



**Government of Karnataka  
Department of Agricultural Marketing**

**ABSTRACT**

**COMMODITY WISE ASSAYING PARAMETERS & PROCEDURES**

**June-2015**

**Prepared by:**



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## **1. MAIZE**

**Subject:** Quality parameters, grading, quality certification and other related matters for Maize sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Maize sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Maize sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Maize brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.
- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.

- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format M1 for Maize and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform (UMP).

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Maize

Maize shall be assayed for the following parameters –

- **Foreign Matter**, expressed in per cent: includes dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity
- **Other food grains**, expressed in per cent: Other food grains are food grains other than the principle grain under consideration.
- **Damaged Grains**, expressed in per cent: Damaged grains are those grains that are internally damaged to such an extent that the damage materially affects the quality of the cereal.
- **Discoloured Grains**, expressed in per cent: Discoloured grains are those grains that have changed the colour as a result of deteriorative changes.
- **Slightly Damaged or Touched Grains**, expressed in per cent: Slightly damaged or touched grains are grains that are damaged or discoloured superficially so as not to affect the quality of the material
- **Shrivelled & Immature Grains**, expressed in per cent: Shrivelled & Immature grains are those cereals that are not properly developed.
- **Weevilled Grains**, expressed in per cent: Weevilled grains are those grains that are partially or wholly bored or eaten by weevil or other grain insects.
- **Moisture**, expressed in per cent:

## Schedule 2

### Format of Sample identity slip to be placed with the petro bulk seal

Sample identity slip	
Name of commodity	Maize
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

## Schedule 3

### Format of register to be maintained

Form - M1

Name of the commodity – Maize

APMC: ..... .....

Sl. No.	Date	Quantity /No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

## Schedule -4

### Physical analysis of Maize

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurity in a pre-weighed Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$ .
2. Analysis for other food grains
  - a) Take the above sample
  - b) Separate the grains other than the principal grain.
  - c) Weigh the other food grains ( $W_2$ ).
  - d) The percent of other food grains present is  $(W_2/W_0)*100$ .
3. Analysis for Damaged grains
  - a) Take the above sample
  - b) Separate the grains that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the grains by hand picking.
  - c) Weigh the damaged grains ( $W_3$ ).
  - d) The percent of damaged grains present is  $(W_3/W_0)*100$
4. Analysis for Discoloured, Slightly damaged and Touched grains.
  - a) Take the above sample
  - b) Separate the grains that are discoloured, slightly damaged and touched by hand picking.
  - c) Weigh the discoloured, slightly damaged and touched grains ( $W_4$ ).
  - d) The percent of discoloured, Slightly damaged and Touched Grains present is  $(W_4/W_0)*100$
5. Immature & Shrivelled grains.
  - a) Take the above sample
  - b) Separate the grains that are not properly developed.
  - c) Weigh the Immature and shrivelled grains ( $W_5$ ).
  - d) The percent of Immature and Shrivelled grains present is  $(W_5/W_0)*100$



6. Analysis for Weevilled grains
  - a) Take the above sample
  - b) Separate the grains that are partially or wholly bored or eaten by weevil or other grain insects.
  - c) Weigh the weevilled grains ( $W_6$ ).
  - d) The percent of weevilled grains present is  $(W_6/W_0)*100$
  
7. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## 2. PADDY

**Subject:** Quality parameters, grading, quality certification and other related matters for Paddy sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Paddy sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Paddy sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Paddy brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.
- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.

- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format P1 for Paddy and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Paddy

Paddy shall be assayed for the following parameters –

- **Foreign Matter:**
  - (a) **Inorganic Matter**, expressed in per cent: includes dust, dirt, stones, lumps of earth or any other impurity.
  - (b) **Organic Matter**, expressed in per cent: includes chaff, stem, straw or any other impurity
- **Damaged & Discoloured Grains**, expressed in per cent: Damaged & Discoloured grains are those grains that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the grain.
- **Sprouted Grains**, expressed in per cent: Sprouted grains are those grains in which the radicle or plumule is clearly visible to the naked eye.
- **Weevilled Grains**, expressed in per cent: Weevilled cereals are those cereals that are partially or wholly bored or eaten by weevil or other grain insects.
- **Immature, Shrunken or Shrivelled Grains**, expressed in per cent: Immature, Shrunken or Shrivelled grains are those grains that are not properly developed
- **Admixture**, expressed in per cent: Admixtures are any grains other than the principal grain.
- **Moisture**, expressed in per cent

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Paddy
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Form - P1

Name of the commodity – Paddy

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

**Schedule -4**  
**Physical analysis of Paddy**

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurity in a pre-weighed Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$ .
2. Analysis for Damaged & Discoloured Grains
  - a) Take the above sample
  - b) Separate the grains that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the grains by hand.
  - c) Weigh the damaged grains ( $W_2$ ).
  - d) The percent of damaged grains present is  $(W_2/W_0)*100$
3. Analysis for Sprouted Grains
  - a) Take the above sample
  - b) Separate the grains that are sprouted or germinated grains by hand.
  - c) Weigh the damaged grains ( $W_3$ ).
  - d) The percent of sprouted grains present is  $(W_3/W_0)*100$
4. Analysis for Weevilled grains
  - a) Take the above sample
  - b) Separate the grains that are partially or wholly bored or eaten by weevil or other grain insects.
  - c) Weigh the weevilled grains ( $W_4$ ).
  - d) The percent of weevilled grains present is  $(W_4/W_0)*100$
5. Analysis for Immature, Shrunken or Shrivelled
  - a) Take the above sample
  - b) Separate the grains that are not properly developed.
  - c) Weigh the Immature and shrivelled grains ( $W_5$ ).
  - d) The percent of Immature and Shrivelled grains present is  $(W_5/W_0)*100$
6. Analysis for Admixtures
  - a) Take the above sample
  - b) Separate the other grains than the principal grains.
  - c) Weigh the pulses other than the principal pulses ( $W_6$ ).
  - d) The percent of Admixture present is  $(W_6/W_0)*100$

7. Moisture:

- a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
- b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
- c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
- d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.



### **3. RAGI**

**Subject:** Quality parameters, grading, quality certification and other related matters for Ragi sold in online markets – reg.

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#### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Ragi sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Ragi sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Ragi brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.
- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.

- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format R1 for Ragi and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Ragi

Ragi shall be assayed for the following parameters –

- **Foreign Matter:**
  - (a) **Inorganic Matter**, expressed in per cent: includes dust, dirt, stones, lumps of earth or any other impurity.
  - (b) **Organic Matter**, expressed in per cent: includes chaff, stem, straw or any other impurity
- **Damaged & Discoloured Grains**, expressed in per cent: Damaged & Discoloured grains are those grains that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the grain.
- **Weevilled Grains**, expressed in per cent: Weevilled cereals are those cereals that are partially or wholly bored or eaten by weevil or other grain insects.
- **Immature and Shrivelled Grains**, expressed in per cent: Immature and Shrivelled grains are those grains that are not properly developed
- **Admixture**, expressed in per cent: Admixtures are any grains other than the principal grain.
- **Moisture**, expressed in per cent

## Schedule 2

### Format of Sample identity slip to be placed with the petro bulk seal

Sample identity slip	
Name of commodity	<b>Ragi</b>
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

## Schedule 3

### Format of register to be maintained

#### Form - R1

Name of the commodity – Ragi

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

## Schedule -4

### Physical analysis of Ragi

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurity in a pre-weighed Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$ .
2. Analysis for Damaged and Discoloured grains
  - a) Take the above sample
  - b) Separate the grains that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the grains by hand.
  - c) Weigh the damaged grains ( $W_2$ ).
  - d) The percent of damaged grains present is  $(W_2/W_0)*100$
3. Analysis for Weevilled grains
  - a) Take the above sample
  - b) Separate the grains that are partially or wholly bored or eaten by weevil or other grain insects.
  - c) Weigh the weevilled grains ( $W_3$ ).
  - d) The percent of weevilled grains present is  $(W_3/W_0)*100$
4. Immature and Shrivelled Grains.
  - a) Take the above sample
  - b) Separate the grains that are not properly developed.
  - c) Weigh the Immature and shrivelled grains ( $W_4$ ).
  - d) The percent of Immature and Shrivelled grains present is  $(W_4/W_0)*100$
5. Admixtures :
  - e) Take the above sample
  - f) Separate the other grains than the principal grains.
  - g) Weigh the pulses other than the principal pulses ( $W_5$ ).
  - h) The percent of Admixture present is  $(W_5/W_0)*100$

6. Moisture:
- a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

#### 4. ARHAR/TUR

**Subject:** Quality parameters, grading, quality certification and other related matters for Arhar / Tur (Red gram) whole sold in online markets – reg.

