

Maturity Indices of Vegetable Crops

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The maturity indices are also called as “Maturity Standards” or “Signs of Maturity”. Maturity signs help in judging maturity of vegetables. The signs are based on experience and skill and judgment. As the market value depends upon quality of the produce, the knowledge regarding maturity indices of right stage of harvest carries vital importance. Secondly shelf life of the produce in some fruits depends upon maturity stage of harvested produce.

The level of maturity actually helps in selection of storage methods, estimation of shelf life, selection of processing operations for value addition etc. The maturity has been divided into two categories i.e., physiological maturity and horticultural maturity.

Physiological maturity: It is the stage when a fruit is capable of further development or ripening when it is harvested i.e., ready for eating or processing.

Horticultural maturity: It refers to the stage of development when plant and plant part possesses the pre-requisites for use by consumers for a particular purpose i.e., ready for harvest.

Importance of maturity indices

- ✓ Ensure sensory quality (flavour, colour, aroma, texture) and nutritional quality.
- ✓ Ensure an adequate postharvest shelf life.
- ✓ Facilitate scheduling of harvest and packing operations.
- ✓ Facilitate marketing over the phone or through internet. (Dhatt *et.al*, 2007)

Maturity indices of Vegetable crops

Tomato: Depending upon the purpose for which they are used and market distance, tomatoes are harvested manually by plucking the fruits at different maturity stages.

- **Green stage:** The mature green fruits are generally harvested to send them to the distant market.

➤ **Pink Stage:** At this stage colour turns to pink or red at the blossom end. They are picked for local market.

➤ **Ripe stage:** At this stage surface of the most of the fruits is red and the soften of fruits begins.

➤ **Fully Ripe:** At this stage fruits have approached maximum colour development and are soft. Starch is charged into sugars. They are generally consumed or used for canning and processing.

Brinjal: It matures after 40 days from flowering, glossy appearance. (Dhatt *et. al*, 2007)

Chilli: Depending on purpose chillies are harvested at two stages, one for green vegetables and the other as dry chillies.

- Green Chillies are harvested when they are fully mature and before they change from green to red.
- Chillies for drying should be harvested when colour changes from green to red.

Okra: Desirable size reached and the tips of which can be snapped readily.

Potato: Tops beginning to dry and topple down.

Cucumber: Fruits can be harvested from 45 days after sowing. The tender fruits (for salad) can be harvested on 8th to 10th day of flowering. (Ramjan *et. al*, 2017)

Pumpkin: Pumpkin fruit are usually fully mature and ready for harvest about 3 months after sowing, or approximately 45 days after flowering.

Bottle gourd: Fruits should be light green, 30-35 cm long, tender with little pubescence persisting on the skin. (Ramjan *et. al*, 2017)

Bitter gourd: Fruits mature 55 to 110 days to harvest. Picking is mainly done when the fruits are tender and green.

Ridge gourd: The crop matures 60 days after planting. Fruit attains maximum size.

Water Melon

- The portion of fruit resting on ground starts turning colour from creamy white to yellow.
- The sugar content of fruit measured as soluble solids using hand refractometer is reached 10 % or more in flesh near centre of fruit.
- On thumbing, the immature fruits give out metallic ringing sound and the ripened dull hollow sound (Chauhan, 1972).

Musk melon: Muskmelon is generally picked at 'half-slip' stages for commercial marketing (part of the pedicle remains attached to the fruit, i.e., abscission layer is not fully developed). Full slip is stage at which the pedicle separates easily from the fruit with little or no pulling. (Rana, 2008)

Amaranthus: Usually starts in about 3-4 weeks after sowing.

Palak: Green succulent tender leaves come at 25-30 days after sowing. It may continue to 15-20 days interval.

Onion and Garlic: Maturity can be judge by the neck of the plants drying up, tops falling over while the leaves are still green (Rana, 2008).

Carrot and Radish: European type is ready for harvesting within 30 days from sowing and Asiatic type within 45 to 60 days from sowing. At this stage roots are mild, tender and crisp and usually of the proper marketable size.

Beet root: Most beetroot varieties mature in 55 to 70 days and harvesting generally starts when the roots are about 5 cm in diameter (golf ball size).

Cabbage: Solidity, firmness, squeaking of heads indicates maturity (Kalia, 2011).

Cauliflower: Curd size and colour are deciding factors. Snow white or creamy white, compact curds surrounded by turgid green leaves (Kalia, 2011).

Dolichos bean: Well, filled pods that are beginning to lose their greenness.

French bean: Pods mature and ready for harvest 2 to 3 weeks after first blossom. Pods are harvested when they are young, tender and delicate.

Cluster bean: Crop starts bearing pods 40 days after sowing depending upon variety. Pods are picked at tender stage.

Garden pea: The pods are harvested when they are filled, tender, having high sugar content and changing colour from dark green to light green.

Conclusion

Harvesting should be done at proper stage of maturity because it not only determines the quality of product but also prolong its shelf life. If it picked immature lacking in normal brix acid ratio or sugar acid ratio, taste and flavour on the other hand if the vegetables are harvested over mature or full ripe they are easy susceptible to microbial and physiological spoilage and their storage life is considerably reduce. Therefore, it is required to pick up the vegetables at correct stage of maturity to facilitate distant transportation and maximum storage life.

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