

## **Post-harvest management of fruits vegetables-Technologies transferred/information provided/disseminated**

### **Dissemination of IIHR PHM technologies through**

#### **Department of Horticulture**

- Submitted post-harvest protocols of six fruit crops (mango, banana, grapes, pomegranate, papaya and sapota) and four vegetables crops (tomato, capsicum, carrot and onion) to Directorate of Horticulture, Lalbagh, Bangalore on 30/10/2013 required for **Comprehensive Horticultural Development Scheme**
- Provided Grading standards of fruits and vegetables for domestic and export markets to Directorate of Horticulture, Lalbagh, Bangalore on 26/03/2013 required for educating the technical personnel of Department of Horticulture

#### **APEDA**

- Involved in training programs of **APEDA** on PHM aspects of mango, pomegranate, banana and grapes conducted for progressive farmers and exporters of those fruits
- Helped APEDA, New Delhi in finalization of “Draft procedure for export of mangoes” during May 2016
- Suggested measure to overcome the **constrains in export of mangoes** in the interactive meeting with Joint Secretary (PP), Govt. of India involving exporters, pack-house managers, Senior State Department officials and APEDA, organized by Directorate of Plant Protection, Quarantine & Storage during April 2017
- Serving as empanelled member of NPOP Audit programme of APEDA for conducting renewal audit of organic Certifying bodies involved in certification of organic production and processing/value addition

#### **FSSAI**

- Included IIHR’s low cost ripening technology as permitted and safe method for ripening of fruits in their advisory to all stake holders involved in fruit ripening
- Helped FSSAI, New Delhi in finalization of Codex code of hygienic practice for fresh fruit and vegetables during May 2015

#### **NHB**

- Subject matter expert for ascertaining the suitability of mango ripening chambers proposed to National Horticultural Board, Ministry of Agriculture, Government of India
- Subject matter expert for ascertaining the suitability of specially designed insulated and ventilated container for transportation of apples from Delhi to Bangalore-trails conducted by NHB, Ministry of Agriculture, Government of India (during January 2014)
- Provided IIHR website link of Technical Bulletin “Post Harvest Management of Tropical and Sub-tropical fruits” to put it on NHB website (sent recently on 1/11/2019)

## NABARD

- Involved in training programs of **NABARD** on PHM aspects of protective cultivated vegetables conducted for poly-house farmers and exporters

## Industry-partnership on CA storage of mango

- Given technical Advise on the **CA storage trials** conducted by Namdhari Fresh on different mango varieties viz., Mallika, Kesar, Kent Keith at their the newly set up trial CA Storage facility Namdhari Fresh Pack-house, Bidadi, Karnataka during 2018.

## AGMARK STANDARDS

Facilitated in formulation of grade standards of fruits and vegetables from time to time done by **Directorate of Marketing and Inspection, Ministry of Agriculture**. (Crops done so far : Strawberries, cherries, pears, Melons, Beans, cauliflower, Chilies, capsicum, Okra, Sapota, Gherkins, radish, jackfruit, gourds, cabbage, bottle gourd, sponge gourd, snake gourd Bitter gourd, cucumber, peaches, Nectarins, apricot, avocados, aburgins)

### a) Newspaper articles

Sudhakar Rao D.V. (2010). "IIHR's simple fruit ripening solution:	"Deccan Herald" English Daily News Paper dated 15-6-2010. (Spectrum Science Section)
Sudhakar Rao D.V. (2010). " <i>Hannugalannu Maagisuva Kruthaka Vidhaanagalu</i> "	"Hosadigantha" Kannada daily newspaper dated 21-06-2010.
Sudhakar Rao D.V. (2010). " <i>Hannu maagisuva kruthaka vidhaana</i> "	"Samyukta Karnataka" Kannada daily news paper dated 23-6-2010.
Sudhakar Rao D.V. (2010). " <i>Daalimbe rakshanenge hosa packing</i> "	"Prajaavani" Kannada daily newspaper dated 01-07-2010.
Sudhakar Rao D.V. (2011). The right way to ripe mangoes.	The New Indian Express, Bangalore, Friday 20 May 2011, Page 3
Sudhakar Rao D.V. (2011). " <i>Kadime vechhedalli hannu maduva vidhana</i> "	Prajaavani" Kannada daily newspaper dated 30-06-2011, Page III.
Sudhakar Rao D.V. (2011). Mavinalli kruthakavagi hannu maduvika.	Annadata (Kannada Magazine) July 2011, 6 (1): 51.
Sudhakar Rao D.V. (2011). IIHR: Kami Karchve chamaber (IIHR: Low cost ripening tent).	Annadata (Marathi Magazine) August 2011, 5 (8): 64.
Sudhakar Rao D.V. (2013). ಮಾವಿನಕಾಯಿ ಮಾಗಿಸಲು ಸುಲಭ ವಿಧಾನ ( <i>Mavinakaya Magisalu Sulabha Vidhana</i> ).	Vijayavani, Kannda Daily Newspaper, Monday, April 29, 2013, Page 4.