\*\*\*\*\*

#### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Arhar / Tur (Red gram) whole sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as “Quality parameters, Grading, Quality Certification and other related matters for Arhar / Tur (Red gram) whole sold in the Unified Market Platform Order”.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Arhar / Tur (Red gram) whole brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.



- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap, namely, front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.
- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format T1 for Tur /Arhar (Red gram) whole and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or any other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.

(3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Arhar / Tur (Red gram) whole

Arhar / Tur (Red gram) whole shall be assayed for the following parameters –

- **Foreign matter, expressed in per cent:** Foreign matter shall mean dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Admixture,** expressed in per cent: Admixture shall mean any pulses other than the principal pulses.
- **Damaged pulses,** expressed in per cent: Damaged pulses are those pulses that are internally/damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses.
- **Immature and shrivelled pulses:** Shrivelled & Immature pulses are those pulses that are not properly developed.
- **Weevilled pulses,** expressed in per cent: Weevilled pulses shall mean those pulses that are partially or wholly bored or eaten by weevil or other grain insects.
- **Moisture content,** expressed in per cent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	<b>Arhar / Tur (Red gram) whole</b>
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the Farmer/Seller	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Format-T1

Name of the commodity – Arhar / Tur (Red gram) whole

APMC: ..... .....

Sl. No.	Date	Quantity/No. of bags	Lot number	Name of the farmer / Seller	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule -4

### Physical analysis of Arhar / Tur (Red gram) whole

1. Analysis for Foreign Matter
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$
2. Analysis for Admixture
  - a) Take the above sample
  - b) Separate the pulses other than the principal pulses.
  - c) Weigh the pulses other than the principal pulses ( $W_2$ ).
  - d) The percent of Admixture present is  $(W_2/W_0)*100$ .
3. Analysis for Damaged pulses
  - a) Take the above sample
  - b) Separate the pulses that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses by hand picking.
  - c) Weigh the damaged pulses ( $W_3$ ).
  - d) The percent of damaged pulses present is  $(W_3/W_0)*100$
4. Analysis for Weevilled pulses
  - a) Take the above sample
  - b) Separate the Pulses that are partially or wholly bored or eaten by weevil or other grain insects
  - c) Weigh the Weevilled pulses ( $W_4$ ).
  - d) The percent of weevilled pulses present is  $(W_4/W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## **5. CHANNA / BENGALGRAM**

**Subject:** Quality parameters, grading, quality certification and other related matters for Channa whole (Bengal Gram) sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Channa whole (Bengal Gram) sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as “Quality parameters, Grading, Quality Certification and other related matters for Channa whole (Bengal Gram) sold in the Unified Market Platform Order”.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Channa whole (Bengal Gram) brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure:**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.

- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap, namely, front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.
- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format C1 for Channa whole (Bengal Gram) and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.

- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.



## Schedule 1

### Assaying Parameters for Channa whole (Bengal Gram)

Channa whole (Bengal Gram) shall be assayed for the following parameters –

- **Foreign matter**, expressed in per cent: Foreign matter shall mean dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Admixture**, expressed in per cent: Admixture shall mean any pulses other than the principal pulses.
- **Damaged pulses**, expressed in per cent: Damaged shall mean quantity that is internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses.
- **Immature and shrivelled pulses**: Shrivelled & Immature pulses are those pulses that are not properly developed.
- **Weevilled pulses**, expressed in per cent: Weevilled pulses shall mean those pulses that are partially or wholly bored or eaten by weevil or other grain insects.
- **Moisture content**, expressed in per cent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Channa whole (Bengal Gram)
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer/seller	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Format-C1

Name of the commodity – Channa whole (Bengal Gram)

APMC: .....

Sl. No.	Date	Quantity/No. of bags	Lot number	Name of the farmer /seller	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule -4

### Physical analysis of Channa whole (Bengal Gram)

1. Analysis for Foreign Matter
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$
2. Analysis for Admixture
  - a) Take the above sample
  - b) Separate the pulses other than the principal pulses.
  - c) Weigh the pulses other than the principal pulses ( $W_2$ ).
  - d) The percent of Admixture present is  $(W_2/W_0)*100$ .
3. Analysis for Damaged pulses
  - a) Take the above sample
  - b) Separate the pulses that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses by hand picking.
  - c) Weigh the damaged pulses ( $W_3$ ).
  - d) The percent of damaged pulses present is  $(W_3/W_0)*100$
4. Analysis for Weevilled pulses
  - a) Take the above sample
  - b) Separate the Pulses that are partially or wholly bored or eaten by weevil or other grain insects
  - c) Weigh the Weevilled pulses ( $W_4$ ).
  - d) The percent of weevilled pulses present is  $(W_4/W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## **6. MOONG / GREENGRAM**

**Subject:** Quality parameters, grading, quality certification and other related matters for Moong whole (Green Gram) sold in online markets – reg.

\*\*\*\*\*

### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Moong whole (Green Gram) sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as “Quality parameters, Grading, Quality Certification and other related matters for Moong whole (Green Gram) sold in the Unified Market Platform Order”.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Moong whole (Green Gram) brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.

- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap, namely, front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.
- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format M1 for Moong whole (Green Gram) and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.

- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Moong whole (Green Gram)

Moong whole (Green Gram) shall be assayed for the following parameters –

- **Foreign matter**, expressed in per cent: Foreign matter shall mean dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Admixture**, expressed in per cent: Admixture shall mean any pulses other than the principal pulses.
- **Damaged pulses**, expressed in per cent: Damaged shall mean quantity that is internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses.
- **Immature and shrivelled pulses**: Shrivelled & Immature pulses are those pulses that are not properly developed.
- **Weevilled pulses**, expressed in per cent: Weevilled pulses shall mean those pulses that are partially or wholly bored or eaten by weevil or other grain insects.
- **Moisture content**, expressed in per cent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Moong whole (Green Gram)
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the Farmer/Seller	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Format-M1

Name of the commodity – Moong whole (Green Gram)

APMC: .....

Sl. No.	Date	Quantity/No. of bags	Lot number	Name of the farmer /Seller	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :



## Schedule -4

### Physical analysis of Moong whole (Green Gram)

1. Analysis for Foreign Matter
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$
2. Analysis for Admixture
  - a) Take the above sample
  - b) Separate the pulses other than the principal pulses.
  - c) Weigh the pulses other than the principal pulses ( $W_2$ ).
  - d) The percent of Admixture present is  $(W_2/W_0)*100$ .
3. Analysis for Damaged pulses
  - a) Take the above sample
  - b) Separate the pulses that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses by hand picking.
  - c) Weigh the damaged pulses ( $W_3$ ).
  - d) The percent of damaged pulses present is  $(W_3/W_0)*100$
4. Analysis for Weevilled pulses
  - a) Take the above sample
  - b) Separate the Pulses that are partially or wholly bored or eaten by weevil or other grain insects
  - c) Weigh the Weevilled pulses ( $W_4$ ).
  - d) The percent of weevilled pulses present is  $(W_4/W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## 7. URD/BLACK GRAM

**Subject:** Quality parameters, grading, quality certification and other related matters for Urd whole (Black Gram) sold in online markets – reg.

