesions are generally visible to the naked eye and appear intense dark brown to black and often fluoresces. The lesion may be similar in colour to mould or weather damaged. It may also be associated with the presence of fungal growth of various colours.

Any lesion of any size is permitted provided it is not also present on the kernel. If the lesion is greater than approximately 20%, but does not penetrate to the kernel the grain is classified as Stained & Weather Damaged.



CHICKPEAS, KABULI



CHICKPEAS, KABULI: COMMON DEFECTS

Issued: 1st August 2020

Poor Colour - Seed Coat

Definition: Seed coats vary from dark brown to black, but may be depicted by other colours. Includes Stained and Weather Damaged. Seed coats may be similar in appearance to various other defects such as Bin Burnt & Heat Damaged, Mouldy and Caked.

Where any poor colour is present on the seed coat, it is recommended the kernel also be inspected.



Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



CHICKPEAS, KABULI: COMMON DEFECTS

Issued: 1st August 2020

Broken, Chipped, Loose Seed Coat and Split

Definition: Breakage, cracking, peeling or splitting of the seed coat or chipping and splitting of the kernel in various forms as follows.

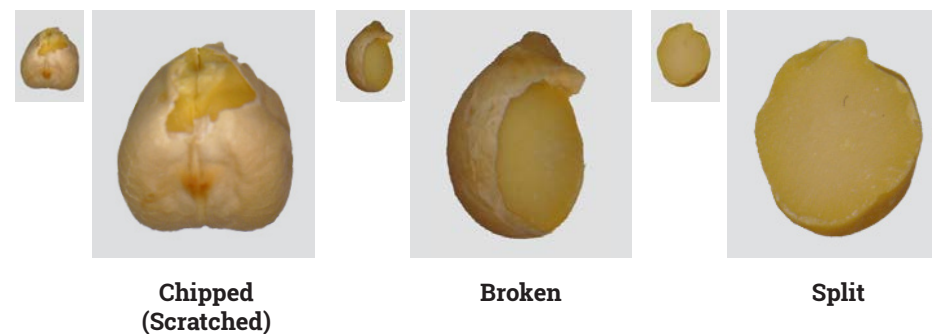
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- Split – A split kernel with no seed coat attached



CHICKPEAS, KABULI: COMMON DEFECTS

Issued: 1st August 2020

Mouldy and Caked

Definition: Grains appear discoloured or affected by mould. Grains may be soft but may also appear hard after drying out. Fungal growth may be visibly apparent on the seed coat as a fungus of various colours. Foreign material may adhere to the seed coat and visually detract from the appearance. Seed coats may be similar in appearance to Poor Colour or Bin Burnt & Heat Damaged.

Does not include Fungal Affected.



Sprouted

Definition: The seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off.



Frost Damaged, Shrivelled and Wrinkled

Definition: Visible damage to the seed coat or size and shape of grain whereby the grains are severely distorted and/or shrunk. Seed coats may tightly adhere to the kernel or be brittle. Seed coats may show a level of discoloration depending on the extent of damage. Grains are often smaller than the majority in the sample.



Sound

Defective

FABA BEANS



FABA BEANS: COMMON DEFECTS

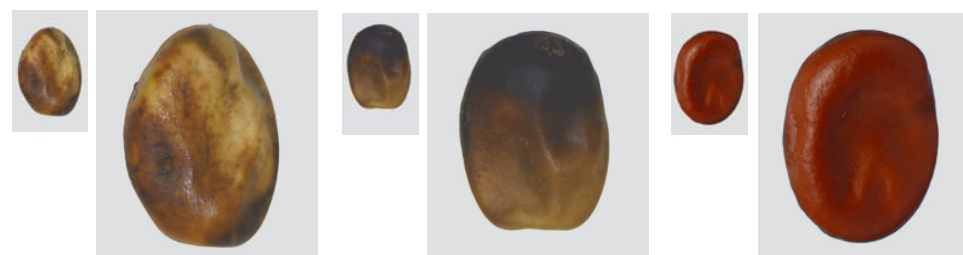
Issued: 1st August 2020

Bin Burnt and Heat Damaged

Definition: Seed coat appears reddish-dark brown and blackened or burnt in severe cases. Grains may be similar in appearance to Poor Colour brown seeds. Refer also to Mouldy & Caked.



Sound



Defective

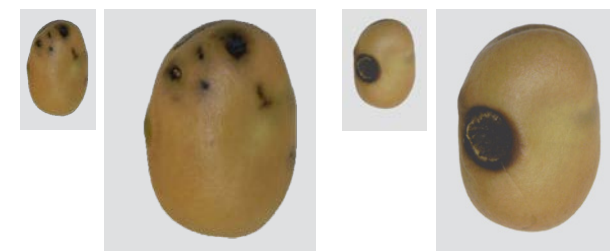
Fungal Affected (e.g. Ascochyta)

Definition: The lesion generally appears intense dark brown to black and often fluoresces. It is commonly oval to circular and localised in nature, but may vary in shape. The lesion may be similar in colour to mould or weather damaged. The lesion may also be associated with the presence of fungal growth of various colours. A lesion may appear on one or both sides of the seed coat or kernel.

A lesion greater than 20% coverage on any one side of the seed coat is considered defective.

A lesion less than 20% on any one side of the seed coat is considered sound.

Any lesion of any size on the kernel is defective.



FABA BEANS: COMMON DEFECTS

Issued: 1st August 2020

Mouldy and Caked

Definition: Grains appear discoloured or affected by mould. Grains may be soft but may also appear hard after drying out. Fungal growth may be visibly apparent on the seed coat as a fungus of various colours. Foreign material may adhere to the seed coat and visually detract from the appearance. Seed coats may be similar in appearance to Poor Colour or Bin Burnt & Heat Damaged.

Does not include Fungal Affected (e.g. Ascochyta).



Sprouted

Definition: Seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off.

Where the seed coat has split but the primary root has not emerged, the grain is to be classified under Broken, Chipped, Loose Seed Coat and Split.



Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



FABA BEANS: COMMON DEFECTS

Broken, Chipped, Loose Seed Coat and Split

Definition: Breakage, cracking, peeling or splitting of the seed coat or chipping and splitting of the kernel in various forms as follows.

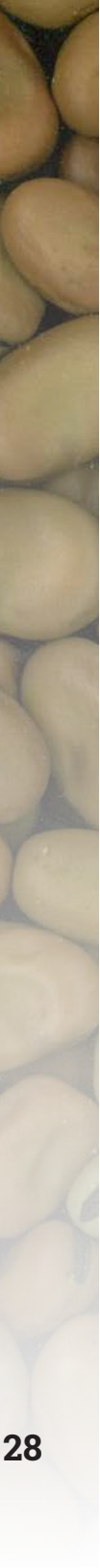
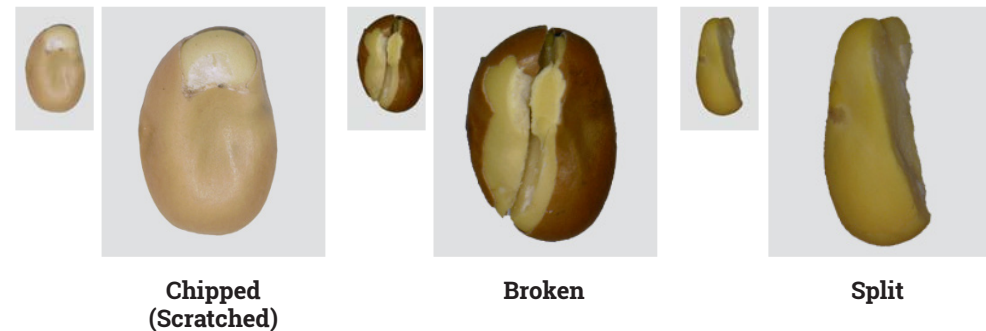
Seed Coat:

- Split Seed Coat - A split in the seed coat running more than half the entire length or across the entire width on one or both sides.
- Skin Damaged - A hole in the seed coat where more than 20% of the seed coat on any one side is missing.
- Loose Seed Coat (Peeling) - Where the seed coat is visibly falling off the kernel to any extent and not adhering tightly to the kernel.
- Missing Seed Coat - Where the entire seed coat is missing but the kernel remains intact.



