Crop Produce Analysts:

Grain Grader

Curriculum Code 684301001

Knowledge Assessment

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Knowledge Modules			
684301001-KM-01	**The collection and grading of representative grain and oilseed samples**	**NQF 3**	**12 credits**
	Notional Hour Breakdown	**Total**	**120 hours**
	Facilitation time	**Module 1**	**16 hours**
		Module 2	**16 hours**
		Module 3	**16 hours**
		Maize	**8 hours**
		Wheat	**16 hours**
		Commodity 1	**16 hours**
		Commodity 2	**16 hours**
	Knowledge Assessment		**16 hours**
KM-01-KT01	**The Grains and Oilseeds Industries**		
	KT0101	Grains and oilseeds quality properties	
	KT0102	Grains and oilseeds grading principles and regulatory framework	
KM-01-KT02	**Grains and oilseeds sampling**		
	KT0201	Concept and principles of representative grains and oilseeds sampling	
	KT202	Sampling methods and procedures	
KM-01-KT03	**Grains and oilseeds grading**		
	KT0301	Organising and preparing the workplace	
	KT0302	Grading methods and procedures	

KNOWLEDGE ASSESSMENT

The following assessment activities must be completed by the learner during the time allocated during class facilitation time. The facilitator may request learners to complete each grain type on completion of that specific grading standard or on completion of all the theoretical components.

The learner must achieve a <mark>50%</mark> pass rate before he/she can commence with the practical assessment activities.

Module 1: The Grain and Oilseeds Industry

Question 1 [30]

Give the composition and nutritional values for the following grains, oilseeds and leguminous seeds:
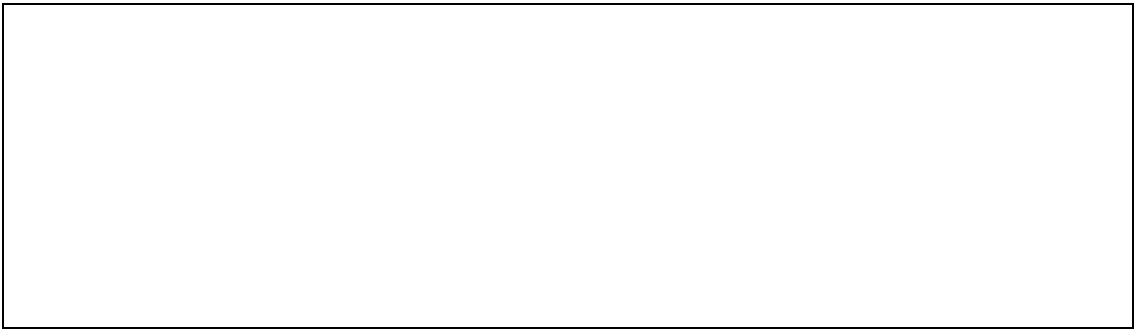
1. Maize (5)

2. Sorghum (5)

3. Bread Wheat (5)
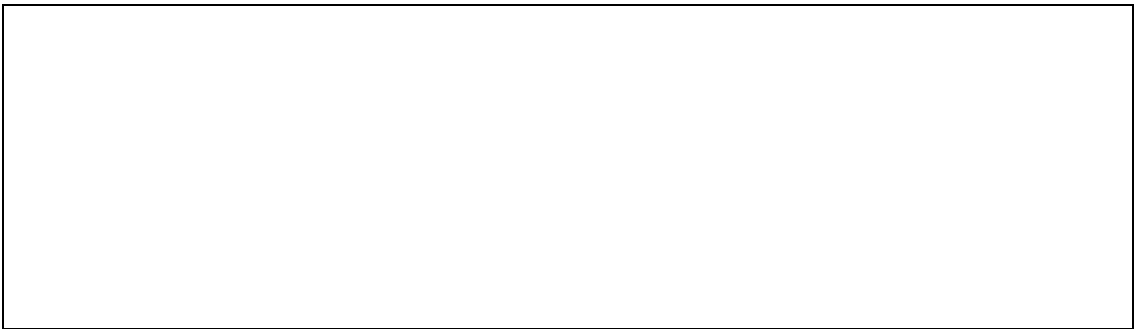
4. Soya beans (5)

5. Sunflower seeds (5)

6. Dry beans (5)

Total achieved (   )

Question 2 [25]

Describe in detail the uses for the following grains, oilseeds and leguminous seeds:

1. Maize   [5]

_____
_____
_____
_____
_____
_____

2. Wheat   [5]

_____
_____
_____
_____
_____
_____

Total achieved (   )

Question 3 [12]

Describe the industry stakeholders / participants' functions and options in the grain trading industry.

