

## FOOD SPECIFICATIONS

### VEGETABLE FRESH

#### General

1. The fresh vegetables will be crisp, well formed, of proper tender maturity and shall not be with coarse fibres, stringy, old or hard due to over age and over growth, spongy or fluffy due to age. The vegetables shall be those in season commencing from early season arrivals and also late season receipts. These will be freshly gathered, cleaned, graded for soundness and wholesomeness. Botanically fruits of plants, roots, leaves, stems, flowers and modified forms of stems, roots and leaves constitute vegetable fresh for human consumptions.
2. The vegetable fresh shall be free from insect infestation, physiological disorders, blemishes of damage and disease. They shall also be free from discolouration, injury, damage or signs of improper storage, handling and transportation, which renders them a poor look as to the freshness.
3. The vegetable fresh shall be free from rotting, coating of waxes, mineral oil and colours.
4. All mandatory requirements of FSSAI Rules, as amended from time to time, pertaining to this specification shall be complied with.
5. The vegetable can broadly be classified into :-
  - (a) Root varieties.
  - (b) Creeper varieties.
  - (c) Leafy varieties.
  - (d) Fruits/surface/overground varieties.

#### Root Varieties

6. This category includes the modified roots and stems used as food like Arvi, Carrots, Radish, Turnips, Ginger and the like. The important features of these varieties are discussed in succeeding paras.
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8. These vegetables shall be well formed and not forked or misshapen, over or under-grown. The surface shall be characteristic of type but free from growth cracks/hardened body and fibrous cores. The leaves of root vegetables shall be removed 5 cms from the crown and trimmed to remove tail and root portion.
9. **Arvi.** It has a wide range of physical classification, starting from small sized bulbs to large sized bulbs from round shaped to faizabadi elongated long sized Arvi. Arvi shall be soft in texture, free from field fungal diseases and hardening of bulbs which is evident with partial decay of degeneration of portion of bulb.
10. **Carrots.** The varieties of carrots range from golden yellow, light red, bright orange-red to deep orange-red colour. The greenish white or country carrot and also yellowish white are hard, coarse and insipid. Carrots should be smooth and regular, of good size, should break crisp, having a fine skin and sweet tender flesh. It should not be tough, stringy with leathery skin, fibrous flesh or with excessive heart. The varieties of carrots are namely Pusa Kesar, Pusa Meghali and Half-long-Nantes, Pusa Yamdagni & coreless. The size of carrots shall be not less than 12 cm and not more than 30 cm. Top should be denuded of foliage.