Kernel:

- Chipped (Scratched) – A part of the kernel is damaged or removed.
- Broken - A split kernel with the seed coat still attached.
- Split – A split kernel with no seed coat attached.



FABA BEANS: COMMON DEFECTS

Issued: 1st August 2020

Frost Damaged, Shrivelled and Wrinkled

Definition: Visible damage to the seed coat or size and shape of grain whereby the grains are severely distorted and/or shrunken. Seed coats may tightly adhere to the kernel or be brittle. Seed coats may show a level of discolouration depending on the extent of damage. Grains are often smaller than the majority in the sample.



Frost Damaged, Stained

Definition: Visible damage from frost impacting on the grain resulting in staining on the kernel. Any level of stained on the kernel, as a result of frost, is classified as defective. Where staining does not occur on the kernel, but results in staining only on the seed coat, refer to the Poor Colour definition.

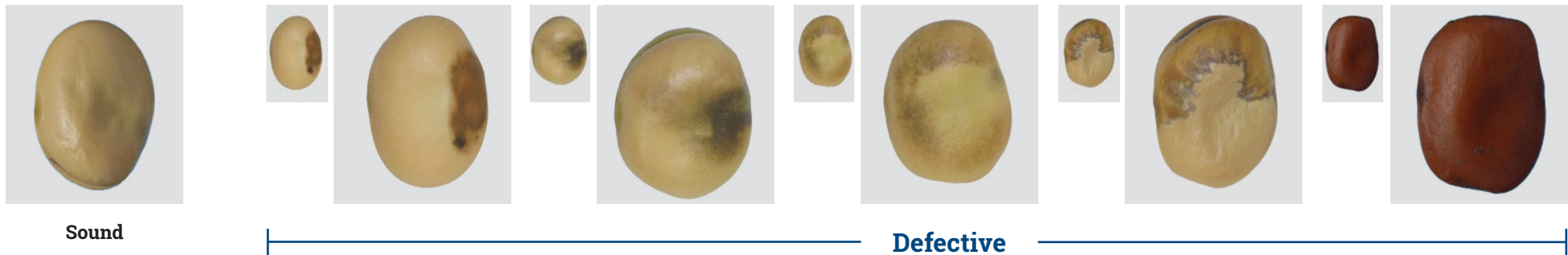


FABA BEANS: COMMON DEFECTS

Poor Colour

Definition: Seed coats vary from grey, dark brown to black. Seed coats may be similar in appearance to various other defects such as Bin Burnt & Heat Damaged or Mouldy and Caked.

The photos below depict the minimum requirement of any colour to be classified as defective.



Green

Definition: Green is included in Poor Colour Seed Coat.

Seed Coat

Seed coat appears intense green. It is recommended the kernel be inspected if immature grains are present.

Kernel

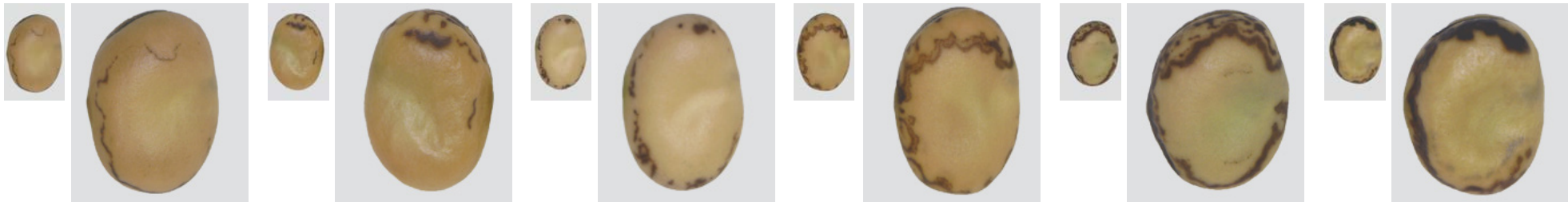
Any level of green is classified as defective.



FABA BEANS: COMMON DEFECTS

Pea Seed Borne Mosaic Virus

Definition: Staining on the seed coat caused by the Pea Seed Borne Mosaic Virus. Is included in Poor Colour.