1. Producers / farmers   [3]

_____
_____
_____
_____
_____

2. Grain traders   [2]

_____
_____
_____
_____

3. Storage agents   [5]

_____
_____
_____
_____
_____

_____
_____

4. Processors, manufacturers and buyers   [2]

_____
_____
_____

Total achieved (   )

Question 4   [4]

Based on grading principles a grain, oilseed and dry bean representative sample must be sensorially assessed or chemically analysed to determine if it contains certain factors. Name these factors.

_____
_____
_____
_____
_____

Total achieved (   )

Question 5   [7]

Based on standards incorporated in the regulations grains, oilseeds and leguminous seeds must be free from certain substances or allowed a presence of the substance based on a predetermined tolerance. List these attributes and the applicable tolerance.

_____
_____
_____
_____
_____
_____
_____

Total achieved (   )

Question 6   **[12]**

Describe in full the necessity for grain, oilseed and dry bean grading.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Total achieved (   )

Module 2: Grains and Oilseeds Sampling

Question 7   **[8]**

Explain the importance of sampling as part of the grading process.

_____
_____
_____
_____
_____
_____

Total achieved (   )

Question 8   **[8]**

List and explain the four basic characteristics of sampling.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Total achieved (   )

Question 9   **[9]**

Complete the table below to indicate the correct representative and working sample sizes for each grain type:

Grain/Oilseed	Representative Sample	Working Sample
Wheat		
Sorghum		
Soya Beans		
Dry Beans		

Total achieved (   )

Question 10   **[4]**

Discuss the two different ways in which grains and oilseeds are transported.

_____

_____

_____

_____

_____

_____

Total achieved (   )

Question 11   **[10]**

Explain the two methods of bulk sampling of grain and oilseeds.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Total achieved (   )

Module 3: Grains and Oilseeds Grading

Question 13   **[6]**

List the steps to be followed in order to prepare to execute the grading of grains and oilseeds

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Total achieved (   )

Question 14   **[8]**

List personal safety equipment (PPE) that is important to use when grading:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Total achieved (   )

Question 15   **[10]**

Discuss the dangers of grain dust at the silo and the measures that should be taken to minimize the risk.

_____

_____

_____

_____

_____

_____

_____

_____

_____
_____
_____
_____
_____
_____
_____

Total achieved (   )

Grading: Grains, Oilseeds and Legumes

Assessment COMPULSORY: Maize and Wheat

Assessment ELECTIVE: Choose 2

Sorghum	
Popcorn	
Barley	
Canola	
Oats	
Triticale	
Sunflower	
Soya bean	
Groundnuts	
Dry beans	
Lupins	
Peas	
Lentils	

1. **Describe the following (Definitions)**

"Another colour"

_____

_____

_____

"Poisonous seeds"

_____

_____

_____

"Foreign matter"

_____

_____

_____

"6.35 mm round hole sieve"

_____

_____

_____

"Defective maize"

_____

_____

_____

"Pinked maize"

_____

_____

_____

"Mouldy kernels"

_____

_____

_____

"Heat damaged kernels"

_____

_____

_____

"Coffee stained kernels"

_____

_____

_____

"Oxidation stained maize"

_____

_____

_____

"Frost damaged kernels"

_____

_____

_____

"Sprouted kernels"

_____

_____

_____

"Shrivelled or obviously immature"

_____

_____

_____

"Water damaged kernels"

_____

_____

_____

"Maize treated with a chemical substance"

_____

_____

_____

"Discoloured maize kernels"

_____

_____

_____

2. **Seen from an agricultural point of view, maize is classified into three groups, discuss each group in full.**

_____

_____

_____

_____

_____

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

3. **Name the classes of maize**

_____
_____
_____
_____

4. **Name the grades for maize**

_____
_____
_____
_____
_____

5. **When would maize be graded as class other maize**

_____
_____
_____
_____

6. **How is the following determined**

Foreign matter

_____
_____
_____

Defective maize

_____

_____

_____

Another colour

_____

_____

_____

Pinked maize

_____

_____

_____

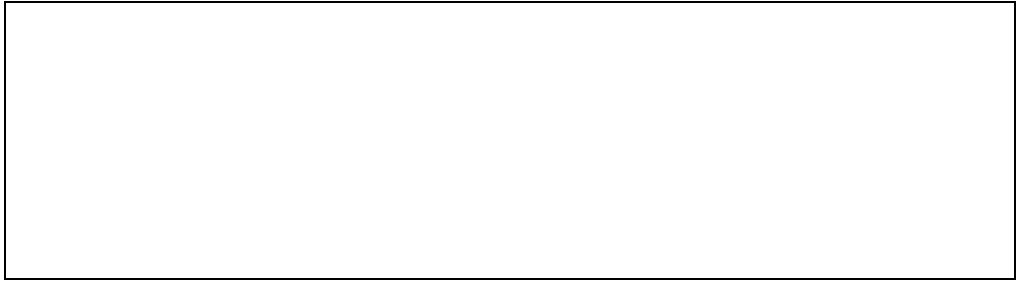7. **Calculate the percentages of the following defects:**