\*\*\*\*\*

### Preamble

It is necessary to specify quality parameters, grading, quality certification and other related matters for Urd whole (Black Gram) sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as “Quality parameters, Grading, Quality Certification and other related matters for Urd whole (Black Gram) sold in the Unified Market Platform Order”.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Urd whole (Black Gram) brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the farmer/seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.
- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre

middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.

- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided into five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format U1 for Urd whole (Black Gram) and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.

(3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

**Schedule 1**

### Assaying Parameters for Urd whole (Black Gram)

Urd whole (Black Gram) shall be assayed for the following parameters –

- **Foreign matter**, expressed in per cent: Foreign matter shall mean dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Admixture, expressed in per cent**: Admixture shall mean any pulses other than the principal pulses.
- **Damaged pulses**, expressed in per cent: Damaged shall mean quantity that is internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses.
- **Immature and shrivelled pulses**: Shrivelled & Immature pulses are those pulses that are not properly developed.
- **Weevilled pulses**, expressed in per cent: Weevilled pulses shall mean those pulses that are partially or wholly bored or eaten by weevil or other grain insects.
- **Moisture content**, expressed in per cent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Urd whole (Black Gram)
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer/seller	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Format-U1

Name of the commodity – Urd whole (Black Gram)

APMC: ..... .....

Sl. No.	Date	Quantity/No. of bags	Lot number	Name of the farmer /seller	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule -4

### Physical analysis of Urd whole (Black Gram)

1. Analysis for Foreign Matter
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$
2. Analysis for Admixture
  - a) Take the above sample
  - b) Separate the pulses other than the principal pulses.
  - c) Weigh the pulses other than the principal pulses ( $W_2$ ).
  - d) The percent of Admixture present is  $(W_2/W_0)*100$ .
3. Analysis for Damaged pulses
  - a) Take the above sample
  - b) Separate the pulses that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the pulses by hand picking.
  - c) Weigh the damaged pulses ( $W_3$ ).
  - d) The percent of damaged pulses present is  $(W_3/W_0)*100$
4. Analysis for Weevilled pulses
  - a) Take the above sample
  - b) Separate the Pulses that are partially or wholly bored or eaten by weevil or other grain insects
  - c) Weigh the Weevilled pulses ( $W_4$ ).
  - d) The percent of weevilled pulses present is  $(W_4/W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## **8. GROUNDNUT**

**Subject:** Quality parameters, grading, quality certification and other related matters for Groundnut Pods sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Groundnut Pods sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as “Quality parameters, Grading, Quality Certification and other related matters for Groundnut Pods sold in the Unified Market Platform Order”.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Groundnut Pods brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) Ten per cent of the bags brought for sale are to be sampled to ascertain the quality of the produce.
- (2) The bags are chosen at random and each of these bags shall be emptied and the samples are drawn from different parts of the heap namely front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.
- (3) A composite sample is prepared by drawing about 2½ Kg from the bulk sample, which is then divided into five equal parts of about 500 grams each.



(4) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.

- One sample to Farmer/Seller for his reference;
- One sample to APMC for display for traders for inspection;
- One sample to APMC for dispute resolution;
- One sample to the assaying agency for analysis; and
- One sample for record with the assaying agency.

(5) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format G1 for Groundnut Pods and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

(1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.

(2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.

(3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

#### **5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

#### **6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development)

Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Groundnut pods

Groundnut Pods shall be assayed for the following parameters –

- **Foreign matter**, expressed in per cent: Foreign matter shall mean dust, lumps of earth, shell, dirt, stones, stem, straw or any other impurity or any other edible/non-edible oilseeds.
- **Damaged Pods**, expressed in per cent: Damaged pods shall mean pods that are damaged mechanically or by mould, weevil or any other insect attack or those showing internal discoloration materially affecting the quality
- **Shrivelled & Immature pods**, expressed in per cent: Shrivelled & immature pods shall mean those pods which are imperfectly developed and / or shrunken..
- **Shelling**, expressed in per cent: means the weight of kernels found in 100 grams of pods
- **Moisture content**, expressed in per cent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Groundnut Pods
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the Farmer/Seller	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Format-G1

Name of the commodity – Groundnut Pods

APMC: ..... .....

Sl. No.	Date	Quantity/No. of bags	Lot number	Name of the farmer /Seller	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule -4

### Physical analysis of Groundnut Pods

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample in a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities is  $(W_1/ W_0)*100$
2. Analysis for Damaged Pods
  - a) Take the above sample
  - b) Separate those pods that are damaged mechanically or by mould, weevil or any other insect attack or those showing internal discolorations of kernels materially affecting the quality of the pods by hand picking.
  - c) Weigh the Damaged pods ( $W_2$ ).
  - d) The percent of damaged pods present is  $(W_2/W_0)*100$ .
3. Analysis for Shrivelled & Immature pods
  - a) Take the above sample
  - b) Separate pods are those pods which are imperfectly developed by hand picking
  - c) Weigh the Shrivelled and Immature pods ( $W_3$ ).
  - d) The percent of shrivelled and Immature pods present is  $(W_3/W_0)*100$
4. Analysis for Shelling
  - a) Take about 20 to 100g of refraction free sample ( $W_4$ )
  - b) Separate Kernels from the pods.
  - c) Weigh the separated Kernels ( $W_5$ ).
  - d) The percent of Kernel present is  $(W_5/ W_4)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $100^0$  C -  $110^0$  C for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## 9. SUNFLOWER SEEDS

**Subject:** Quality parameters, grading, quality certification and other related matters for Sunflower seeds sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Sunflower seeds sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as “Quality parameters, Grading, Quality Certification and other related matters for Sunflower seeds sold in the Unified Market Platform Order”.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Sunflower seeds brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.

- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.
- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format S1 for Sunflower seeds and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or any other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.

(3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e-tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e-Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.



## Schedule 1

### Assaying Parameters for Sunflower Seeds

Sunflower Seeds shall be assayed for the following parameters –

- **Foreign Matter and Impurities**, expressed in per cent: Foreign Matter and Impurities shall mean dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Damaged Seeds**, expressed in per cent: Damaged Seeds shall mean Seeds which are internally damaged or discoloured, broken.
- **Immature, Shrivelled & dead seeds**, expressed in per cent: Immature, Shrivelled & dead seeds shall mean Seeds which are not properly developed and/or shrunken.
- **Weevilled Seeds**, expressed in per cent: Weevilled Seeds shall mean seeds which are wholly or partly bored/ eaten by the weevil, materially affecting the quality.
- **Moisture content**, expressed in per cent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Sunflower Seeds
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the Farmer/Seller	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Format-S1

Name of the commodity – Sunflower Seeds

APMC: .....

Sl. No.	Date	Quantity/No. of bags	Lot number	Name of the farmer / Seller	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule -4

### Physical analysis of Sunflower Seeds

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities is  $(W_1/ W_0)*100$
2. Analysis for Damaged Seeds
  - a) Take the above sample
  - b) Separate the Seeds which are internally damaged or discoloured, broken by hand picking.
  - c) Weigh the damaged seeds ( $W_2$ ).
  - d) The percent of damaged seeds present is  $(W_2/ W_0)*100$
3. Analysis for Immature, Shrivelled & dead seeds
  - a) Take the above sample
  - b) Separate Seeds which are not properly developed and/or shrunken by hand picking.
  - c) Weigh the Immature, Shrivelled & dead seeds ( $W_3$ ).
  - d) The percent of Immature, Shrivelled & dead seeds present is  $(W_3/ W_0)*100$
4. Analysis for Weevilled Seeds
  - a) Take the above sample
  - b) Separate seeds which are wholly or partly bored/ eaten by the weevil by hand picking.
  - c) Weigh the Weevilled seeds ( $W_4$ ).
  - d) The percent of Weevilled seeds present is  $(W_4/ W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $100^0$  C -  $110^0$  C for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## 10. SAFFLOWER SEEDS

**Subject:** Quality parameters, grading, quality certification and other related matters for Safflower seeds sold in online markets – reg.