Sound

Defective

LENTILS, RED

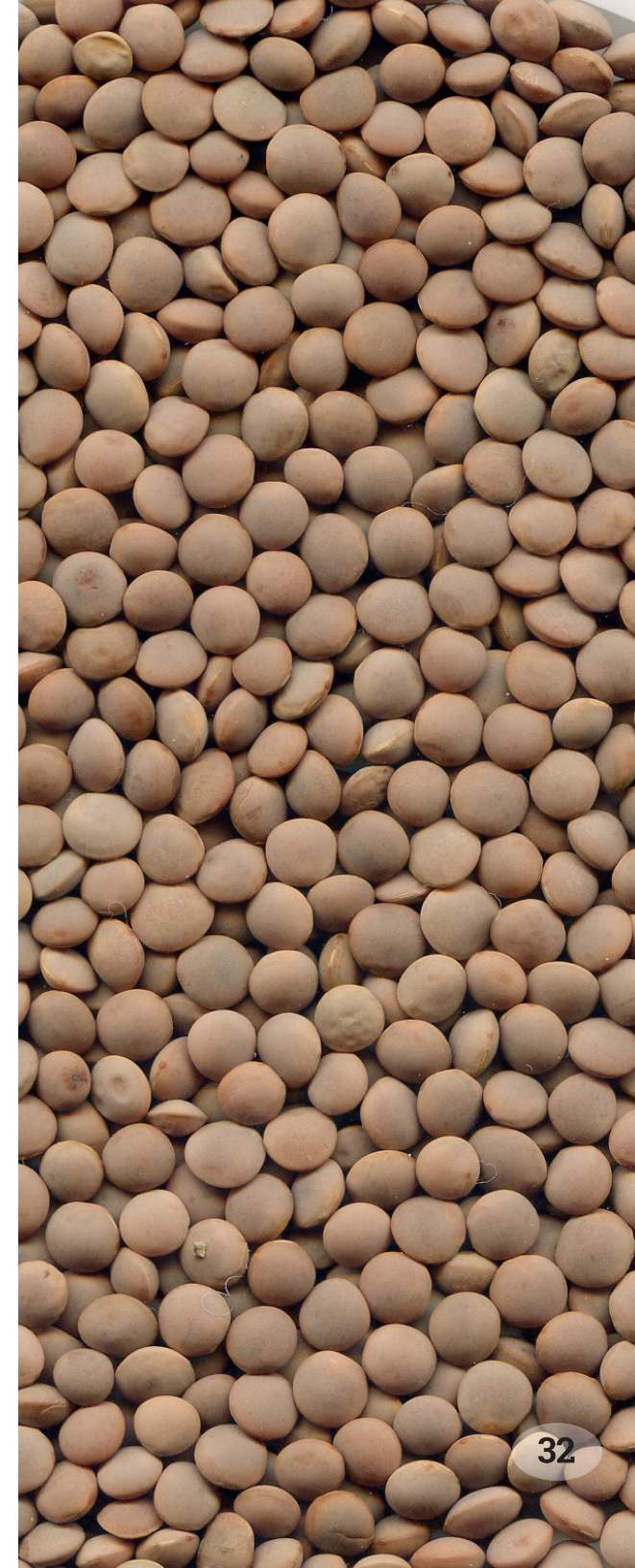


Whole Seed



Kernel

Note: Green Lentils are considered a contaminant in Red Lentils.

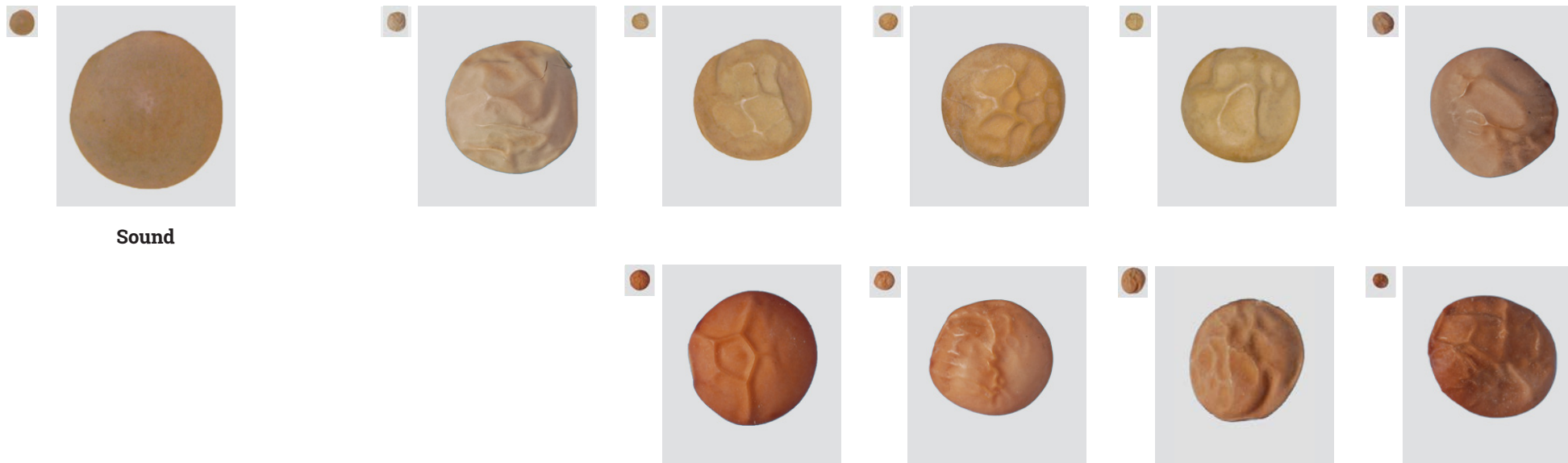


LENTILS, RED: COMMON DEFECTS

Issued: 1st August 2020

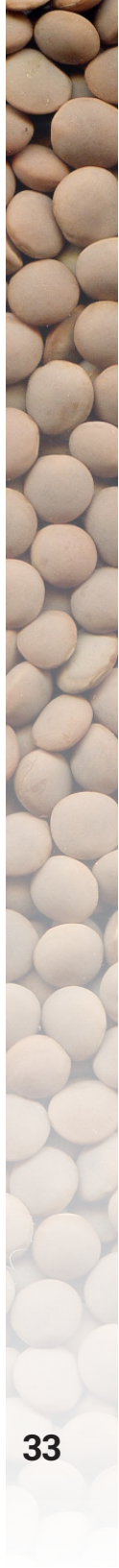
Frost Damaged, Shrivelled and Wrinkled

Definition: Visible damage to the seed coat or size and shape of grain whereby the grains are severely distorted and/or shrunken. Seed coats may tightly adhere to the kernel or be brittle. Seed coats may show a level of discoloration depending on the extent of damage. Grains are often smaller than the majority in the sample.



Sound

Defective



LENTILS, RED: COMMON DEFECTS

Issued: 1st August 2020

Broken, Chipped, Loose Seed Coat and Split

Definition: Breakage, cracking, peeling or splitting of the seed coat or chipping and splitting of the kernel in various forms as follows.

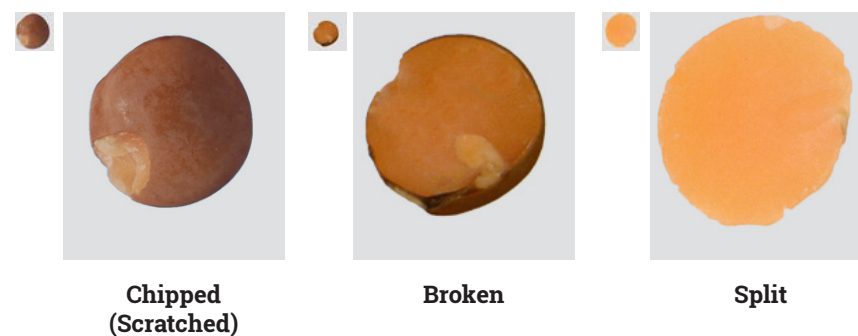
Seed Coat:

- Split Seed Coat - A split in the seed coat running more than half the entire length or across the entire width on one or both sides.
- Skin Damaged - A hole in the seed coat where more than 20% of the seed coat on any one side is missing.
- Loose Seed Coat (Peeling) - Where the seed coat is visibly falling off the kernel to any extent and not adhering tightly to the kernel.
- Missing Seed Coat - Where the entire seed coat is missing but the kernel remains intact.



Kernel:

- Chipped (Scratched) – A part of the kernel is damaged or removed.
- Broken - A split kernel with the seed coat still attached.
- Split – A split kernel with no seed coat attached

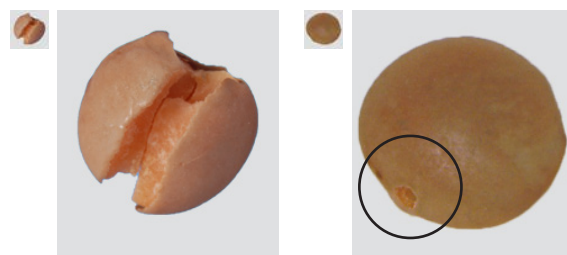


LENTILS, RED: COMMON DEFECTS

Issued: 1st August 2020

Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



Bin Burnt and Heat Damaged

Definition: Seed coat or kernel appears reddish-dark brown and blackened or burnt in severe cases. Grains may be similar in appearance to Poor Colour brown seeds. An Objectionable Odour must not be detected. Refer also to Mouldy & Caked.