    a. Sample of maize= 165.3g   Defective maize 3.0g

    b. Sample of maize = 183.9g   Other colour maize 5.6g

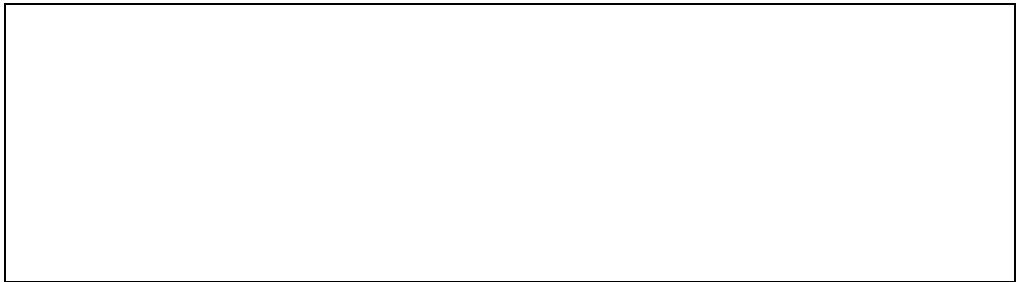   c. Sample of maize = 154.2g   Insect damaged maize 4.2g

d. Sample of maize = 162.3g   Sorghum 9.4g

e. Sample of maize = 195.3g   Fusarium 2.3g

f. Sample of maize = 165.3g   Pinked maize kernels 4.5g

8. **Award a class and grade to the following samples:**

    a) White maize

Defective above the 6.35mm sieve	3.0%
Defective below the 6.35mm sieve	2.8%
Foreign matter	0.4%
Other colour	9.0%
Pinked maize kernels	11.5%
Moisture	13.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE   _____

17

b) Yellow Maize

Defective above the 6.35mm sieve	3.0%
Defective below the 6.35mm sieve	6.2%
Foreign matter	0.2%
Other colour	9.0%
Moisture	12.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE   _____

c) White maize

Defective above the 6.35mm sieve	4.3%
Defective below the 6.35mm sieve	2.8%
Foreign matter	0.8%
Other colour	2.0%
Pinked maize kernels	13.5%
Moisture	14.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE _____

d) White maize

Defective above the 6.35mm sieve	10.0%
Defective below the 6.35mm sieve	2.8%
Foreign matter	0.1%
Other colour	1.0%
Pinked maize kernels	0.5%
Moisture	12.5%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE _____

e) Yellow Maize

Defective above the 6.35mm sieve	3.0%
Defective below the 6.35mm sieve	2.8%
Wheat	0.4%
Sun flower	9.0%
Moisture	13.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE _____

f) White maize

Diplodia	3.0%
Fusarium	2.5%
Insect damage	3.3%
Defective below the 6.35mm sieve	2.8%
Stones, coal and dung	0.4%
Other colour	0.4%
Pinked maize kernels	1.7%
Moisture	12.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE   _____

g) Yellow maize

Defective above the 6.35mm sieve	8.0%
Defective below the 6.35mm sieve	5.8%
Stones below the 6.35mm round-hole sieve	0.8g
Foreign matter	0.1%
Other colour	2.0%
Moisture	16.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE _____

h) White maize

Defective below the 6.35mm sieve	7.2%
Foreign matter	0.4%
Other colour	1.0%
Pinked maize kernels	1.5%
Moisture	13.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE _____

i) Yellow maize

Defective above the 6.35mm sieve	22.0%
Foreign matter	0.4%
Other colour	9.0%
Moisture	13.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE   _____

j)   White maize

Defective below the 6.35mm sieve	2.8%
Rodent damaged maize kernels	2.5%
Insect damaged	1.2%
Zea maize Oaxacan Green	20.0%
Foreign matter	0.4%
Pinked maize kernels	11.5%
Moisture	13.4%

Class ....

