

**Government of Karnataka**  
**Department of Agricultural Marketing**

Office of the Director  
of Agricultural Marketing  
No.16, 2nd, Raj Bhavan Road,  
Bangalore 560001

**Subject:** Quality parameters, grading, quality certification and  
other related matters for turmeric 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 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.

**Order no. KruMaE/Niyavi/Avyava/315/13-14, dated:21/02/2014**

**1. Title**

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

**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.

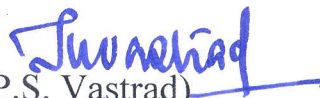
**7. Disposal of samples**

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.

  
(P.S. Vastrad)  
Director

To

1. The Managing Director, Rashtriya e Market Services Limited, Bangalore.
2. Chairman/Secretary, Agricultural Produce Marketing Committee, Tumkur, Tiptur, Arasikere and Chamarajanagar.
3. The Additional Director (Enforcement), Department of Agricultural Marketing.
4. The Deputy Director (Enforcement), Department of Agricultural Marketing, Northern Zone, Hubli and Southern Zone, Bangalore.
5. Deputy Director/Assistant Director, Department of Agricultural Marketing, Tumkur, Hassan and Chamarajanagar.
6. Office copy.

## Schedule 1

### Assaying parameters for turmeric

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

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

Turmeric Bulbs shall be assayed for the following parameters –

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

## Schedule 2

### Format of Sample identity slip

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**

**APMC: Chamrajnagar/Gundlupet/Kollegal**

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

**End of the page:**

**Signature of APMC official**

**Name:**

**Date :**

### Schedule 3

Format of register to be maintained

Form T2

Name of the commodity – Turmeric Fingers Polished

APMC: Chamrajnagar/Gundlupet/Kollegal

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

End of the page:

Signature of APMC official

Name:

Date :



**Schedule 3**

**Format of register to be maintained**

**Form T3**

**Name of the commodity – Turmeric Bulbs**

**APMC: Chamrajnagar/Gundlupet/Kollegal**

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

**End of the page:**

**Signature of APMC official**

**Name:**

**Date :**

## Schedule 4

### Physical and chemical analysis of turmeric

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 ( $W_4$ ).
  - (d) The percent of inferior quality is  $(W_4/W_0)*100$ .
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 ( $W_6$ ).
  - (d) The percent of rhizomes having length exceeding 3 centimetres is  $(W_6/W_0)*100$ .

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 0.1 gram 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  $(0.42)/(L \cdot 0.0025)$ , where  $L$  = cell length in centimetres.
- (f) Per cent of curcumin is given by  $\{(Ab \cdot 100)/(L \cdot A \cdot m)\}$ , 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.

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