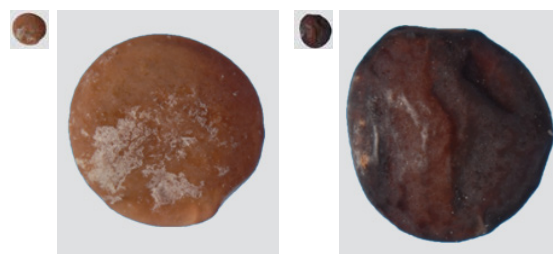


Sound

Mouldy and Caked

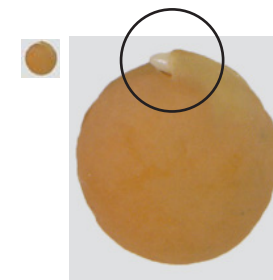
Definition: Grains appear discoloured or affected by mould. Grains may be soft but may also appear hard after drying out. Fungal growth may be visibly apparent on the seed coat as a fungus of various colours. Foreign material may adhere to the seed coat and visually detract from the appearance. Seed coats may be similar in appearance to Poor Colour or Bin Burnt & Heat Damaged.

Does not include Fungal Affected.



Sprouted

Definition: Seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off.



LENTILS, RED: COMMON DEFECTS

Issued: 1st August 2020

Poor Colour Seed Coat

Definition: Seed coats vary from dark brown to black, but may be depicted by other colours. Seed coats may be similar in appearance to various other defects such as Bin Burnt & Heat Damaged, Fungal Affected or Mouldy and Caked. Does not include Contrasting Colour.

Where any poor colour is present on the seed coat, it is recommended the kernel also be inspected.



Poor Colour Kernel - Dehulled Lentil

Definition: Poor Colour Kernel refers to excessive discolouration of the kernel often depicted as a green colour. Includes green, brown, black, yellow, bleached and chalky white kernels or any other discolouration.



Sound



Poor Colour Kernel



Poor Colour Kernel



Poor Colour Kernel

Blonde Kernel

Definition: Kernels are not uniformly orange in colour. Kernels appear yellow. Seed coat must be removed to determine the presence on the kernel.



LENTILS, RED: CONTRASTING COLOURS

Issued: 1st August 2020








Contrasting Colours: Lentil variety definition chart

Grains with a colour not falling within the “main and acceptable variety seed coat variation” as depicted within the GREEN section of the chart are to be classified as Contrasting Colour




PBA Blitz[Ⓢ]

Contrasting Colour	Main and acceptable variety seed coat variation					Contrasting Colour
						
Pale	Typical grey	Grey-green	Slightly marbled	Medium marbled	Strongly marbled	






PBA Herald XT[Ⓢ]

Contrasting Colour	Main and acceptable variety seed coat variation					Contrasting Colour
						
Pale	Typical grey	Grey-green	Slightly marbled	Medium marbled	Strongly marbled	Black (totally marbled)

PBA Hurricane XT[Ⓢ]

Contrasting Colour	Main and acceptable variety seed coat variation					Contrasting Colour
						
Pale	Typical grey	Grey-green				

Aldinga

Contrasting Colour	Main and acceptable variety seed coat variation					Contrasting Colour
						
	Typical pale		Slightly marbled	Medium marbled	Strongly marbled	Grey (totally marbled)

August 2014

Contrasting colour is genetic variation within a variety. Grey-green seed coats can occur with early maturity time in grey seed type lentils.

LENTILS, RED: COMMON DEFECTS

Issued: 1st August 2020

Fungal Affected

Definition: Lesions generally appear intense dark brown to black and often fluoresce. A lesion may be similar in colour to mould or weather damaged. A lesion may also be associated with the presence of fungal growth of various colours. Fungal Affected is included in Poor Colour.

A lesion greater than 20% coverage on any one side of the seed coat is considered defective. Any lesion of any size on the kernel is defective.



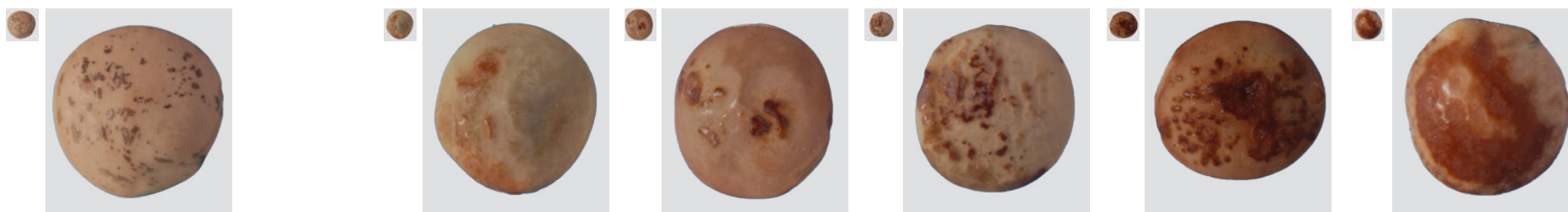
Defective

Stained and Weather Damaged

Definition: Included in Poor Colour.

A general term used to describe visible damage to the seed coat that may or may not otherwise be defined or be distinguishable from other defects in the Standards. Seed coats may be discoloured or altered in size or shape. Weather damage may also lead to Loose Seed Coat, Shrivelled and Wrinkled.

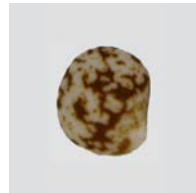
Does not include Contrasting Colour.



Speckled -
Sound

Defective

LUPINS, ANGUSTIFOLIUS



**Lupin -
Angustifolius**



Lupin - Albus

Note: Albus Lupins are considered a contaminant in Angustifolius Lupins.



LUPINS, ANGUSTIFOLIUS: COMMON DEFECTS

Issued: 1st August 2020

Broken, Chipped, Loose Seed Coat and Split

Definition: Breakage, cracking, peeling or splitting of the seed coat or chipping and splitting of the kernel in various forms as follows.

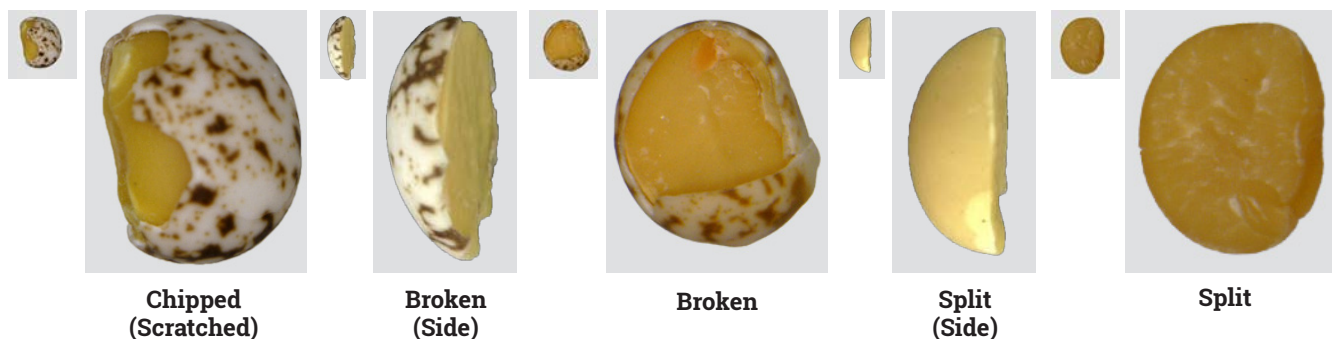
Seed Coat:

- Split Seed Coat - A split in the seed coat running more than half the entire length or across the entire width on one or both sides.
- Skin Damaged - A hole in the seed coat where more than 20% of the seed coat on any one side is missing.
- Loose Seed Coat (Peeling) - Where the seed coat is visibly falling off the kernel to any extent and not adhering tightly to the kernel.
- Missing Seed Coat - Where the entire seed coat is missing but the kernel remains intact.