No	Foreign matter	Defective kernels		Another colour	Total	Pinked maize
		Below 6,35 mm sieve	Above 6,35 mm sieve			
1.						
2.						
3.						
4.						
5.						
Total						
Grade						

FINAL CLASS AND GRADE   _____

1. **Describe the following (Definitions)**

"other grain"

_____
_____
_____

"damaged wheat"

_____
_____
_____

"heavily frost-damaged wheat"

_____
_____
_____

"field fungi infected wheat"

_____
_____
_____

"unthreshed ears"

_____
_____
_____

"storage fungi infected wheat"

_____
_____
_____

"protein content"

_____
_____
_____

"stinking smut infection"

_____
_____
_____

"falling number"

_____

_____

_____

"foreign matter"

_____

_____

_____

2. **Name the classes of wheat**

_____

_____

_____

_____

3. **Name the grades for wheat**

_____

_____

_____

_____

_____

4. **What is the falling number value for the different grades of wheat?**

_____

_____

_____

_____

5. **What are the factors that influence the hectolitre mass of wheat?**

_____

_____

_____

_____

_____

_____

6. **Describe how the following deviations are determined:**

Percentage Screenings

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Percentage heavily frost-damaged wheat

_____
_____
_____
_____
_____
_____
_____
_____
_____

Percentage heat-damaged wheat

_____
_____
_____
_____
_____
_____
_____
_____
_____

Percentage field-fungi infected wheat

_____
_____
_____
_____
_____
_____

Percentage storage fungi infected wheat

_____

_____

_____

_____

_____

_____

_____

_____

_____

7.   **Award a class and grade to the following samples:**

SST 387	
Falling Number (FN)	279 s
Protein content	12.2%
Hectolitre mas	81 kg
Oats	12%
Buck-wheat	2.5%
Sprouted rye	2%
Screenings	2.8%
Insect damaged wheat	1.2%

PAN 3161	
Protein content	10.8%
Hectolitre mass	78 kg
Screenings	0.8%
Vicia	1%
Immature oats	1%
FN	320s
Moisture content	12.6%

SST 875	
Protein content	13%
Hectolitre mass	79 kg
Screenings	0.9%
Maize	1%
Wild oats	1%
FN	256s

SST 356	
Protein content	11.2%
Hectolitre mass	73kg
Screenings	1.1%
Insect damaged – Betta-DN	5%
Maize	0.5%
Immature wheat	2%
FN	310s

PAN 3161	
Protein content	9.9%
Hectolitre mass	76kg
Lupins	0.8%
Rye	0.3%
Barley	0.5%
Grain sorghum	0.1%
Sprouted wheat	2%
Screenings	2%
FN	262s

ELANDS	
Protein content	11.9%
Hectolitre mass	80 kg
Screenings	1.2%
Wild buck-wheat	0.5%
Lupins	0.4%
Moisture content	12.2%
FN	360s

CRN 826	
Protein content	12.5%
Hectolitre mass	78 kg
Screenings	2.4%
Scheepers 69	4%
Foreign matter	1%
Heat damaged SST 822	0.5%%
FN	340s

SST 843	
Protein content	11.6%
Hectolitre mass	77 kg
Screenings	1.8%
Unthreshed ears	1%
Mould infected soya beans	1%
Sprouted barley	1%
Vicia	1.2%
FN	203s

KOMATI	
Protein content	12.5%
Hectolitre mass	76 kg
Screenings	0.8%
Durum	4%
Elands	16%
Moisture content	13.9%
Vicia	1%
Sprouted oats	0.5%
FN	320s

GARIEP	
Protein content	14.1%
Hectolitre mass	74 kg
Screenings	1.3%
Insect damaged barley wheat	1%
Morning Glory seeds	1/10kg
Heat damaged	2.9%
FN	630s

1. **Describe the following (Definitions)**

"damaged sunflower seeds"

_____

_____

_____

_____

"poisonous seeds"

_____

_____

_____

_____

"sclerotinia"

_____

_____

_____

_____

"sunflower seeds"

_____

_____

_____

_____

"screenings"

_____

_____

_____

_____

"standard sieve"

_____

_____

_____

_____

"foreign matter"

_____

_____

_____

_____

2. **Name the classes of sunflower seeds**

_____

_____

_____

_____

_____

3. **What is the standard for each class of sunflower seed?**

_____

_____

_____

_____

_____

_____

4. **Name the grades for sunflower seeds**

_____

_____

_____

_____

_____

5. **Describe the standard for sunflower seeds**

_____

_____

_____

_____

_____

_____

_____

6. **How is the following determined:**

Percentage damaged sunflower seed

_____

_____

_____

_____

_____

_____

Percentage sclerotinia

_____

_____

_____

_____

_____

_____

Percentage screenings

_____

_____

_____

_____

_____

_____

Percentage of sunflower seed of another class

_____

_____

_____

_____

_____

_____

Percentage of foreign matter

_____

_____

_____

_____

_____

7. **Determine the class and grade of the following samples of sunflower seed. All the samples represent Class FH.**

a)

Moisture content	8.1%
Sclerotia	1.1%
Maize	3.2%
Screenings	2.0%
Oil content	38.5%

		1	2	3	4	Total	Grade
1	Damaged sunflower seed						
2	Screenings						
3	Sclerotinia						
4	Foreign matter						
5	Total deviations for 2, 3 and 4 collectively: Provided that such deviations are individually within the limits of each item						
	Final grade						

b)