11. **Radish.** The radish varies in size according to the area in which it is grown. They should be smooth and regular, of good size, should break crisp, having a fine skin, juicy and of good flavour. It should not be tough with fibrous flesh and wanting in flavour which indicates inferior quality and overgrown roots.
12. **Turnips.** The turnip belongs to the family Cruciferae, genus Brassica and species rapa. They should be clean and fresh in appearance, of good size and regular shape, free from all cracks. The flesh should be crisp, tender, fine grained, solid, sweet, juicy and of good flavour. Loose wrinkled skin, softness, discoloured appearance due to staleness, and bad storage are chief defects. Toughness, cracked skin, hard and fibrous flesh and wanting in flavour denote inferior quality and overgrown roots. The top shall not be more than 1.0 cm.
13. **Ginger.** It is the bulbous root of ginger plant. It should be fresh, should break crisp, having a fine stain, tender and juicy flesh. It should give a slightly bitter taste. Bruised and discoloured skin are caused due to bad packing and rough handling. Toughness, hardness and excessive fibrous flesh wanting in juice and flavour indicate inferior quality and overgrown roots.
14. **Beet Root (Chukandar).** Well formed bulbs, proper stage of maturity with soft secondary roots of bright reddish purple colour. These bulbs will be free from sogginess and attacks of field fungi or disease. Max numbers of Beetroot in a kg can be 10 with each single piece not less than 100 gms.
15. The vegetable like, beans, cucumber, pumpkin, snake gourd, tinda, bitter gourd, chappan kaddu, marrow, ridge gourd, ribbon gourd, tori ghia, tori jhinga and long melon etc. form part of this category of vegetables. These vegetables are susceptible to damage by field fungi and various other insects, thus, making them unsuitable for human consumption.
16. These vegetables shall be well formed, tender of proper stage of maturity. Surfaces not facing sun may have little under distribution of chlorophyll thus slight light yellow in colour, this should not be taken as a major defect. Skin shall be moist, smooth and with velvety feeling. Presence of hard seeds, hard skin, bitterness, shrinkage and physiological disorders are defects and vegetable with these defects shall be rejected. The details of vegetables are discussed in succeeding paras.
17. **Beans.** This category includes cluster beans, broad beans, french beans, soya beans, moong beans, bengal beans etc. They should be young, tender and fleshy, not hard, wrinkled, stringy or discoloured.
18. **Cucumber.** It should be smooth and regular, of good size and shape, should be filled with tender flesh and seeds. It should not be over ripe, loose or with wrinkled skin which denote staleness. The cucumber shall be of varieties namely Field Grown slicing or Table -sorts, Packing varieties and Forging or Green house varieties of size between 8 cm and 50 cm.
19. **Snake gourd,** Ridge gourd, Ribbon gourd, Sponge gourd, Tori ghia, Tori Jhinga and Squash. These should be smooth, tender and of good size. The colour is normally fresh light green and not yellowish or rusty brown which denotes staleness. The interior should be fleshy, soft and tender, not hard and stringy which denotes over ripeness or inferior quality.
20. **Pumpkin.** It should be of good size with tender skin. It may be of fresh green colour to rusty brown. Once it is fully matured and turns into rusty brown colour, it can be stored for long period. The skin should be free from any damage and field fungi or disease. The damage on outer skin is the sign of bad handling and storage.
21. **Tinda.** It should be round shape with smooth skin of fresh light green colour or they may have fresh off white velvety appearance. The interior should be fleshy with small and soft seeds. The skin should be soft and tender and not hard which denotes over ripeness or inferior quality. The hard seed also conform over ripeness of tinda.

22. **Bitter Gourd**. It should be of good size and shape with bright green colour knotted skin. It should break crisp and have tender flesh. The yellowish or rusty brown colour indicates over ripeness or inferior quality.

23. **Chappan Kaddu**. This should be smooth and regular of good size, having fine skin and sweet tender flesh. Hardness of skin and seeds and wanting of flavour denote inferior quality and over ripeness.

24. **Marrow**. It should have fresh green colour tender skin. The interior is filled with soft whitish pulp and tender seeds. Hard yellowish skin and hard seeds indicate over ripeness and inferior quality. It should be free from any damage and disease.

25. **Long Marrow**. It is normally ribbed and long shaped of fresh green colour with velvety appearance. The interior flesh is filled with soft tender seeds and watery pulp. The yellowish colour, hardness of skin and seeds denote over ripeness and inferior quality. Leafy Varieties

26. The vegetables like amaranth, lai sag, fenugreek, cabbage, karam sag, rape sag, spinach, coriander green, mint green etc. form part of this category.

27. **Amarnath, Lai sag, Fenugreek, Karam sag, Rape Sag, Spinach (Including Aizoaceae, Buck Wheat, Sarren, Chakwat etc), Bathua, Corriender green and Mint green**. The leaves of above varieties vary in size and shape. They should be fresh, bright, soft and succulent, not stale withered and dry due to being kept too long or exposed to the sun after being plucked. The leaves should be free from disease and any type of infestation. Tough, coarse and stringy leaves denote that the crop is over grown, has been badly cultivated or is of inferior quality. These will be properly trimmed and will be free from roots, stumps, hard stalks and extraneous leaves. Fruit/Surface/Overground varieties

28. Peas green, knol-khol, brinjal, cauliflower, cowpeas (lobia green), ladies finger, plaintain green, tomatoes, capsicum, chow-chow green papaya, jack fruit, marrow, nadroo (kamal kakri), parwal, squash, chillies green and coconut whole etc. are from this category of vegetables. The details of above varieties of vegetables are discussed in succeeding paras.