\*\*\*\*\*

### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Safflower seeds sold in markets as specified under Rule 91-O(1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Safflower seeds sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Safflower seeds brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.

- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.
- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format S1 for Safflower and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

#### **5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

#### **6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

#### **7. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

**Schedule 1**  
**Assaying Parameters for Safflower seeds**

Safflower seeds shall be assayed for the following parameters –

- **Foreign Matter**, expressed in per cent: Foreign matter means dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Damaged and weevilled seeds**, expressed in per cent: Damaged and weevilled seeds shall be the seeds which are internally damaged or discoloured, broken and/or wholly or partly bored/eaten by the weevils, materially affecting the quality.
- **Slightly damaged seeds**, expressed in per cent: shall be the seeds which are externally or partly damaged or discoloured without affecting the quality materially.
- **Immature shrivelled and dead seeds**, expressed in per cent: shall be the seeds which are not properly developed and/ or shrunken. Dead seeds shall be the seeds which can easily be crushed, if pressed between two finger.
- **Moisture**: expressed in per cent



## Schedule 2

### Format of Sample identity slip to be placed with the petro bulk seal

<b>Sample identity slip</b>	
Name of commodity	Safflower seeds
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

## Schedule 3

### Format of register to be maintained

#### Form S1

Name of the commodity – Safflower seeds

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

**Schedule -4**  
**Physical analysis of Safflower seeds**

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/ W_0)*100$
2. Analysis for Damaged and Weevilled seeds
  - a) Take the above sample.
  - b) Separate seeds which are internally damaged or discoloured, broken and/or wholly or partly bored/eaten by the weevils.
  - c) Weigh the damaged weevilled seeds ( $W_2$ ).
  - d) The percent of damaged, weevilled seeds present is  $(W_2/ W_0)*100$
3. Analysis for Slightly damaged seeds
  - a) Take the above sample.
  - b) Separate seeds that are partially damaged or partially discoloured seeds.
  - c) Weigh the damaged & discoloured seeds ( $W_3$ ).
  - d) The percent of slightly damaged seeds present is  $(W_3/ W_0)*100$
4. Analysis for Immature, shrivelled and dead seeds
  - a) Take the above sample.
  - b) Separate the seeds which are not properly developed or shrunken and dead seeds by hand picking.
  - c) Weigh the Immature shrivelled and dead seeds ( $W_4$ ).
  - d) The percent of Immature shrivelled and dead seeds present is  $(W_4/ W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## 11. SOYABEAN

**Subject:** Quality parameters, grading, quality certification and other related matters for Soyabean sold in online markets – reg.

\*\*\*\*\*

### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Soyabean sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Soyabean sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Soyabean brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample is prepared by collecting a small quantity of the commodity from the top, middle and bottom of every bag in the lot and thoroughly mixing the quantity so collected.
- (3) If the lot is brought in heap form, then samples are taken from at least six different parts of the heap namely front, back, sides, centre top, centre

middle and centre bottom. The quantity so collected is mixed thoroughly to derive the bulk sample.

- (4) A composite sample is prepared by drawing about 1/2 Kg from the bulk sample.
- (5) The composite sample is then divided in to five equal parts of about 100 grams by using a sample divider.
- (6) In case a sample divider is not available, the composite sample is emptied on a flat smooth surface in the form of a circle of thickness of about 12 mm to 25 mm. About 100 grams of sample is then scooped from different points namely, centre, sides, etc., taking care that no foreign matter is left over when scooping.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format S1 for Soyabean and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.

(3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

**5. Other matters**

The seller shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Soyabean

Soyabean shall be assayed for the following parameters –

- **Foreign Matter and Impurities**, expressed in per cent: Foreign matter includes dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Shrivelled & Immature beans**, expressed in per cent: shall mean beans that are not properly developed.
- **Damaged and weevilled beans**, expressed in per cent: Damaged beans shall mean beans that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the beans. Weevilled beans are those beans that are partially or wholly bored or eaten by weevil or other grain insects.
- **Mechanically damage beans**, expressed in per cent: Include mechanically damaged beans or pieces of beans with broken seed coat.
- **Moisture**, expressed in per cent:

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample identity slip</b>	
Name of commodity	Soyabean
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Form S1

Name of the commodity – Soyabean

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

**Schedule -4**  
**Physical analysis of Soyabean:**

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or other impurity in a Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/ W_0)*100$
2. Analysis for Immature and Shrivelled beans
  - a) Take the above sample
  - b) Separate the beans are those beans that are not properly developed.
  - c) Weigh the Immature and shrivelled beans ( $W_2$ ).
  - d) The percent of Immature and Shrivelled beans present is  $(W_2/ W_0)*100$
3. Analysis for Damaged and weevilled beans
  - a) Take the above sample
  - b) Separate the beans that are internally damaged or discoloured to such an extent that the damage or discolouration materially affects the quality of the beans and that are partially or wholly bored or eaten by weevil or other grain insects by hand picking.
  - c) Weigh the damaged and Weevilled beans ( $W_3$ ).
  - d) The percent of damaged and Weevilled beans present is  $(W_3/ W_0)*100$
4. Analysis for Mechanically damage beans
  - a) Take the above sample
  - b) Separate mechanically damaged beans or pieces of beans with broken seed coat by hand picking.
  - c) Weigh the Mechanically damaged beans ( $W_4$ ).
  - d) The percent of Mechanically damaged beans present is  $(W_4/ W_0)*100$
5. Moisture:
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^0$  C -  $133^0$  C for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.



## 12. BALL COPRA

**Subject:** Quality parameters, grading, quality certification and other related matters for Ball Copra sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Ball Copra sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Ball Copra sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Ball Copra brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) The lot brought by the seller may be in packed form (in gunny bags) or may be in the form of a heap. Each lot shall be kept separated either as a stack or as a heap for sampling.
- (2) If the lot is brought in packed form, then a bulk sample has to be prepared from the lot. This involves a two stage process – determining the number of bags from which the commodity would be drawn and selecting that many number of bags from amongst the bags in the lot.
- (3) The number of bags from which the commodity would be drawn is a number equal to the integral part of the square root of the total number of the bags,

subject to a minimum of two bags. For example, if the number of bags is 40, then the square root of 40 is 6.32 and so the number of bags to be sampled shall be 6.

- (4) For selection of bags at random, a random number table shall be used. In the absence of such a table, the first bag in the stack of bags shall be marked and thereafter every 'n' bag shall be taken out, where n= the whole number derived by dividing the number of bags in the lot by the number of bags to be taken out. If the number of bags is 40 and the number of bags to be sampled is 6 as per (4) above, then  $n = (40/6) = 6.67$ , rounded off to 7. The bags to be taken out would then be 1,7,13,19,25,31 and 37.
- (5) The copra in the bags so selected would form the bulk from which samples would be drawn.
- (6) A test sample of approximately 5 kgs shall be drawn at random. A cluster of upto 7 copra shall be taken from different spots in the bulk sample for obtaining the test sample. The test sample shall be the sample used for the physical tests. The test samples will be made into five portions and sealed using petro bulk seal. A sample identity slip as per Schedule 2 to this order shall be attached in each of the sample. These samples will be distributed as under.
- (7) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
  - One sample to Farmer/Trader for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.

- (8) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format C1 for Copra as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or presence of any added artificial colours.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the United Market Platform.