Moisture content	9.4%
Wheat	1.5%
Screenings	0.4%
Convolvulus	6/1000g
Stones	0.1%

		1	2	3	4	Total	Grade
1	Damaged sunflower seed						
2	Screenings						
3	Sclerotinia						
4	Foreign matter						
5	Total deviations for 2, 3 and 4 collectively: Provided that such deviations are individually within the limits of each item						
	Final grade						

c)

Moisture content	7.7%
Oil content	43%
Screenings	0.6%
Foreign objects	0.8%
Heat damaged	2.6%

		1	2	3	4	Total	Grade
1	Damaged sunflower seed						
2	Screenings						
3	Sclerotinia						
4	Foreign matter						
5	Total deviations for 2, 3 and 4 collectively: Provided that such deviations are individually within the limits of each item						
	Final grade						

d)

Oil content	41.3%
Sclerotia	4.0%
Screenings	0.3%
Smell	Khaki bush
Moisture content	10.4%

		1	2	3	4	Total	Grade
1	Damaged sunflower seed						
2	Screenings						
3	Sclerotinia						
4	Foreign matter						
5	Total deviations for 2, 3 and 4 collectively: Provided that such deviations are individually within the limits of each item						
	Final grade						

8. Determine the mass of a consignment sunflower seed with a total mass of 20 550kg and with 1.3% sclerotia, 0.5% screenings and 1.1% foreign objects.

_____

_____

_____

_____

1. **Describe the following (Definitions)**

"another group"

_____

_____

_____

"dark testa"

_____

_____

_____

_____

"small kernel sorghum"

_____

_____

_____

_____

"unthreshed sorghum"

_____

_____

_____

_____

"poisonous seeds"

_____

_____

_____

"sorghum"

_____

_____

_____

"foreign matter"

_____

_____

_____

_____

"weather-stained sorghum"

_____

_____

_____

"white sorghum"

_____

_____

_____

"standard sieve"

_____

_____

_____

"defective sorghum"

_____

_____

_____

2. Name the classes of sorghum

_____

_____

_____

_____

3. What is the standard for each class sorghum

_____

_____

_____

_____

_____

4. Name the grades for sorghum

_____

_____

_____

_____

_____

5. Describe the standard for sorghum

_____

_____

_____

_____

_____

_____

_____

6. How is the following determined

Foreign matter content

_____

_____

_____

_____

Unthreshed sorghum content

_____

_____

_____

_____

Defective sorghum- and small kernel sorghum content

_____

_____

_____

_____

_____

Sorghum content of another group

_____

_____

_____

_____

_____

White sorghum content

_____

_____

_____

_____

_____

Weather-stained sorghum content

_____

_____

_____

_____

_____

_____

7. Determine the class and grade of the following samples:

A   1. Light testa sorghum

     2. 10 smut balls

     3. Foreign matter – 1.8%

     4. Unthreshed sorghum – 5.2%

     5. Defective sorghum – 8.4%

     6. Small kernel sorghum – 3.0%

     7. Sorghum of another group – 5.2%

     8. White sorghum – 5.2%

     9. Weather stained sorghum – 22%

GRADING TABLE

Class ……………………..

Grading factors	1	2	3	4	Total	Grade
Foreign matter						
Unthreshed sorghum						
Defective sorghum						
Small kernel sorghum						
Total of defective and small kernel sorghum						
Sorghum of another group						
Sorghum of a white group						
Total of a white group and another group						
Weather stained sorghum						

Final grade   ……………

B 1. Dark testa sorghum - GH

   2. 2.0g sunflower.

   3. Foreign matter – 2.5%

   4. Unthreshed sorghum – 3.0%

   5. Defective sorghum – 5.4%

   6. Small kernel sorghum – 5.0%

   7. Sorghum of another group – 5.2%

   8. White sorghum – 5.2%

   9. Weather stained sorghum – 22%

GRADING TABLE

Class ……………………..

Grading factors	1	2	3	4	Total	Grade
Foreign matter						
Unthreshed sorghum						
Defective sorghum						
Small kernel sorghum						
Total of defective and small kernel sorghum						
Sorghum of another group						
Sorghum of a white group						
Total of a white group and another group						
Weather stained sorghum						

Final grade   ……………

C   1. Dark testa sorghum - GL

2. 5.2g sorghum of which embrio skin are cracked.

3. Foreign matter – 2.3%

4. Unthreshed sorghum – 2.2%

5. Defective sorghum – 9.4%

6. Small kernel sorghum – 19.8%

7. Sorghum of another group – 2.2%

8. White sorghum – 22.5%

9. Weather stained sorghum – 52%

GRADING TABLE

Class   ……………………..