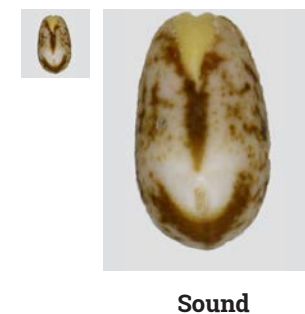
Kernel:

- Chipped (Scratched) – A part of the kernel is damaged or removed.
- Broken - A split kernel with the seed coat still attached.
- Split – A split kernel with no seed coat attached



Manganese Deficiency

Definition: Splitting of the seed coat to expose the kernel. It is not considered a defect provided no damage to the exposed kernel has occurred.



LUPINS, ANGUSTIFOLIUS: COMMON DEFECTS

Issued: 1st August 2020

Frost Damaged, Shrivelled and Wrinkled

Definition: Visible damage to the seed coat or size and shape of grain whereby the grains are severely distorted and/or shrunken. Seed coats may tightly adhere to the kernel or be brittle. Seed coats may show a level of discolouration depending on the extent of damage. Grains are often smaller than the majority in the sample.



Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



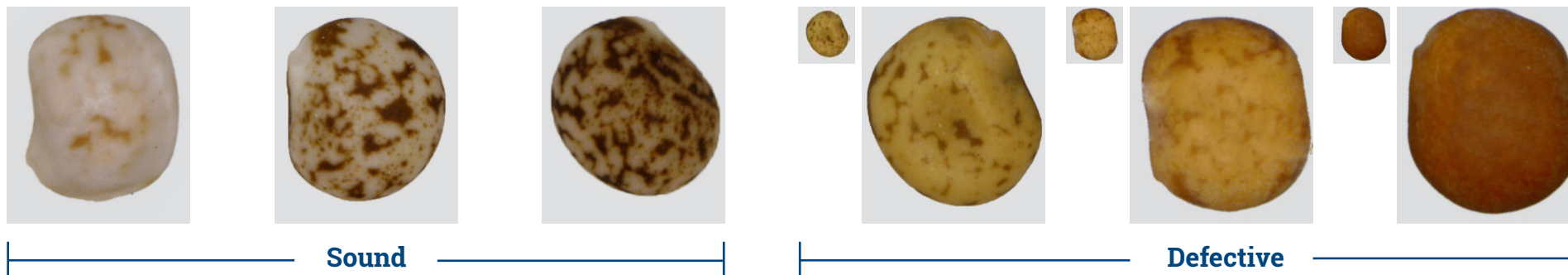
LUPINS, ANGUSTIFOLIUS: COMMON DEFECTS

Issued: 1st August 2020

Poor Colour (Discoloured-WA)

Definition: Stained & Weather damaged is included in Poor Colour.

Seed coats vary from yellow to tan, dark brown to black, but may be depicted by other colours. Seed coats may be similar in appearance to various other defects such as Bin Burnt & Heat Damaged or Mouldy and Caked.



Phomopsis

Definition: Grains appear sound with a fungal growth readily visible on the seed coat. If kernels are not sound, refer to Mould and Caked.



Bitter Dark (Bitter Variety-WA)

Definition: These varieties are identifiable mainly by their colour which is much darker than acceptable lupins.



LUPINS, ANGUSTIFOLIUS: COMMON DEFECTS

Issued: 1st August 2020

Mouldy and Caked

Definition: Grains appear discoloured or affected by mould. Grains may be soft but may also appear hard after drying out. Fungal growth may be visibly apparent on the seed coat as a fungus of various colours. Foreign material may adhere to the seed coat and visually detract from the appearance. Seed coats may be similar in appearance to Poor Colour or Bin Burnt & Heat Damaged.

Does not include Phomopsis.



Sprouted

Definition: Seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off.



Pickling Compounds or Artificial Colour

Definition: An unnatural surface colour and/or colour that rubs off. Any grains that are artificially coloured, regardless of intensity, are defective.

Note: This photograph is to illustrate artificial colour and appearance only. A **nil tolerance** applies to any pickling compounds, regardless of intensity or coverage or colour.



MAIZE, FEED



MAIZE, FEED: COMMON DEFECTS

Issued: 1st August 2020

Heat Damaged / Bin Burnt

Definition: Grains appear reddish brown, or in severe cases, blackened. Heat Damaged / Bin Burnt is included in the definition of Damaged.



Sound



Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



Broken

Definition: Grains that have 1/4 or more missing from the Kernel.



Sound



Sprouted

Definition: Included in Damaged.

Grains in which the covering of the germ is split and the shoot has broken through the seed coat. Grains that have had the germ knocked off or scalloped.



MAIZE, FEED: COMMON DEFECTS

Issued: 1st August 2020

Storage Mould

Definition: Grains appear discoloured and visibly affected by mould.
Note that if any musty odour is detected a nil tolerance applies.



Dead

Definition: Grains that are at least 50% opaque.



Fungal Affected

Definitions:

Silk Cut

Easily identified where the pericarp is split and the starch appears to be popping out of the kernel.
Silk Cut is included in Damaged.

Starburst

Best identified as spider web like streaks radiating down the kernel from the point of silk attachment.
These streaks are corroded channels within the pericarp caused by fungal growth. Air in the channels breaks the transparency of the pericarp so the yellow aleurone beneath cannot be seen.
Star Burst is included in the definition of Dead, Mouldy, Storage Mould.



Silk Cut

Star Burst

MAIZE, FEED: COMMON DEFECTS

Issued: 1st August 2020

Pickling Compounds or Artificial Colouring

Definition: An unnatural surface colour and/or colour that rubs off. Any grains that are artificially coloured, regardless of intensity, are defective.

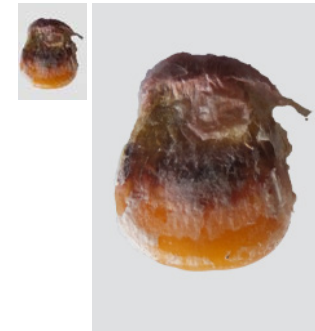
Note: This photograph is to illustrate artificial colour and appearance only. A **nil tolerance** applies to any pickling compounds, regardless of intensity or coverage or colour.



Field Fungi

Definition: Included in Damaged.

Seed coat is greater than approximately 50% discoloured. The visible discolouration of affected grains can vary from dark grey, brown to black in colour.