#### **5. Other matters**

The depositor shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

#### **6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

#### **7. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one

retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying parameters for Ball Copra

Ball Copra shall be assayed for the following parameters

- **Diameter**, expressed in mm: Measuring thread or calibrated measuring scale to measure the vertical diameter.
- **Mouldy and Black kernels**, expressed as percent by count: Mouldy & black kernels include balls in which more than 5% of the inner surface is covered with mould and dark brown to black in colour
- **Wrinkled kernels**, expressed as percent by count: Wrinkled kernels include balls that are shrunk out of normal shape or are not fully matured or developed or have a rubbery structure and uneven surface. Such kernels are often discoloured
- **Chips**, expressed as percent by weight: Chips include pieces of kernels, which are smaller in size
- **Moisture**, expressed in percent.

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

<b>Sample Identity Slip</b>	
Name of the commodity	Ball Copra
Market arrived	.....Market ..... Sub Market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Supervisor name	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule -3**

Format of register to be maintained

Form C1

Name of the commodity – Ball Copra

APMC: ..... .....

Sl. No	Date	Quantity/No of bags	Lot number	Name of the farmer	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

## Schedule -4

### Physical analysis of Ball Copra

1. Measurement of diameter
  - a) Take the copra and measure the vertical diameter (a) in centimetres and the horizontal diameter (b) in centimetres using a thread and calibrated scale.
  - b) The diameter of the copra is  $(a+b)/2$  and is expressed in centimetres.
  - c) The diameter of all the remaining copra in the sample is calculated in a similar manner.
2. Assaying for mouldy and black kernels
  - a) Take the above sample (after removing the foreign matter and chips) and count the number of copra in the sample ( $N_0$ ).
  - b) Examine each ball copra for having mouldy and black kernel.
  - c) Separate mouldy and black kernel cups and count ( $N_1$ ).
  - d) The percent of mouldy and black kernel is  $(N_1/N_0)*100$ .
3. Assaying for wrinkled kernels
  - a) Take the above sample.
  - b) Examine each kernel to assess if wrinkles are present or not.
  - c) Separate all wrinkled kernels and count ( $N_2$ ).
  - d) The percent of wrinkled kernels is  $(N_2/N_0)*100$ .
4. Assaying for chip content
  - a) Take the above sample and weigh the sample ( $W_0$ ).
  - b) Separate chips (as defined in Schedule 2) from the sample.
  - c) Weight the chips so collected ( $W_1$ ).
  - d) The percent of chips is  $(W_1/W_0)*100$ .
5. Moisture:

The procedure described below is applicable for moisture meter manufactured by the Kerala State Industries Corporation Limited. If any other moisture meter is used for testing, then (a) to (c) below shall be as per the instructions of the manufacturer the equipment.

- a) Ensure that the cap is intact on the instrument. The cap is not only a protective device but is also a functionally integral part of the meter. Without the cap "calibration" of not possible and shall never be attempted.
- b) Switch on the meter by turning the control knob clock wise to hear a clicking sound. The indicator lamp on the centre of the dial glows and the needle of the

meter moves towards a reading of 23%. Then slowly turn the knob clockwise till the needle perfectly coincides with the mark "CAL". This preliminary procedure is called "Calibration" of the meter.

- c) Gently remove the cap from the instrument. The needle returns to zero. (At this stage do not activate the control knob). The meter is now ready for moisture-testing.
- d) Firmly hold the meter with its dial upwards in one hand the copra kernel in the other hand. Gently pierce the kernel with the pair of the sensor pins up to a minimum 8 millimetres, release the pressure applied and wait for 3 seconds. The moisture-content can be read on the dial of the meter ( $M_1$ ). The procedure can be repeated at 2 or 3 points for reading the average value ( $M_2$ ) and ( $M_3$ ). The average moisture for the copra kernel is  $V_1=(M_1+M_2+M_3)/3$
- e) Repeat the above for the sample and note down the values for each kernel –  $V_1, V_2, \dots, V_n$ . The average moisture content in the lot is then computed as  $(V_1, V_2, \dots, V_n)/n$



## 13. TURMERIC

**Subject:** Quality parameters, grading, quality certification and other related matters for Turmeric (Whole) sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Turmeric (Whole) sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Turmeric (Whole) sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

Turmeric brought to the markets specified under rule 91-O (1) of the Rules shall be categorised as Turmeric Fingers Unpolished, Turmeric Fingers Polished and Turmeric Bulbs. The parameters which shall be assayed in respect of each of the aforesaid varieties shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

(1) Ten per cent of the bags brought for sale are to be sampled to ascertain the quality of the produce. The bags are chosen at random and each of these bags shall be emptied and about half a kilogram samples drawn from different parts of the mixed turmeric heap. The drawn samples shall then be mixed to form a composite mixture of 2.5 kilograms. The composite mixture shall then be divided into five nearly equal parts.

- (2) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
- One sample to Farmer/Trader for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (3) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format T1, T2 or T3 for Turmeric Fingers Unpolished, Turmeric Fingers Polished and Turmeric Bulbs respectively as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or presence of added artificial colours.
- (2) The sample would then be subjected to physical and chemical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the United Market Platform.

#### **5. Other matters**

The depositor shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

**6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying parameters for turmeric (Whole)

Turmeric Fingers Unpolished and Turmeric Fingers Polished shall be assayed for the following parameters –

- Presence of busha, chaff dirt, earth clods and stones, expressed in per cent.
- Presence of bulbs, expressed in per cent.
- Inferior quality turmeric, expressed in per cent.
- Length of the fingers exceeding 3 centimetres, expressed in per cent.
- Moisture content, expressed in per cent.
- Curcumin content

**Turmeric Bulbs shall be assayed for the following parameters –**

- Presence of busha, chaff dirt, earth clods and stones, expressed in per cent.
- Inferior quality turmeric, expressed in per cent.
- Moisture content, expressed in per cent.
- Curcumin content

### Schedule 2

#### Format of Sample identity slip to be placed with the petro bulk seal

Sample identity slip	
Name of commodity	Turmeric – Fingers Unpolished/ Fingers Polished/ Bulbs
Market arrived	..... market/..... sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

### Schedule 3

#### Format of register to be maintained

#### Form T1

Name of the commodity – Turmeric Fingers Unpolished/ Polished/ Bulbs

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule 4

### Physical and chemical analysis of Turmeric (Whole)

1. Analysis for busha, chaff dirt, earth clods and stones
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample in a white enamel plate.
  - c) Separate all other vegetative matter like stems, leaves, stalk, inorganic matter like soil particles, sand etc. by hand picking.
  - d) Collect all busha, chaff, dirt, earth clods and stones in a petri dish and weigh it ( $W_1$ ).
  - e) The percent of busha, chaff, dirt, earth clods and stones is  $(W_1/W_0)*100$ .
2. Analysis for bulbs
  - a) Take the above sample.
  - b) Separate the bulbs and rhizomes which are round.
  - c) Weight the bulbs and rhizomes( $W_2$ ).
  - d) The percent of bulbs present is  $(W_2/W_0)*100$ .
3. Inferior quality turmeric
  - a) Take the above sample.
  - b) Separate rhizomes which are internally damaged, easily breakable by hand and rhizomes that are bored in side.
  - c) Collect inferior rhizomes and weigh it ( $W_3$ ).
  - d) The percent of inferior quality is  $(W_3/W_0)*100$ .
4. Length of fingers exceeding 3 centimetres
  - a) Take the above sample.
  - b) Separate rhizomes which are of length less than 3 centimetres.
  - c) Collect all rhizomes that are of length exceeding 3 centimetres ( $W_4$ ).
  - d) The percent of rhizomes having length exceeding 3 centimetres is  $(W_4/W_0)*100$ .
5. Moisture content
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

6. Curcumin content

- a) Ground the sample and mix it thoroughly. Take 0.1gram of the ground sample into a small beaker bottom.
- b) Transfer into 100 millilitres volumetric flask containing ethyl alcohol.
- c) Dilute to mark with ethyl alcohol and pipette 10 millilitres of this solution into another volumetric flask. Dilute to volume with alcohol.
- d) Measure the absorbance of the extract at 425 nanometres in 1 cm cell against ethyl blank.
- e) Calculate the Absorptivity of curcumin  $A$  as  $(0.42)/(L*0.0025)$ , where  
L = cell length in centimetres.
- f) Per cent of curcumin is given by  $\{(Ab*100)/(L*A*m)\}$ , where  
Ab = Absorbance of the extract at 425 nanometres;  
A = Absorbance of the sample;  
L = Cell length in centimetres;  
m = Mass of the sample in grams.