Grading factors	1	2	3	4	Total	Grade
Foreign matter						
Unthreshed sorghum						
Defective sorghum						
Small kernel sorghum						
Total of defective and small kernel sorghum						
Sorghum of another group						
Sorghum of a white group						
Total of a white group and another group						
Weather stained sorghum						

Final grade   ……………

D   1. Light testa sorghum

     2.   5.3% sorghum with a light green colour.

     3.   Foreign matter – 0.8%

     4.   Unthreshed sorghum – 1.2%

     5.   Defective sorghum – 1.4%

     6.   Small kernel sorghum – 3.0%

     7.   Sorghum of another group – 2.2%

     8.   White sorghum – 0.2%

     9.   Weather stained sorghum – 12%

GRADING TABLE

Class ……………………..

Grading factors	1	2	3	4	Total	Grade
Foreign matter						
Unthreshed sorghum						
Defective sorghum						
Small kernel sorghum						
Total of defective and small kernel sorghum						
Sorghum of another group						
Sorghum of a white group						
Total of a white group and another group						
Weather stained sorghum						

Final grade   ……………

E   1. Dark testa sorghum- GH

    2.   2 smut balls

    3.   Insect damaged sorghum – 2.3%

    4.   Unthreshed sorghum – 19.2%

    5.   Defective sorghum – 0.4%

    6.   Small kernel sorghum – 18.3%

    7.   Sorghum of another group –52.3%

    8.   White sorghum – 5.2%

    9.   Weather stained sorghum – 22%

GRADING TABLE

Class ……………………..

Grading factors	1	2	3	4	Total	Grade
Foreign matter						
Unthreshed sorghum						
Defective sorghum						
Small kernel sorghum						
Total of defective and small kernel sorghum						
Sorghum of another group						
Sorghum of a white group						
Total of a white group and another group						
Weather stained sorghum						

Final grade   ……………

F   1. Light testa sorghum

    2.   Sorghum with musty smell

    3.   52 Thorn apple seeds

    4.   Unthreshed sorghum – 0.2%

    5.   Defective sorghum – 1.4%

    6.   Small kernel sorghum – 0.0%

    7.   Sorghum of another group – 2.2%

    8.   White sorghum – 3.2%

    9.   Weather stained sorghum – 22%

GRADING TABLE

Class ……………………..

Grading factors	1	2	3	4	Total	Grade
Foreign matter						
Unthreshed sorghum						
Defective sorghum						
Small kernel sorghum						
Total of defective and small kernel sorghum						
Sorghum of another group						
Sorghum of a white group						
Total of a white group and another group						
Weather stained sorghum						

Final grade   ……………

1. Describe the following (Definitions)

" other grain"

_____
_____
_____

"defective soya beans"

_____
_____
_____

"poisonous seeds"

_____
_____
_____

" heat damaged"

_____
_____
_____

"frost damaged"

_____
_____
_____

"wet pods"

_____
_____
_____

" pods"

_____
_____
_____

"sclerotinia"

_____
_____
_____

" soya beans"

_____
_____
_____
_____

" mould infected"

_____

_____

_____

_____

" the 4,75mm round-hole screen''

_____

_____

_____

_____

"soiled soya beans"

_____

_____

_____

"foreign matter"

_____

_____

_____

2. **Name the classes of soya beans**

_____

_____

_____

_____

_____

3. **What is the standard for each class of soya beans**

_____

_____

_____

_____

_____

4. **Name the grades for soya beans**

_____

_____

_____

_____

_____

_____

_____

5. Describe the standard for soya beans

_____

_____

_____

_____

_____

_____

_____

6. How is the following determined:

Percentage wet pods

_____

_____

Percentage of other grain, sunflower seed, stones and foreign matter

_____

_____

Percentage defective soya beans

_____

_____

Percentage soya beans and pieces of soya beans that pass through the 4,75mm round hole screen

_____

_____

Percentage sclerotinia

_____

_____

Percentage of soiled soya beans

_____

_____

Determine the class and grade of the following samples:

Sample no.	1	2	3	4	5
Wet pods	0.1%	0.3%	0%	0.5%	0%
Foreign matter, including stones, other grain and Sunflower seeds:	2.9%	1.9%	4.5%	0.4%	1.7%
Foreign material on top of 4.75mm round hole sieve	0.2%	0.3%	0.4%	0%	0.2%
Foreign material on top of 1.8mm slotted sieve	1.3%	0.9%	1.2%	0%	0.1%
Foreign material in the pan (Throughs of the 1.8mm slotted sieve)	0.6%	0.7%	1.3%	0%	1.4%
Other Grain	0.1%	0%	0.6%	0.4%	0
Sunflower seed	0.1%	0%	0.1%	0%	0
Stones	0.6%	0%	0.9%	0%	0
Sclerotinia	2.2%	3.4%	4.2%	0%	1.3%
Soybeans and part of Soybeans which pass through the 4.75mm round hole screen on top of the 1.8mm slotted sieve.	6.4%	3.2%	5.5%	11.9%	7.5%
Defective Soybeans on the 4.75mm round whole screen	9.9%	3.5%	12.3%	7.8%	12.5%
Soiled Soybeans on top of 4.75mm round hole sieve	4.8%	15.4%	9.5%	7.3%	0%
Deviations in (B) and (F) collectively. Provided that such deviation are individually within the limits of said items.	5.1%	5.3%	8.7%	0.4%	3.0%
Class and grade					