#### **b) Doordarshan/TV programme**

- Carbide free method of fruit ripening by Doordarshan Kendra Bangalore in DD Chandana Kannada channel on 30/05/2011.
- “Simple ripening technology of mangoes using ethylene gas released from liquid ethrel”: ETV Kannada , Annadata Programme at 6.30 am on 19/07/2011.
- “Low cost simple ripening technology of mangoes using ethylene gas released from liquid ethrel” ETV Kannada, Annadata Programme at 6.30 am on 13/06/2012.

#### **c) AIR**

- Interview on Ripening of fruits, broadcasted by All India Radio (AIR), Bangalore on 28<sup>th</sup> December 2014 at 6.50 PM
- Interview on Harvesting and post harvest technology in mango, broadcasted by All India Radio (AIR), Bangalore on 15<sup>th</sup> April 2015 at 6.50 PM

#### **d) Audio capsules made under the NAIP project on “Mobilizing Mass Media Support for Sharing Agro-Information”**

- Packaging technology of pomegranate and capsicum and Low cost ripening technology for fruits

#### **Transfer of technology/Consultancy**

- “Shrink wrapping Technology of pomegranate fruits” to Department of Horticulture, Govt. of A.P. on 19<sup>th</sup> February 2003
- Mango ripening and control of microbial spoilage during ripening- M/s. Jain Processed Food Pvt. Ltd., at Jalagaon (2003-04)
- Consultancy on “ Post harvest handling of Banana to Mr A. Ranjit kumar, Guntur, A.P. during June 2006
- Low temperature storage of pineapples M/s TEDMAG, Bangalore during 2003-04
- Handling and storage of mango for export purpose to M/s. Focus International, Tirunelveli, Tamil Nadu during 2004-05
- Handling and Packing of Papaya and pomegranate to M/s. Unique Enterprise, Jayanagar, Bangalore during 2004-05
- Individual shrink wrapping of pomegranate and capsicum to M/s Shivagami Cold stores (P) Ltd, Trichy- 620 001 during March 2007
- Individual shrink wrapping of pomegranate to Department of Agriculture (Horticulture officer, Kashti, Shirigonda(TQ)/Sub Divisional Agrl. Officer, Karjat, Ahmednagar(Dt)), Maharastra during April, 2007
- Ripening of mango and banana fruits using ethylene gas” to M/s Relax Agencies, V/427, Kaipamangalam, Thrissur, Kerala- 680 681 during April 2009.
- Ripening Technology of mangoes using ethylene gas-implemented at M/s Amrutham Agro Industries, Kaveripatnam, Krishnagiri Dt, Tamil Nadu
- “Ripening technology of banana fruits using ethylene gas released from liquid ethrel” to M/s, Korvyss Agrotech Pvt. Ltd, Vidakuzhakkara, Thaikkattukara (PO), Kalamassery, Ernakulam- 683106 during March 2011

- “Shrink wrapping of pomegranate, Sweet oranges and capsicum to M/s, Korvyss Agrotech Pvt. Ltd, Vidakuzhakkara, Thaikattukara (PO), Kalamassery, Ernakulam- 683106 during May 2011
- “Shrink wrapping of pomegranate and capsicum to M/s PEE PEE Agro and Food Products Ltd., 123, Chennai-600079 on 3<sup>rd</sup> August 2012.
- Extending the shelf life and maintaining the quality of peeled garlic cloves: M/s Edanata Food, Bangalore during 2013-14
- General post harvest handling of fruits and vegetables to the staff of **Bigbasket.com** of **Bangalore** batch at IIHR in 3 batches on 14<sup>th</sup>, 15<sup>th</sup> and 19<sup>th</sup> November 2014
- General post harvest handling of fruits and vegetables to the staff of **Bigbasket.com** at **Hyderabad** on 29/1/2015 and **Mumbai** on 30/1/2015
- “General Post harvest handling of fruits and vegetables” to Mr Srikanth Ponnampal of M/s Aaradhya Inplex Pvt., Ltd, Guntur Andhra Pradesh on 6<sup>th</sup> June 2016
- Shrink wrapping technology for capsicum has been transferred to M/s Sarayu Green Farms Pvt Ltd, Dist Mahabubnagar, Telangana State on 13<sup>th</sup> May 2015
- “Fresh-Cut Vegetables Technology” to M/s Darren Agro (H. Stanley Timothy, 9449775951), Sayadri Nagar, Belgaum-560010 on 28-29<sup>th</sup> August 2017.
- Technology on “Fresh-Cut Green Capsicum” to M/s Jubilant Food Works Ltd Noida-201301,UP, during January 2018

### Others

- Information about four technologies 1) Shrink wrapping of fruits and vegetables 2) Low cost ripening technology 3) Long term storage of carrot 4) MA packaging of pomegranate was provided for the publication brought out by DDG-Engineering, ICAR submitted to **Planning Commission** by ICAR.
- Member of Expert committee on Ripening Agents, Constituted by **ICMR-ICAR Technical Working Group** functioned under ICMR-ICAR Joint Committee for Research on Food Safety.