## 14. DRY CHILLIS

**Subject:** Quality parameters, grading, quality certification and other related matters for Dry Chillis (Whole) sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Dry Chillis (Whole) sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Dry Chillis (Whole) sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

Dry chillis (Whole) brought to the markets specified under rule 91-O (1) of the Rules shall be categorised as Dry Chillis (Whole). The parameters which shall be assayed in respect of each of the aforesaid varieties shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

(1) Ten per cent of the bags brought for sale are to be sampled to ascertain the quality of the produce. The bags are chosen at random and each of these bags shall be emptied and about half a kilogram samples drawn from different parts of the mixed Dry Chillis (Whole) heap. The drawn samples shall then be mixed to form a composite mixture of 2.5 kilograms. The composite mixture shall then be divided into five nearly equal parts.



- (2) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
- One sample to Farmer/Trader for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (3) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format C1 for Dry Chilli (Whole) as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or presence of added artificial colours.
- (2) The sample would then be subjected to physical and chemical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the United Market Platform.

#### **5. Other matters**

The depositor shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

#### **6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development)

Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying parameters for Dry Chillis (Whole)

Dry Chillis (Whole) shall be assayed for the following parameters –

- **Extraneous matter:** Matter such as chaff, stems, straw; dust, dirt, stones and lumps of earth
- **Unripe and marked fruits:** Unripe fruits means Fruits not yet fully mature, the colour of which is different from that of the batch under consideration. Marked fruits means black or black stained fruits;
- **Broken fruits, seed & fragments:** Broken fruits or seeds means Fruits/Pods which are broken during handling and of which a part of the pod is missing; Fragments means small pieces of fruits coming from broken fruits;
- **Insect damaged matter:** fruits that are internally or partially bored or damaged by pest/insect.
- **Moisture,** expressed in percentage.

### Schedule 2

#### Format of Sample identity slip to be placed with the petro bulk seal

Sample identity slip	
Name of commodity	Dry Chillis (Whole)
Market arrived	..... market/..... sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

### Schedule 3

#### Format of register to be maintained

##### Form C1

Name of the commodity – Dry Chillis (Whole)

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule -4

### Physical and chemical analysis of Dry Chillis (Whole)

1. Analysis for Foreign Matter
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample in a white enamel plate.
  - c) Separate all other matter like stems, leaves, stalk, soil particles, sand etc. by hand picking.
  - d) Collect all stems, leaves, stalk, soil particles, sand etc. in a petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is calculated using the formula  $(W_1/W_0)*100$ .
2. Analysis for Unripe and marked fruits
  - a) Take the above sample.
  - b) Separate the unripe and marked fruits.
  - c) Weight the unripe and marked fruits ( $W_2$ ).
  - d) The percent of unripe and marked fruits present is  $(W_2/W_0)*100$ .
3. Analysis for Broken fruits, seed & fragments
  - a) Take the above sample.
  - b) Separate the broken fruits, seed & fragments.
  - c) Collect broken fruits, seed & fragments and weigh it ( $W_3$ ).
  - d) The percent of broken fruits, seed & fragments is  $(W_3/W_0)*100$ .
4. Analysis for Insect damaged matter
  - a) Take the above sample.
  - b) Separate insect damaged matter.
  - c) Collect the insect damaged matter ( $W_4$ ).
  - d) The percent of insect damaged matter is  $(W_4/W_0)*100$ .
5. Moisture content
  - a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
  - b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
  - c) Cool the dish in desiccators and weigh the dish ( $W_1$ ).
  - d) The percent difference between the weights of the sample is as calculated as per IS 4333: 2002 as  $W = \{(W_0 - W_1)/W_0\}$ , which is the moisture content of the lot.

## 15. AREACANUT

**Subject:** Quality parameters, grading, quality certification and other related matters for Arecanut sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Arecanut sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Arecanut sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

Arecanut brought to the markets specified under rule 91-O (1) of the Rules shall be categorised as Arecanut Chali, Rashi Idi and Bette. The parameters which shall be assayed in respect of each of the aforesaid varieties shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

(1) Ten per cent of the bags brought for sale are to be sampled to ascertain the quality of the produce. The bags are chosen at random and each of these bags shall be emptied and about half a kilogram samples drawn from different parts of the mixed Arecanut heap. The drawn samples shall then be mixed to form a composite mixture of 1.250 kilograms. The composite mixture shall then be divided into five nearly equal parts.

- (2) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.
- One sample to Farmer/Trader for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (3) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format A1, A2 or A3 for Arecanut Chali, Rashi Idi and Bette respectively as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical and chemical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

#### **5. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**6. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**7. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.



## Schedule 1

### Assaying parameters for Arecanut

Arecanut - Chali, Rashi Ide and Bette shall be assayed for the following parameters –

- **Foreign Matter**, expressed in percent: Foreign matter includes dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity.
- **Broken Nuts**, expressed in percent: Broken Nuts include pieces of nuts that are less than three fourth of the size of the whole nut.
- **Mouldy & Black Nuts**, expressed in percent: Mouldy & Black Nuts include nuts in which more than 5 percent of the inner surface is dark brown to black in colour or the inner surface is covered with mould.
- **Size**, expressed as diameter in mm: Diameter is the axis perpendicular to the height, and is the maximum girth
- **Moisture**, expressed in percent.

## Schedule 2

### Format of Sample identity slip to be placed with the petro bulk seal

Sample identity slip	
Name of commodity	Arecanut
Market arrived	..... market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

## Schedule 3

### Format of register to be maintained

#### Form A1

Name of the commodity – Arecanut Chali/Rashi Idi/Bette

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date :

## Schedule 4

### Physical and chemical analysis of Arecanut -Chali, Rashi Idi and Bette

1. Analysis for Foreign Matter:
  - a) Weigh the total sample and note down the weight ( $W_0$ ).
  - b) Pour the sample on a white enamel plate.
  - c) Separate all foreign matter like dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurities etc. by hand picking.
  - d) Collect all dust, dirt, stones, lumps of earth, chaff, stem, straw or any other impurity in a pre-weighed Petri dish and weigh it ( $W_1$ ).
  - e) The percent of foreign matter is  $(W_1/W_0)*100$ .
2. Analysis for Damaged Nuts
  - a) Take the above sample
  - b) Separate damaged nuts are those nuts that are damaged mechanically or by mould, weevil or any other insect attack or etc
  - c) Weight the Damaged nuts ( $w_2$ ).
  - d) The percent of damaged nuts present is  $(W_2/W_0)*100$
3. Analysis for Broken Nuts
  - a) Take the above sample
  - b) Separate nuts are those nuts which are imperfectly developed by hand picking.
  - c) Weigh the Shrivelled and Immature Nuts ( $W_3$ ).
  - d) The percent of shrivelled and Immature pods present is  $(W_3/W_0)*100$
4. Analysis for Mouldy & Black Nuts
  - a) Take the above sample
  - b) Separate Pods other than the principal pods of the varieties by hand picking
  - c) Weight the pods other varieties ( $W_4$ ).
  - d) The percent of pods of the other varieties present is  $(W_4/W_0)*100$
5. Estimation of the Size:
  - a) By means of Vernier Callipers, measure and note the maximum diameter or girth at the axis perpendicular to the height of the kernel, as shown in the figure below.
  - b) The average of all the readings will correspond to the rough representation of size for the lot.