1. **Describe the following (Definitions)**

"Broken or split dry beans"

_____

_____

_____

"Dry beans"

_____

_____

_____

"Broken testa"

_____

_____

_____

"Bulk quantities"

_____

_____

_____

"Colour group"

_____

_____

_____

"Cracked testa"

_____

_____

_____

"Defective dry beans"

_____

_____

_____

"Form group"

_____

_____

_____

"Main panel"

_____

_____

_____

"Not true to type dry beans"

_____

_____

_____

"Retail quantities"

_____

_____

_____

"Stained"

_____

_____

_____

"Speckled"

_____

_____

_____

"Type group"

_____

_____

_____

"Wrinkled testa"

_____

_____

_____

2. **What is the standard for split dry beans**

_____

_____

_____

_____

_____

_____

3. **What is the standard for each grade**

_____

_____

_____

_____

_____

_____

4. **What is the standard for Under grade dry beans**

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

5. **Describe the form groups**

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

6. **Describe the size groups**

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

7. **Describe the colour groups**

_____
_____
_____
_____
_____
_____

8. Describe the type groups

_____
_____
_____
_____
_____
_____
_____
_____
_____

9. Describe the grades for dry beans

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

10. How is the following determined:

Colour group

_____
_____
_____
_____
_____

Type group

_____
_____
_____

Foreign matter, stones and sand

_____

_____

_____

_____

_____

_____

Defective, broken and split dry beans

_____

_____

_____

Not true to type dry beans

_____

_____

_____

Broken, wrinkled or cracked testa

_____

_____

_____

11. Describe the container and marking requirements for dry beans

_____

_____

_____

_____

_____

_____

A   Sample**: (Bulk/Retail)**

	TIPE DRY BEANS					=	
	FORM					=	
	SIZE					=	
	COLOUR					=	
No	Afwyking/Deviation	1	2	3	4	Total	Grade
1	Foreign matter						
2	Stones and sand						
3	**Total Foreing matter and stones**						
4	Defective dry beans						
5	Broken/split dry bean						
6	**Total defective & broken/splits**						
7	Not true to tipe beans						
8	Broken testa						
9	Wrinkled/cracked testa						
10	**Total Broken & Wrinkled/cracked testa**						
11	Poisonous seeds						
12	Musty or unacceptical odour						
13	Harmfull substance						
14	Moisture						
15	Remarks:						

GRADE   =

B   Sample: **(Bulk/Retail)**

	TIPE DRY BEANS					=	
	FORM					=	
	SIZE					=	
	COLOUR					=	
No	Afwyking/Deviation	1	2	3	4	Total	Grade
1	Foreign matter						
2	Stones and sand						
3	**Total Foreing matter and stones**						
4	Defective dry beans						
5	Broken/split dry bean						
6	**Total defective & broken/splits**						
7	Not true to tipe beans						
8	Broken testa						
9	Wrinkled/cracked testa						
10	**Total Broken & Wrinkled/cracked testa**						
11	Poisonous seeds			=			
12	Musty or unacceptical odour			=			
13	Harmfull substance			=			
14	Moisture			=			
15	Remarks:						

GRADE   =

Knowledge: Assessment Results Summary				
Question	Total	Total Achieved	Remarks	59
1	30			
2	25			
3	12			
4	40			
5	4			
6	7			
7	42			
8	12			
9	8			
10	8			
11	8			
12	4			
13	10			
14	6			
15	8			
16	10			
17	100			
18	100			
19	100			
20	100			
21	100			
22	100			
Total	834			

1.   **Describe the following (Definitions)**

"Artificially dried barley"

_____

_____

_____

"Badly discoloured and heat-damaged barley"

_____

_____

_____

"badly mold-infected (rotten) barley"

_____

_____

_____

"black-end barley"

_____

_____

_____

"black-hulled barley"

_____

_____

_____

"damaged barley"

_____

_____

_____

"mechanically damaged barley"

_____

_____

_____

"plump barley"

_____

_____

_____

"pre-germinated barley"

_____

_____

_____

"rubbing"

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

"six-row barley"