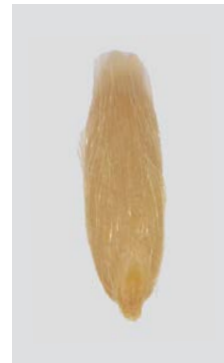
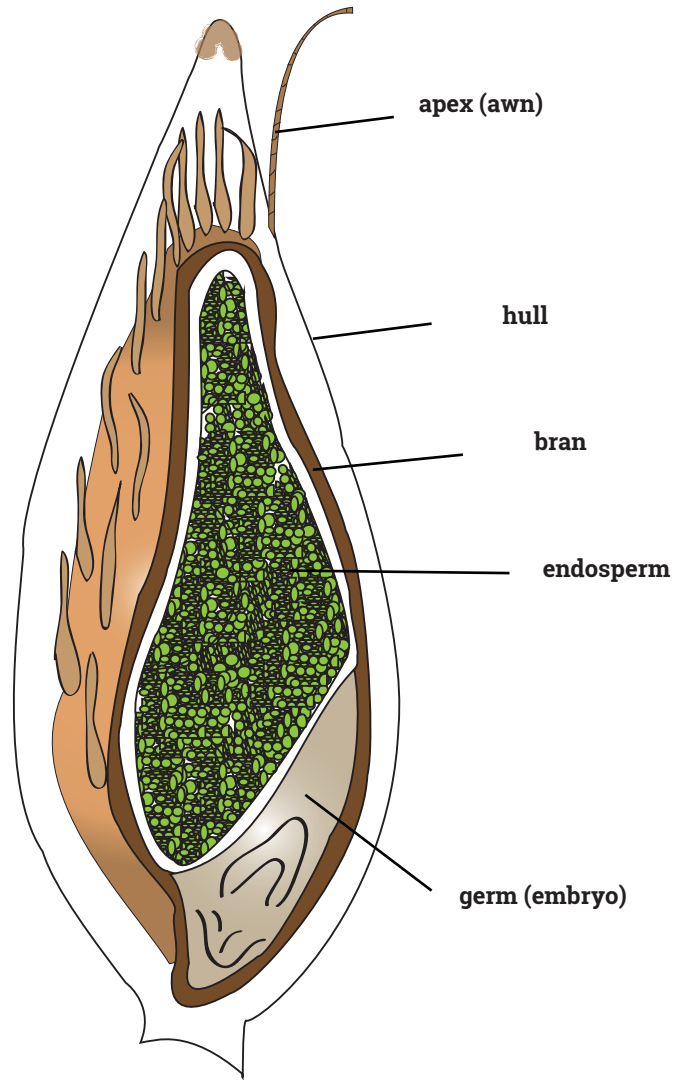
Kernel Red Streak

Definition: This is not a defect and kernels are considered sound when identified as Kernel Red Streak.



Sound

OATS



Groat



Oat



OATS: COMMON DEFECTS

Issued: 1st August 2020

Damaged Grains

Definition: Grain with a quarter or more of the grain missing. This includes any mechanical damage to the germ.



Sound

Severely Damaged

Definition: Mould, heat damaged/burnt or other serious visual defects. Grains have become severely discoloured. Grains appear reddish brown, dark brown or in severe cases, blackened.

Does not include Field Fungi.



Sound -
Variety differs

Heat damaged

Field Fungi (Spotted Mould Affected-WA)

Definition: Individual kernels where the seed coat has grey to black spotting occurring anywhere on the grain.

Coverage greater than approximately 10% of the grain surface is considered defective, otherwise classified as sound.

Grains that are soft (that are not classified as Sappy) and/or emit a mouldy odour are to be classified as Severely Damaged.



OATS: COMMON DEFECTS

Issued: 1st August 2020

Stained Grains (Heavily Discoloured-WA) inc. Septoria (Except WA)

Definition: Grains where greater than approximately 50% of the grain surface is discoloured. Various colours may be exhibited such as brown to black.

Grains that are affected by Field Fungi or Mould are not included in the definition of Stained Grains.

Where staining has occurred, it is recommended the husk be removed and the Groat examined.

Septoria: Affected grains appear with light and dark Septoria discolouration. Light Septoria discolouration similar to Mould is not included in the definition of Severely Damaged.



Stained Groats

Definition: This defect is checked where Stained Grains are present in the sample. Where this staining has occurred, it is recommended the husk be removed and the Groat examined.

Any discolouration from the normal colour of the Groat is defective.

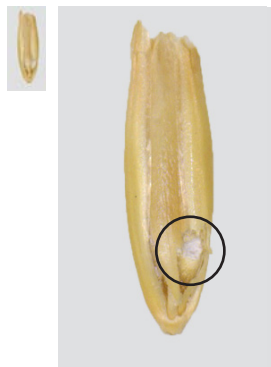


OATS: COMMON DEFECTS

Issued: 1st August 2020

Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



Sprouted

Definition: The grain has begun the germination process. A kernel that is sprouted is one where the shoot is visibly seen growing out from the germ.



Dry Green or Sappy

Definition Dry Green: Grain surface is distinctly green. Grains are usually dry and hard.

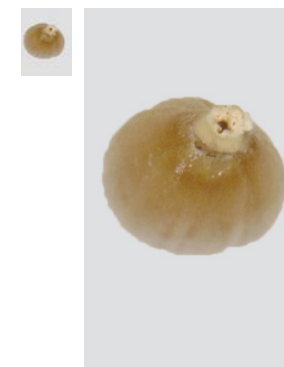
Definition Sappy: Grains are generally soft when pressed. They may or may not be green. Any level of sappiness is classified as defective.



Dry Green

Shot

Definition: The covering of the germ is split, but without further development of the shoot.



PEAS, FIELD



Typical White type Pea

Typical Blue type Pea



Acceptable colour range for Parafield type Peas

Acceptable colour range for Kaspas type Peas



Typical shape for Parafield type Peas

Typical shape for Kaspas type Peas



PEAS, FIELD: COMMON DEFECTS

Issued: 1st August 2020

Bin Burnt / Heat Damaged

Definition: Seed coat appears reddish-dark brown and blackened or burnt in severe cases. Grains may be similar in appearance to Poor Colour brown seeds. An Objectionable Odour must not be detected. Refer also to Mouldy & Caked.



Sound

Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



Field Grub
Insect Damaged

Mouldy and Caked

Definition: Grains appear discoloured or affected by mould. Grains may be soft but may also appear hard after drying out. Fungal growth may be visibly apparent on the seed coat as a fungus of various colours. Foreign material may adhere to the seed coat and visually detract from the appearance. Seed coats may be similar in appearance to Poor Colour or Bin Burnt & Heat Damaged.



PEAS, FIELD: COMMON DEFECTS

Issued: 1st August 2020

Broken, Chipped, Loose Seed Coat and Split

Definition: Breakage, cracking, peeling or splitting of the seed coat or chipping and splitting of the kernel in various forms as follows.