6. Moisture:

- a) Weigh an appropriate amount of sample in a pre-weighed metal dish ( $W_0$ ).
- b) Dry the sample in a hot air oven at  $130^{\circ}\text{C}$  -  $133^{\circ}\text{C}$  for about two hours.
- c) Cool the dish in desiccators and weigh the dish ( $W_6$ ).
- d) The percent difference between the weights of the sample is calculated as using the formula  $W = \{(W_0 - W_6)/W_0\}$

## 16. COTTON

**Subject:** Quality parameters, grading, quality certification and other related matters for Cotton sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Cotton sold in markets as specified under Rule 91-O(1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for cotton sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of cotton brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) If the laboratory bulk sample consists of less than 5 kg of loose fibre, spread it out in an even layer. Obtain the laboratory test sample by taking at random a minimum of 100 tufts of approximately equal size, the total mass being sufficient to give a laboratory test sample of required size.
- (2) The sample (100 tufts) is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. Five such samples are drawn and are distributed as under.

- One sample to Farmer/Seller for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (3) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format C1 for Cotton and as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

#### **5. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

#### **6. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one

retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**7. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Cotton

Cotton shall be assayed for the following parameters –

1. 2.5 % Span length(mm)
2. Uniformity Ratio
3. Micronaire
4. Tenacity 3.2mm g/hect
5. SFI
6. Mean length (equi.)
7. Maturity coefficient
8. Ginning
9. Moisture
10. Trash Report
  - a. Trash %
  - b. Inversible loss %
  - c. Total loss %



## Schedule 2

### Format of Sample identity slip to be placed with the petro bulk seal

Sample identity slip	
Name of commodity	Cotton
Market arrived	..... Market/..... Sub market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

## Schedule 3

Format of register to be maintained

Form C1

Name of the commodity – Cotton

APMC: ..... .....

Sl. No.	Date	Quantity/No of bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

## Schedule -4

### Physical analysis of Cotton

1. 2.5 % Span length(mm): as per the testing machine manufactured by company
2. Uniformity Ratio: as per the testing machine manufactured by company
3. Micronaire: as per the testing machine manufactured by company
4. Tenacity 3.2mm g/hect: as per the testing machine manufactured by company
5. SFI: as per the testing machine manufactured by company
6. Mean length (equi.): as per the testing machine manufactured by company
7. Maturity coefficient: as per the testing machine manufactured by company
8. Ginning: as per the testing machine manufactured by company
9. Trash Report: as per the testing machine manufactured by company
  - Trash %
  - Inversible loss %
  - Total loss %

## 17. JAGGERY

**Subject:** Quality parameters, grading, quality certification and other related matters for Jaggery sold in online markets – reg.

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### **Preamble**

It is necessary to specify quality parameters, grading, quality certification and other related matters for Jaggery sold in markets as specified under Rule 91-O (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 (“Rules”) and hence the following order is issued under Rule 91-O (2) of the Rules.

#### **1. Title**

This order shall be called as Quality parameters, Grading, Quality Certification and other related matters for Jaggery sold in the Unified Market Platform Order.

#### **2. Assaying parameters**

The parameters which shall be assayed in respect of Jaggery brought to the markets specified under rule 91-O (1) of the Rules shall be as specified in Schedule 1 to this order.

#### **3. Sampling procedure**

- (1) Ten per cent of the jaggery packet brought for sale are to be sampled to ascertain the quality of the produce. The packet are chosen at random and each of these bags shall be emptied and about half a kilogram samples drawn from different parts of the lot. The drawn samples shall then be mixed to form a composite mixture of 2.5 kilograms. The composite mixture shall then be divided into five nearly equal parts.
- (2) Each part is then placed in a separate plastic transparent bag and a sample identity slip as per Schedule 2 to this order shall be attached in each of the bag and the bag sealed. These samples will be distributed as under.

- One sample to Farmer/Trader for his reference;
  - One sample to APMC for display for traders for inspection;
  - One sample to APMC for dispute resolution;
  - One sample to the assaying agency for analysis; and
  - One sample for record with the assaying agency.
- (3) Necessary particulars shall be entered in a register to have a record of the samples drawn. This register shall be in a format J1 for Jaggery respectively as indicated in Schedule 3 to this order.

#### **4. Assaying procedure**

- (1) The sample is first examined to detect the presence of any live infestation. If live infestation is detected in the lot, then the lot would be rejected. Thereafter, the sample is checked for fungus and/or other infestations.
- (2) The sample would then be subjected to physical and chemical analysis as detailed in Schedule 4 to this order.
- (3) The assaying agency shall issue a certificate specifying the quality parameters and the period for which the assaying certificate is valid. Thereafter, details of the quality of the lot shall be entered in the Unified Market Platform.

#### **5. Other matters**

The depositor shall be responsible to comply with the provisions prescribed under the Food and Safety Standards Act, 2006 and other applicable provisions of law.

#### **6. Disputes on assaying**

Any dispute in this regard shall be settled by the Disputes Committee for Online Markets set up by the respective market committee under Rule 91-P (1) of the Karnataka Agricultural Produce Marketing (Regulation and Development) Rules, 1968 and the guidelines issued by the Director of Agricultural Marketing under Rule 91-P (7) of the said Rules.

**7. Disposal of samples**

After the commodity is sold through the e tender process and delivered to the buyer, the requirement to preserve the samples taken would cease. Three lots of samples, namely, the sample maintained by the APMC for display for traders to inspect, the sample maintained by the APMC for dispute resolution and the one retained by the assaying agency for reference may be aggregated and disposed of by Rashtriya e Market Services Private Limited any time after fifteen days of the delivery of the commodity to the buyer. The proceeds realised due to such disposal shall be credited to the account of the said company.

**8. Removal of difficulties**

Any difficulty in the implementation of this order shall be referred to the Director of Agricultural Marketing, who shall issue clarifications as deemed necessary.

## Schedule 1

### Assaying Parameters for Jaggery

Jaggery shall be assayed for the following parameters –

1. **Moisture content**, expressed in per cent.
2. **Extraneous Matter insoluble in Water**, expressed in per cent.
3. **Total reducing Sugar**, expressed in per cent.
4. **Sucrose**, expressed in per cent.
5. **Total Ash**, expressed in per cent.
6. **Acid insoluble Ash**, expressed in per cent.
7. **Adulteration Tests:**
  - a) Sodium-bi-carbonate
  - b) Washing Soda
  - c) Chalk Powder
  - d) Metanil Yellow

**Schedule 2**

**Format of Sample identity slip to be placed with the petro bulk seal**

Sample identity slip	
Name of commodity	<b>Jaggery</b>
Market arrived	..... Market/.....Sub Market
Date of drawing of the sample	
Name of the farmer	
Lot number	
Name of the Supervisor	
Signature of supervisor with date	
Signature of the Farmer/Seller	

**Schedule 3**

Format of register to be maintained

Form J1

Name of the commodity – Jaggery

APMC: .....

Sl. No.	Date	Quantity/No. of Bags	Lot number	Name of the farmer /trader	Contact number	Signature of the supervisor

Signature of APMC official

Name:

Date:

## Schedule - 4

### Analysis of Jaggery

#### 1. Estimation of Moisture Content:

- Note the weight of a pre dried metal dish ( $W_1$ ).
- Weigh an appropriate amount (5g-10g) of sample into the metal dish ( $W_2$ ).
- Dry the sample in a hot air oven at  $105^0 \pm 1^0$  C for 3 hours.
- Cool the dish in desiccators and weigh the dish ( $W_3$ ).
- The percent difference between the weights of the sample is as calculated using the formula;

$$W = \{(W_1 + W_2) - W_3\} / W_2$$

Where, W is the Percent of Moisture content.

#### 2. Determination of Extraneous Matter insoluble in Water:

- Weigh about 10 g of sample and dissolve in 200 ml hot distilled water and bring to boiling and cool.
- Filter through a pre-dried and weighed tared gooch crucible having a bed of asbestos or a sintered glass filter.
- Wash the residue with hot water till the filtrate is sugar free (test with Molisch test).
- Dry the gooch crucible or sintered glass filter at  $135 \pm 2^0$  C and weigh.
- The percent of Extraneous matter insoluble in Water present is calculated using the formula;

$$\text{Total Ash, percent by mass} = \frac{100 M_1}{M_2}$$

Where,

$M_1$  = mass in g of the residue, and

$M_2$  = mass in g of the sample taken for the test.