_____
_____
_____

8. **Name the classes of barley**

_____
_____
_____
_____

9. **What is the standard for each class barley**

_____
_____
_____
_____
_____

10. **Name the grades for barley**

_____
_____
_____
_____
_____

11. **Describe the standard for barley**

_____
_____
_____
_____

_____
_____
_____
_____

12. How is the following determined:

Class

_____
_____
_____
_____

Moisture content

_____
_____
_____
_____

Nitrogen content

_____
_____
_____
_____
_____

Germination capacity

_____
_____
_____
_____
_____

Germination energy

_____
_____
_____
_____
_____

13. How is the following deviations in barley determined:

% maize and/or stones

_____
_____
_____
_____

plump barley

_____
_____
_____
_____

mechanically damaged barley

_____
_____
_____
_____
_____

badly discoloured/heat-damaged barley

_____
_____
_____
_____
_____

black-end barley

_____
_____
_____
_____
_____

un-threshed ears

_____
_____
_____
_____
_____

damaged barley

_____

_____

_____

_____

_____

weather-damaged barley

_____

_____

_____

_____

_____

_____

_____

pre-germinated barley

_____

_____

_____

_____

_____

_____

_____

sprouted barley

_____

_____

_____

_____

_____

_____

_____

1. **Describe the following (Definitions)**

    "Canola"

    _____

    _____

    _____

    "damaged seed"

    _____

    _____

    _____

    "distinctly green seed"

    _____

    _____

    _____

    "mouldy seed"

    _____

    _____

    _____

    "canola sieve"

    _____

    _____

    _____

    "snails"

    _____

    _____

    _____

    "sprouted"

    _____

    _____

    _____

2. **Name the classes of canola**

    _____

    _____

    _____

    _____

3. **What is the standard for each class canola**

_____
_____
_____
_____
_____
_____

4. **Name the grades for canola**

_____
_____
_____
_____
_____
_____

5. **Describe the standard for canola**

_____
_____
_____
_____
_____
_____
_____
_____
_____

6. **How is the following determined:**

Heat damaged and distinctly green seed

_____
_____
_____
_____

Foreign matter

_____
_____
_____
_____

Sclerotinia

_____
_____
_____

_____

_____

Sprouted kernels

_____

_____

_____

_____

_____

Ergot sclerotia

_____

_____

_____

_____

_____

1. **Describe the following (Definitions)**

"Blackened pods"

_____

_____

_____

"blemished kernels"

_____

_____

_____

"broken and open pods"

_____

_____

_____

"edible groundnuts"

_____

_____

_____

"expressing groundnuts"

_____

_____

_____

"kernel content"

_____

_____

_____

"mould-infested kernels"

_____

_____

_____

"noxious seeds"

_____

_____

_____

"one-kernelled pod"

_____

_____

_____

"raisins"

_____
_____
_____

"shelled kernels"

_____
_____
_____

"shrivelled kernels"

_____
_____
_____

"soiled kernels"

_____
_____
_____

"soiled pods"

_____
_____
_____

"split kernels"

_____
_____
_____

"sticks"

_____
_____
_____

"sun-dried kernels"

_____
_____
_____

"Unsound kernels"

_____
_____
_____

2. **Name the classes of groundnuts**

_____

_____

_____

_____

_____

_____

3. **What is the standard for each class groundnuts**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

4. **Name the grades for groundnuts**

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

5. Describe the standard for groundnuts

_____

_____

_____

_____

_____

_____

_____

_____

_____

6. **How is the following determined:**

Percentage kernels of another class

_____

_____

_____

_____

Sticks, foreign matter and shelled kernels

_____

_____

_____

_____

Pods and foreign matter in kernel form

_____

_____

_____

_____

_____

Kernel content

_____

_____

_____

_____

_____

7. Describe the steps for the grading of groundnuts

Steps for grading of pods

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

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_____

Steps for grading groundnuts in kernel form

_____
_____
_____
_____
_____
_____
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Steps for grading and screening of kernels

Steps for grading of pods

_____
_____
_____
_____
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Final Assessment Results				
KM-01-KT01	**The Grains and Oilseeds Industries**			
	KT0101	Grains and oilseeds quality properties	C	NYC
	KT0102	Grains and oilseeds grading principles and regulatory framework	C	NYC
KM-01-KT02	**Grains and oilseeds sampling**			
	KT0201	Concept and principles of representative grains and oilseeds sampling	C	NYC
	KT202	Sampling methods and procedures	C	NYC
KM-01-KT03	**Grains and oilseeds grading**			
	KT0301	Organising and preparing the workplace	C	NYC
	KT0302	Grading methods and procedures	C	NYC

ASSESSOR	SIGNATURE	DATE
LEARNER	SIGNATURE	DATE
MODERATOR	SIGNATURE	DATE