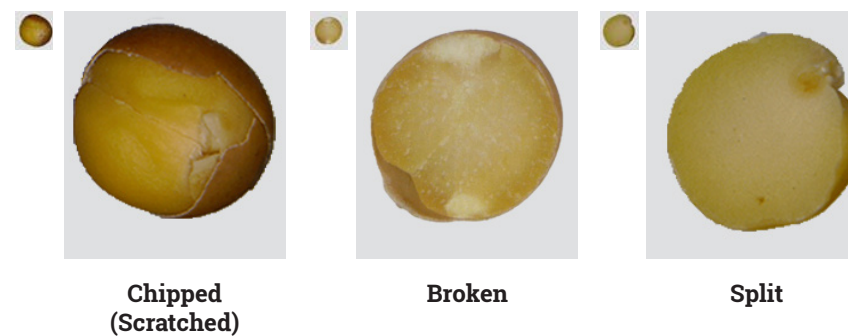
Seed Coat:

- Split Seed Coat - A split in the seed coat running more than half the entire length or across the entire width on one or both sides.
- Skin Damaged - A hole in the seed coat where more than 20% of the seed coat on any one side is missing.
- Loose Seed Coat (Peeling) - Where the seed coat is visibly falling off the kernel to any extent and not adhering tightly to the kernel.
- Missing Seed Coat - Where the entire seed coat is missing but the kernel remains intact.



Kernel:

- Chipped (Scratched) – A part of the kernel is damaged or removed.
- Broken - A split kernel with the seed coat still attached.
- Split – A split kernel with no seed coat attached.



PEAS, FIELD: COMMON DEFECTS

Issued: 1st August 2020

Frost Damaged, Shrivelled and Wrinkled

Definition: Visible damage to the seed coat or size and shape of grain whereby the grains are severely distorted and/or shrunken. Seed coats may tightly adhere to the kernel or be brittle. Seed coats may show a level of discolouration depending on the extent of damage. Grains are often smaller than the majority in the sample.



Sound

Sprouted

Definition: Seed coat has split and the primary root has emerged. This includes early and any further advanced stage of growth of the primary root. Includes grains where the primary root has been knocked off.



PEAS, FIELD: COMMON DEFECTS

Issued: 1st August 2020

Poor Colour

Definition:

Seed Coat

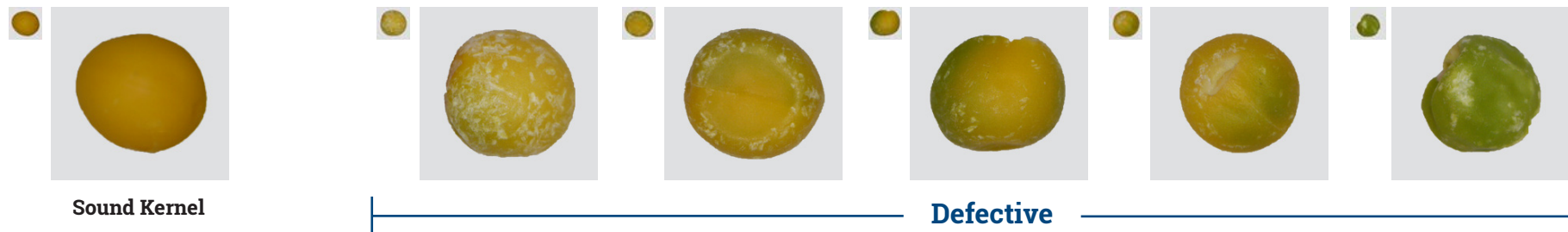
Seed coats vary from dark brown to black. Seed coats may be similar in appearance to various other defects such as Bin Burnt & Heat Damaged or Mouldy and Caked. Where any poor colour is present on the seed coat, it is recommended the kernel also be inspected.

Stained and Weather Damaged is included in Poor Colour.



Kernel

Any level of discolouration on the kernel is classified as defective. Where green kernels exist, the level of green colouring classified as defective is shown in the photos below. Green is included in Poor Colour.



SORGHUM



SORGHUM: COMMON DEFECTS

Issued: 1st August 2020

Severely Damaged

Definition: Heat damaged / bin burnt, diseased or other serious visual defects. Kernels have become severely discoloured. Grains appear dark brown or in severe cases, blackened.



Sprouted

Definition: The shoot is visibly extending from any part of the germ. Grains with pin holes are not included in this definition.



Insect Damaged

Definition: Any visible insect damage to the grain is to be classified as defective.



SORGHUM: COMMON DEFECTS

Issued: 1st August 2020

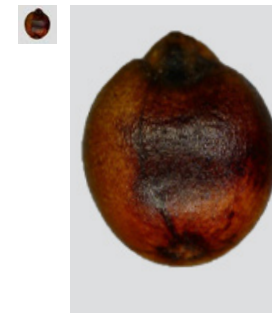
Mould

Definition: Grains appear discoloured and visibly affected by mould.



Field Fungi

Definition: Kernels affected by the growth of fungi on the seed coat. The fungal growth can vary in colour from white, to grey, to black. It does not refer to the more serious Moulds.



**Stained
Sound**



**Field Fungi
Defective**

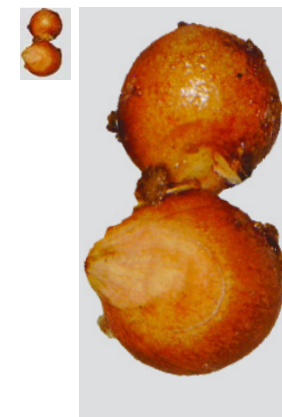
SORGHUM: COMMON DEFECTS

Issued: 1st August 2020

Honeydew

Definition: Honeydew is acceptable if the grain is able to flow freely.

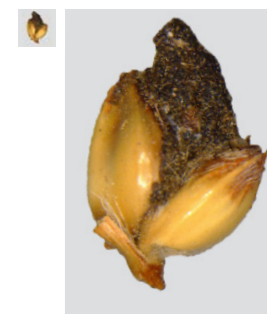
Honeydew is a sticky exudate produced by the sorghum plant in response to any predator attack, including Ergot. Honeydew oozes out of the flowers and drips onto leaves of the sorghum plant. It causes seeds to stick together and can make crops difficult to harvest and prevent harvested grain from running through equipment.



Sorghum Ergot

Definition: Any visible ergot to the grain is to be classified as defective.

Sorghum Ergot, *Claviceps africana*, may result in the accumulation of a grey/white fungal mass in empty seed glumes. *Cerebella spp.* is not a true ergot but is a fungus that often grows on the *Claviceps africana*, producing a large black mass. *Cerebella spp.* is included in Sorghum Ergot.