29. **Peas**. The pods should be of fresh green colour, crisp, juicy and of good size. They should be well filled with fresh light-yellow, green, dark green or white unwrinkled peas of good size, tender, thin-skinned, sweet and full flavoured. Over ripe, flat ill filled pods containing a few puny small peas, denote inferior quality and bad cultivation. Dull, yellowish green, hard pods containing hard dry light peas are stale and bad. Peas attacked by insects will be empty and light in weight owing to kernel having been eaten up. The peas are of varieties namely Early variety (Asauji and meteror smooth seeded varieties), Early badger (A wrinkle -seeded, dwarf variety), Arkel ( A wrinkle-seeded high yielding dwarf variety), Mid season (Bonneville: Wrinkle-seeded, double podded, medium tall variety) and late variety (N.P.29: wrinkle –seeded). Varieties suitable for hills: Early Giant (Dark pods with wrinkled seed) and Alderman (Pods more or less straight nearly 9 cm in length).

30. **Knol-Khol**. They should be clean and fresh in appearance of good size and regular shape. It should have well formed body and soft flesh. The discoloured appearance due to staleness and bad storage are chief defects. Toughness, hard and fibrous flesh denote inferior quality.

31. **Chow-chow and Brinjal**. The colour of brinjal varies, they may be white to yellow or dark purple. They should have fresh looking shiny skin. The thinner skin, the better the brinjal. It should be well filled with soft greenish pulp and tender seeds which should not be in excess. It should not be over-ripe, loose or with wrinkled skin which denotes staleness.

32. **Cauliflower**. This should have large, firm snowy-white compact head of uniform closeness. Any tinge of green or yellow indicates inferior quality. Some varieties of good quality when fully matured, become suffused with violet. The less foliage the better, small dark spots or soft spots denote decomposition. They should normally be delivered with two layers of leaves of sufficient length to protect the flower and stalk removed. The varieties of Cauliflower are classified as Early

(Kunwari or Kauri and Early Patna available from mid-September to mid-October), Pusa Ketki and Pusa Deepali available in October - November Mid-Season (Aghani, Poosi, Patna Main Crop, plant Shubhra available from mid-November to mid-December. Early snowball, Giant Snowball, D-96, Japanese Improved, Pusa Shubhra - available from mid-December to mid-January) and Late (Dania-available in January -February, snowball -16 Pusa snowball 1-2 and Pusa Himjyotiavailable from mid-January to April)

33. **Cowpeas (lobia green)**. They should be young, tender, fleshy and filled with soft and tender seeds. These should not be hard, fibrous, wrinkled, stringy or discoloured.

34. **Ladies Finger or Bhindi**. The pods of these vary, some are ridged, others are not. The colour is either fresh, light green or they have fresh white velvety appearance, not yellowish or rusty brown denoting staleness. The interior should be fleshy and seeds small and soft. A dry and stringy interior, with hard seeds is due to over ripeness. The skin should be soft and tender not hard and stringy which denotes over ripeness or inferior quality. The ladies finger are of varieties namely Makhmali, Pusa Sqwani, Perkin's Long Green, Vaishali Badhu, Punjab Padmini and Parbani Kranti. The tail end of ladies finger shall break crisp without any signs of fibrous formation.

35. **Plaintain Green**. These should be smooth and regular with fresh appearance. It should break crisp and interior should have good creamy white pulp. Toughness, cracked skin and wanting in flavour denote inferior quality. These are available in different sizes according to the area where these are grown.

36. **Cabbage**. These will be green in colour, should be fresh, crisp and firm with a large compact heart and as few loose outer leaves and as little stalk as possible. The different varieties of cabbage are Round head or Bell head type, Flat head or Drum head type (Pusa Drumhead), Conical head type (Jersey wake field) and Savoy type (Chieftain).

