

## Collaborative Research with SME's in the Fruit Sector

Research Training Workshop on Facilitating uptake by SMEs of Research on New Processing Technologies for Underutilised Fruits, 13<sup>th</sup> - 15<sup>th</sup> May, 2013, Kandy, Sri Lanka  
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## Institute of Post Harvest Technology

The main Institute in Sri Lanka engaged in improving the Postharvest Technology of

- Rice/Other Grains,
- Field Crops,
- Fruits and Vegetables,
- Spices

through,

- Research,
- Training,
- Extension,
- Consultancy and
- Other development activities.

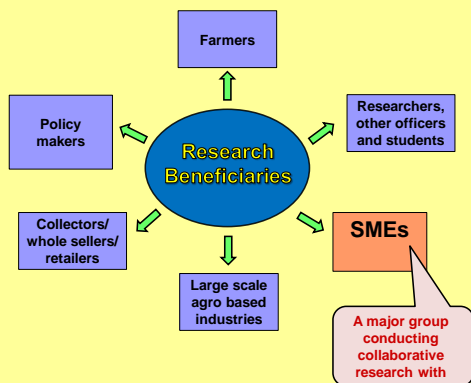


### Major Research Areas

- Paddy and other grains
  - Development of technologies related to drying, storage and pest management, parboiling and processing
- Fruits and Vegetables
  - Development of maturity indices, handling, packaging, storage and disease controlling technologies
- Product development
  - Development of rice based products (rice biscuits, rice cakes, rice crackers, rice ice cream), fruits and vegetable based products

### Major Research Areas contd.....

- Design, development and evaluation of processing machineries, equipments and dryers.
- Development of rice flour and spice processing technologies.
- Identification of proper packaging materials and techniques for food products



### Research aimed towards SME's of fruit technology



**Identification of research needs**

- National priorities
- Address current problems in fruit industry
- Requested by SME's

**Problems faced by fruit industry in Sri Lanka**

- Seasonality – big issue in the country,
- Price fluctuation - low price at peak and high price at off-peak
- Post harvest losses and quality deterioration due to use of improper handling practice and lack of technologies
- Commercial cultivation is limited for few crops
- Low income from fruit cultivations
- Lack of infra structure
- Problems in technology dissemination
- Marketing issues
- Lack of financial supports
- Quality variations in small/ medium scale industries

**Objectives of conducting research**

- Solution for glut production
- Value addition to increase income
- Ready to use products to suit busy lifestyle  
eg. Minimal processing, RTS drinks, etc.
- To initiate agro based SME's



**Technologies developed through research for fruits**

- Improved handling and pack house operations
- Minimal processing
- Dehydration
- Other fruit based products
- Proper packaging techniques

- Low cost (capital and operational)
- Simple and easy to use techniques  
Suitable for SME's

**Technologies developed contd.....**

- **Improved handling and pack house operations**
  - Improved packaging methods for handling and transportation
  - Development of graders
  - Post harvest disease management using GRAS compounds
  - Development of edible fruit wax
  - Design and development of fruit harvesting equipments
  - Proper fruit ripening practices
  - Design and development of fruit retail stalls



**Technologies developed contd.....**

- **Minimal processing**
  - Development of papaya fresh fruit cut consumer pack
- **Dehydration**
  - Design and development of dryers for fruits and vegetables
    - Solar
    - Solar assisted paddy husk
    - Paddy husk/firewood



Technologies developed contd.....

- Development of products and processing practices
- Quality improvements
- Preservation – drying and osmotic dehydration
- Improving storage period



Technologies developed contd.....

➤ Other fruit based products

- Tamarind based products – RTS drinks, cordial, pulp, chutney, toffee
- Lime based products
- Fruit jams, cordials, pulp, juices, RTS drinks, chutney
- Products from under utilized fruits  
Eg. Bilin(Averrhoa bilimbi) jam,  
Bael (Aegle marmelos) jam



Technologies developed contd.....

➤ Proper packaging techniques

- MA packaging
- Identification of proper packaging materials for processed and minimally processed products



Development of SME's

- Appropriate technologies are introduced to the SME's
- Filling technological gaps
- Product quality improvement
- Process improvement
- Facilitating product marketing
- Continuous follow up

A Success Story

Lanka King's Food Products

Entrepreneur : A.M.T.Chinthana  
Anuradhapura

Established in – year 2010

Products:

- Fruit jam,
- Cordial,
- RTS drinks,
- Fruit nectar,
- Sauce



A Success Story.....

➤ Previous situation:

- Husband : Delivery Agent
- Wife : Unemployed
- Problem : Low family income

➤ Reasons for entering the industry

- Need to increase the income
- Interested in fruit based product enterprise
- Saw the opportunities
  - Residing in fruit abundant area
  - Market opportunities
    - Already delivering some food products
    - Had contact with retailers of food products
    - High demand for fruit based products



## A Success Story.....

## ➤ Problems faced:

- Lack of knowledge on
  - Technology of fruit processing
  - Processing equipments
  - Packaging methods
- Financial problems
- Lack of infrastructure
- Competition
- Lack of confidence

## A Success Story.....

## ➤ Research was conducted in food processing laboratory, IPHT to test the storage life

- of different products
- with different packaging materials
  - for,
  - » microbial growth
  - » quality deterioration

## A Success Story.....

## ➤ Methods used in technology dissemination

- Training sessions
- Practical and demonstrations
- Individual supervision and advice



## A Success Story.....

## ➤ Exposure to the industry:

- Came to IPHT (closest research and development institute involved in fruit processing technology)
- Made aware of the technology, industry, market, competitors, benefits

**and decided to initiate.**

- Special training program was conducted on fruit based products
- Tested the technology at home with the available resources
- Samples were tested for quality by the research institute
- Advised on quality improvement

## A Success Story.....

## ➤ Initiation of commercial production

- Facilities were improved in the selected location
- Necessary equipments were purchased
- Labeling
- Obtained credit facilities with the help of IPHT
- Brand name : King's



## A Success Story.....

## ➤ Other facilitations

- Exposure to potential markets
  - National level exhibitions
- Inclusion of IPHT name as the technical supporting institute in the label
- Linking local banks to obtain credit facilities



A Success Story.....

➤ Present situation

– Production per month

- Jam : 450g bottles – 300  
300g bottles – 1,200  
100g cups – 7,500
- Cordial : 750ml bottles – 300
- Nectar : 200 ml bottles – 10,000  
500 ml bottles – 600  
1 liter bottles – 300
- Sauce : 375g bottles – 300



– Other non fruit products : chili paste



A Success Story.....

– Monthly income : Rs. 50,000.00

– Employment given : 3 permanent female workers

8 extra workers during peak production times

– Fruits used : mango, papaya, pineapple, orange, passion fruit, tomato

– Prospective products : tamarind nectar & cordial, lime juice



A Success Story.....

- Current opportunities : high demand in the market
- Current problems:
  - Inadequate production capacity to supply the existing demand
  - Lack of infrastructure for expansion
  - Financial problems

