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Ministry of Agriculture & Farmers Welfare
Department of Agriculture, Cooperation & Farmers Welfare
Horticulture Division

Krishi Bhawan, New Delhi-110001
Dated: 15th December, 2017

To
Director (Hort./Agri.)/Mission Director (MIDH)
All States

Sub: Harvesting techniques of tomatoes – reg.

Sir,

As you are aware that most of horticultural produce are perishable in nature and having very short shelf life especially vegetables. Due to this nature, losses about 5-18% are occurred from harvesting to the consumer level. Government of India is trying to reduce these post harvest losses by different interventions through MIDH scheme. Harvesting techniques of different crops also reduced losses to some extent. In this context, a note on the subject mentioned above prepared by this Department is enclosed.

You are requested that wide publicity of harvesting techniques of tomatoes may be given among the farmers in local language through audio-visual aides, pamphlets etc.

Encl: as above.

Yours faithfully

N.K. Patle
15/12/2017
(N.K. Patle)

Deputy Commissioner (Hort.)
Email: dhort-dac@gov.in
Tel.: 011-23073956

Copy for information to:

1. Sr. PPS to Secretary(AC&FW)
2. PPS to Joint Secretary (MIDH), DAC&FW
3. PPS to Horticulture Commissioner, DAC&FW

Copy to: Technical Director, NIC, DAC&FW with request that same may be uploaded on MIDH website.

Harvesting tomatoes- with and without a portion of stem and calyx

There are two groups of varieties of tomatoes based on the normal harvest procedures; one jointed tomato on which part of the stem and calyx remain, and the other is joint less tomato on which none of the stem remains with the fruit to cause damage in handling. Joint less fresh market tomato varieties take much less time to pick than jointed types. The harvesting method, where in the fruits are harvested with portion stem and calyx attached is not suitable for bunch bearing varieties as maturity of the fruits is staggered within a bunch also for the varieties meant for processing as it would add the cost of destemming process later.

A four-year study conducted (CALIFORNIA AGRICULTURE MAY-JUNE 1988) to compare the efficiency of picking jointed- and jointless-stem tomato varieties by hand revealed that the calyx and stem of jointless varieties usually remain attached to the plant when the fruits are picked. However, in case of jointed varieties often fruits separate from the plant at the stem joint, so that the stem and calyx remain attached to the picked fruit. The picker then has to take the time to remove the stem and calyx from the fruit to prevent injury to other fruit in the packing containers, trailers, and storage. As punctures by stem end may lead to secondary infections by fruit rot organisms and can be a major cause of postharvest losses. Further, earlier practice was to harvest tomatoes when the fruits were brightly colored and slightly soft to touch. In such a situation, harvesting the fruits with stem and calyx would lead to piercing by the cut end of the stem and damage to other fruits in transit and storage. However, now a day's commercially grown fresh market tomatoes, nearly all of which are harvested and shipped at the color break stage and the fruits can defy piercing by cut end of the stem.

Harvesting tomatoes with portion of the stem and calyx has the clear advantage of extended shelf life. The studies have shown that the post harvest loss is much less due to minimal physiological weight loss and decay as a result of non-exposure of the fruit attachment positions to the stem (stem scar is the site of 97 per cent of gas exchange and also microbial infection) when the fruits are harvested with stem and calyx. It is further observed that retaining the portion of the stem of tomato to the fruits at harvest did not affect the ripening and physio-chemical characteristics during storage at room temperatures. This procedure of harvesting fruits with a stub of stem and calyx is considered as one of the non-refrigerated methods to extend the shelf life of tomatoes, there by convincing the clear advantage of harvesting tomatoes with portion of the stem and calyx.