37. **Tomatoes**. These should be of good fresh appearance and ripe colour, good size, firm, solid, plump, well filled and heavy. The flesh should be plentiful, rich, solid, tender of good colour. It should have a pleasant, not too bitter flavour. Smaller the core and less seeds the better the tomatoes. Greenish, tough skinned, lumpy and sour flesh (due to unripeness) dry wrinkled, discolour skin and a watery pulpy interior shows staleness and poor quality. Bruised and discoloured tomatoes are caused due to bad packing and rough handling and loose their taste and flavour. The different varieties of tomatoes are Pusa Early Dwarf, Pusa Fuby, Sioux Marglobe, Best of all, La Bonita, Pusa 120, Pusa Sheetal, Pusa Gaurav, Italian Red Pear and Rema.

38. **Chillies**. These will be of good size as per variety with fresh and bright in appearance. Should break crisp, well filled with soft seeds and free from field fungi or any other disease. Loose or damaged skin denote bad handling/storage and inferior quality. The size of individual chillies shall not be less than 2.0 cm.

39. **Capsicum**. These will be of bright green colour, fresh and break crisp. The skin will be light, solid and free from any damage due to handling, storage or disease. The interior will partially contain tender seeds. Discoloured capsicum with hard seeds are over-ripe and loose their taste and flavour.

40. **Green Papaya**. It should be smooth and regular of good size, well shaped of green colour. The skin should be thin with creamy white pulp, minimum of seeds and pleasant flavour. The discolouration and damage to skin are the sign of long storage and bad handling.

41. **Parwal**. These should be smooth and regular, of good size and shape with fine skin and tender flesh. The interior will be filled with creamy white pulp and soft seeds. The hard seeds and discolouration of skin are the signs of over ripeness and staleness.

42. **Jack fruit**. This should be of green colour, solid, young and good size. The interior should be filled with whitish pulp and tender seeds. When cut the milky substance, should come out. If it is over mature, it can not be used as vegetable, should be free from any disease and softness of skin shows the sign of staleness and long storage.

43. **Fresh Lime (Kaagzi Nimbu).** Fresh lime shall be of two types namely round and oval. The lime fresh shall show a green rind colour just beginning to turn yellow or uniform golden yellow, rind not soft or flabby, shall be free from bruises, injury, damage, canker and discolouration. The minimum weight of single fresh lime shall not be less than 30 gm and maximum number to a kg shall be 33.
44. **Radish Fruit (Singri).** On maturity the radish top bear fruit which are used as vegetable. They are bitter in taste and when cooked produces excellent vegetable. The fruit pod is a cilicle which is about 2.5 to 7.5 cm in length and does not become open to discharge the seeds at maturity. Best used when the seed is very tender inside the pod.
45. **Leek.** The leek resembles the onion in its adaptability and cultural requirements. Instead of forming a bulb the leek produces a thick, fleshy cylinder that has the characteristics of large green onion. The main varieties of leek are London flag and American flag. Under favourable conditions they grow to 4 cm in diameter or more and from 15 to 20 cm in length. The plant is larger than onion. Inspection
46. The fresh vegetables will be subjected to the approval of local supply officer after his careful inspection and having found them conforming to this specification. The decision of this officer shall be final.
47. All vegetables shall be supplied in suitable clean containers designed to protect them from damage, deterioration and contamination of any kind.
48. An excess of earth on root vegetables amount to adulteration, they should be tendered clean. The contractors must not give bright appearance to the vegetables especially of green leaf by washing them. This is important as water used for the purpose is often filthy and germ laden. Some suppliers soak the vegetables to increase weight, which can be detected easily by their damp and sodden feel, and their over bright and pulpy state. Note:- A regular and proper schedule of supplies shall be drawn by the contract concluding authority from the various genus of vegetables as reflected at Appendix 'A'. The instructions at Appendix 'A' shall act as guide to officers concluding and operating the contract and will not form part of the tenders.