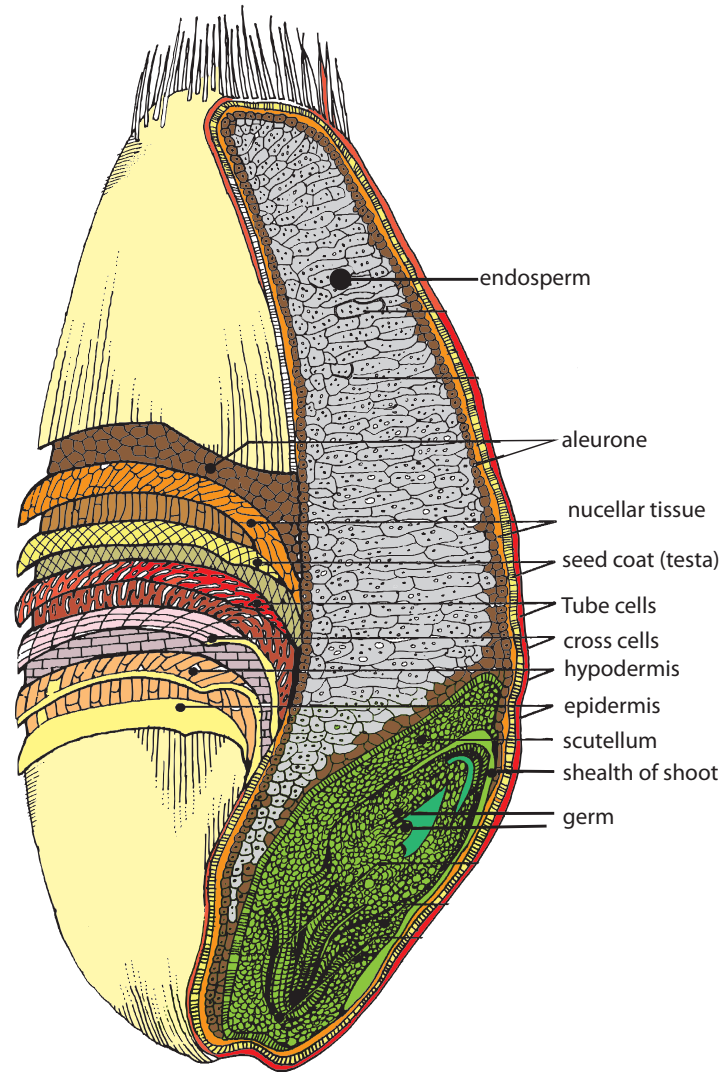


Claviceps africana



Cerebella spp.

WHEAT



Wheat Grain

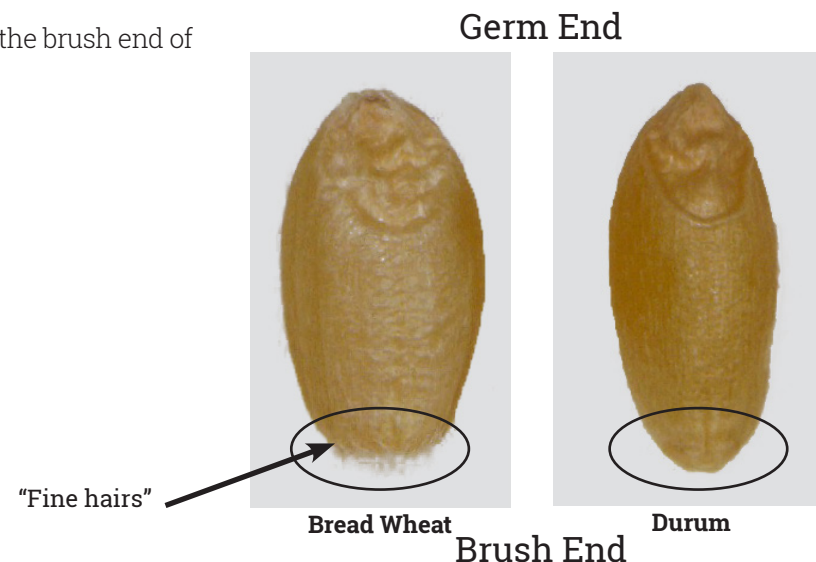


WHEAT: DURUM

Issued: 1st August 2020

Durum Identification

Description: Bread Wheat can be visually distinguished from Durum by the “fine hairs” on the brush end of the grain. These hairs are only associated with Bread Wheat varieties.



Vitreous Kernels

Description: Vitreous grains will appear uniformly bright and translucent. Non vitreous grains will be dull and opaque, or will contain dark, opaque sections that are clearly visible within the remaining translucent section of the grain.

Bleached grains may be difficult to ascertain if they are vitreous.



WHEAT: COMMON DEFECTS

Issued: 1st August 2020

Pink Stained

Definition: Grains with distinct pink discolouration.

Grains that are pink but also contain a white to light grey fungal like discolouration over more than approximately 50% of the seed coat surface are to be classified as "White Grain Disorder / Head Scab".



Insect Damaged

Definition: Any visible insect damage to the grain is classified as defective.



Stained

Definition: 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. Grains are commonly referred to as "black point" or "black tip". Includes any staining beyond the minimum and up to 50% of the entire grain surface. For staining level greater than 50%, refer to Field Fungi.

Also includes adherence of contaminants such as soil, dust, plant parts and other material.



Discolouration must be 50% or more of the germ

Plant Material

Streaking

Brush Ventral

Brush Dorsal

Stained Crease

Black Tip

WHEAT: COMMON DEFECTS

Issued: 1st August 2020

Distorted

Definition: Grains generally have the appearance of full sized kernels with little or no structure on both dorsal sides of the grain, and are typically grey to blue in colour. Does not include pinched grain.



Sprouted

Definition: 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 with pin holes are not included in this definition.

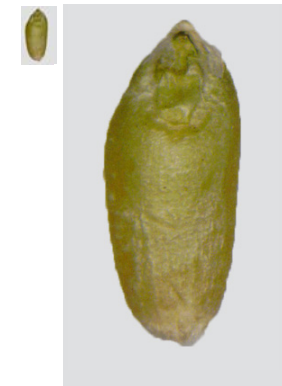


Scalloped
Not defective

Dry Green or Sappy

Definition Dry Green: Grain surface is distinctly green. Grains are usually dry and hard.

Definition Sappy: Grains are generally soft when pressed. They may or may not be green. Any level of sappiness is classified as defective.



Dry Green

WHEAT: COMMON DEFECTS

Issued: 1st August 2020

Field Fungi

Definition: Individual kernels where more than half (50%) of the seed coat is discoloured. Discolouration can vary from dark grey, brown to black in colour. Grains that are approximately 50% or less discoloured are to be classified as Stained.



Severely Damaged

Definition: Mould, heat damaged / burnt, or other serious visual defects. Grains that have become severely discoloured. Grains appear reddish brown, dark brown, or in severe cases, blackened.

Does not include Field Fungi.



Sound

Heat damaged

Blackened

Mouldy

WHEAT: COMMON DEFECTS

Issued: 1st August 2020

White Grain Disorder / Head Scab

Definition: Grains appear white to light grey but may also contain a pink discolouration. Discolouration must be over more than approximately 50% of the seed coat surface. If the discolouration is less than approximately 50% of the seed coat surface, grains may be classified as sound.

Grains may also appear flaky with a white discolouration or resemble tombstones.



WHEAT: COMMON DEFECTS

Issued: 1st August 2020

Ball Smuts

Definition: Grains infected by the spores of the fungus *Tilletia caries*. Appearance of pale, plump, slightly oversized grains. Easily crushed between the fingers and contain a mass of black powder (spores) with a distinctive rotten egg smell. This may also be called Stinking Smut or Bunt.



Pickling Compounds / Artificial Colouring (Pickled Wheat-WA)

Definition: An unnatural surface colour and/or colour that rubs off. Any grains that are artificially coloured, regardless of intensity, are defective.

Note: These photographs are to illustrate artificial colours and appearance only. A **nil tolerance** applies to any pickling compounds, regardless of intensity or coverage.





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