#### 3. Determination of Reducing Sugars, Total Reducing Sugars and Sucrose:

Principle:

Invert sugar reduces the copper in Fehling-A solution to a brick red insoluble cuprous oxide.

**Reagents:**

- Fehling's Solution - A: Dissolve 69.28 g copper sulphate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) in distilled water. Dilute to 100 ml. Filter and store in amber coloured bottle.
- Fehling's Solution - B: Dissolve 346 g Rochelle salt (sodium-potassium tartrate) ( $\text{KNaC}_4\text{H}_4\text{O}_6 \cdot 4\text{H}_2\text{O}$ ) and 100 g NaOH in distilled water. Dilute to 100 ml. Filter and store in amber coloured bottle.



- iii. Methylene Blue Indicator ( 1 %): 1g of methylene blue powder in dissolved in 100 ml distilled water.
- iv. 0.1 N. Sodium Hydroxide Solution (NaOH): 4g of NaOH in 1 litre of distilled water.
- v. Conc. Hydrochloric acid (HCl).

Preparation of Sample Stock Solution:

- a) Weigh about 25 g  $\pm$  0.01g of sample into a 250 ml volumetric flask, dissolve and dilute to volume with distilled water.

#### A. Determination of Reducing Sugars

- a) Transfer the stock solution into a burette having an offset tip.
- b) Proceed with the titration against Fehling's A and Fehling's B similarly as described below:

Preliminary Titration:

- a) Pipette 5 ml each of Fehling's - A and Fehling's - B into 250 ml conical flask, mix and add about 10 ml water and a few boiling chips or glass beads.
- b) Dispense some solution and heat the flask to boiling.
- c) Add 3 drops of methylene blue indicator.
- d) Continue the addition of solution drop wise until the blue colour disappears to a brick-red end point. (The concentration of the sample solution should be such that the titre value is between 15 and 50 ml).
- e) Note down the titre value.

Final Titration:

- a) Pipette 5 ml each of Fehling's - A and Fehling's - B into 250 ml conical flask. Add sample solution about 2 ml less than titre value of the preliminary titration.
- b) Heat the flask to boiling and complete the titration within 3 minutes.
- c) Perform the titration duplicate and take the average.
- d) The percent of Reducing Sugars present is calculated using the formula;

$$\text{Reducing sugars \% (as Invert Sugar)} = \frac{\text{Dilution} \times \text{Factor of Fehling (in g)} \times 100}{\text{Weight of Sample} \times \text{titre}}$$

#### B. Determination of Total Reducing Sugars

- a) Take an aliquot of 100 ml of the sample stock solution into a 500 ml volumetric flask and add 10 ml of conc. HCl and let stand for 1½ days at 25°C or above and dilute to volume with distilled water.
- b) Transfer an aliquot of 100 ml into a 250 ml volumetric flask, neutralize with NaOH and dilute to volume with 0.1N NaOH and mix.
- c) Take this solution in a burette having an offset tip.

- d) Proceed with the titration against Fehling's - A and Fehling's - B similarly as described in the estimation of Reducing Sugars.
- e) The percent of Total Reducing Sugars present is calculated using the formula;

$$\text{Total Reducing sugars \% (as Invert Sugar)} = \frac{\text{Dilution} \times \text{Factor of Fehling (in g)} \times 100}{\text{Weight of sample} \times \text{titre}}$$

C. Determination of Sucrose:

The percent of Sucrose present is calculated using the formula;

$$\text{Sucrose \%} = [\text{Total Reducing Sugars \%} - \text{Reducing Sugars \%}] \times 0.95$$

D. Determination of Factor (for Invert Sugar) of Fehling's Solution:

- Accurately weigh around 4.75 g of analar grade sucrose into a 500 ml volume flask with 50 ml distilled water.
- Add 5 ml conc. HCL and allow to stand for 24 hours.
- Neutralize with NaOH solution and make up to volume and mix well.
- Transfer 50 ml of the mixture to a 100 ml volumetric flask and make up to volume.
- Transfer to a burette having an offset tip.
- Perform the titration of Fehling solution as described in the estimation of Reducing Sugars:
- Fehling's Factor is calculated using the formula;

$$\text{Fehling Factor, for Invert Sugar} = \frac{\text{Titre} \times \text{Weight of Sucrose in gm}}{500}$$

Determination of Total Ash & Acid Insoluble Ash:

Reagents:

- Dilute Hydrochloric Acid: Approximately 5 N. (prepared from concentrated hydrochloric acid).

A. Determination of Total Ash:

- Weigh about 3-5 g of the sample in pre-dried and weighed silica crucible and carbonize the material under the flame of a burner.
- Complete the ignition by keeping in a muffle furnace at  $550 \pm 25^{\circ}\text{C}$  for  $2\frac{1}{2} - 3$  hours and cool in a desiccator.
- Weigh the crucible and note down the weight.
- The percent of Total Ash is calculated using the formula

$$\text{Total Ash, percent by mass} = \frac{100 \times M_1}{M_2}$$

Where,

$M_1$  = mass in g of the total ash, and

$M_2$  = mass in g of the sample taken for the test.

B. Determination of Acid Insoluble Ash:

- To the ash obtained from above, add 25 ml of the dil. HCl, cover with a watch glass and heat on a small flame of a burner to near boiling and allow to cool.
- Filter the contents through an ashless Whatman filter paper No. 42 or its equivalent.
- Wash the residue with hot water until the washings are free from chlorides.
- Return the filter paper and the residue to the crucible, dry it in an hot air oven maintained at  $105 \pm 2^\circ\text{C}$  for about 2-3 hours.
- Ignite the paper in a muffle furnace at  $550 \pm 25^\circ\text{C}$  for 1 hour, cool in a desiccator and weigh.
- The percent of Total Ash is calculated using the formula

$$\text{Acid Insoluble Ash, percent by mass} = \frac{100 M_3}{M_2}$$

Where,

$M_3$  = mass in g of the acid insoluble ash, and

$M_2$  = mass in g of the sample taken for the test.

4. Tests for Adulteration:

Reagents:

- Hydrochloric acid (HCl): 1:1 diluted with distilled water.
- Alcohol or Rectified Spirit.

Procedure:

Sl. No.	Adulterant	Test Procedure	Result
1.	Sodium-bi-carbonate	<ul style="list-style-type: none"> <li>Take <math>\frac{1}{4}</math> teaspoon of jaggery in a test tube.</li> <li>Add 3 ml of HCl</li> </ul>	Appearance of effervescence indicates the presence of sodium-bi-carbonate.
2.	Washing Soda	<ul style="list-style-type: none"> <li>Take <math>\frac{1}{4}</math> teaspoon of jaggery in a test tube.</li> <li>Add a few drops of HCl.</li> </ul>	Appearance of effervescence indicates the presence of washing soda.
3.	Chalk Powder	<ul style="list-style-type: none"> <li>Dissolve a little amount of sample in water in a test tube</li> </ul>	Chalk powder will settle down at the bottom.
		<ul style="list-style-type: none"> <li>Take <math>\frac{1}{4}</math> teaspoon of jaggery in a test tube.</li> <li>Add a few drops of HCl.</li> </ul>	Appearance of effervescence indicates the presence of Chalk powder.
4.	Metanil yellow colours	<ul style="list-style-type: none"> <li>Take <math>\frac{1}{4}</math> teaspoon of jaggery in a test tube.</li> <li>Add 3ml of alcohol/spirit and shake the tube vigorously to mix up the content.</li> <li>Pour 10 drops of HCl.</li> </ul>	Appearance of pink colour indicates the presence of metanil yellow colour.