Economic empowerment by value addition of fruits and vegetables in rural sectors

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Abstract

The challenge of feeding the population of the world has always been a sustainable key issue for human societies. The development of agriculture /horticultural produce has enabled greatly expanded food production and allowed rapid growth of human populations. The long success of agriculture has confined much of the human population – now in large "metro cities" – from food production in rural areas, with an ever-shrinking proportion of the population involved in food production. Public awareness of the issue of food security was re-energized by global food price rises in 2007–08. Food production doubled during the second half of the 20th century as the population doubled from three to six billion.

Keywords: Horticultural produce (fruits and vegetables), rural sector, Food and Nutrition

Paper type: Research

Introduction

India is among the topmost vegetable and fruit producer in the world. India's food processing sector covers fruit and vegetables. After harvest, fruits and vegetables are liable to accelerated physiological, chemical, and microbial processes that invariably lead to deterioration and loss of wholesomeness. It is then necessary to institute some measure of processing such as reduction in moisture content, denaturation of endogenous enzymes and microorganisms, or packaging in order to curtail perishability. In the absence of such processing, massive post harvest losses can ensue. It is the responsibility of the food scientist or technologist to understand the underlying processes contributing to food deterioration and spoilage and, to device appropriate measures and methods of preservation in order to ensure availability, acceptability, and safety of foods. Value addition to food products has assumed

vital importance in our country due to diversity in socio-economic conditions, industrial growth, urbanization and globalization. It is not merely to satisfy producers and processors by way of higher monitory return but also with better taste and nutrition. Value is added by changing their form, colour and other such methods to increase the shelf life of perishables. Though, with the effort of Ministry of Food Processing Industry the growth of this sector is accelerated, however, there is need to discuss and sort out various related issues amongst people of various categories to increase level of value addition and improve the quality of value added food products for domestic market as well as export.

Objective

The objective of the study is to examine the economic empowerment of rural sector through the value addition of fruits and vegetables to market the fresh and processed products, information and communication technology skills. This paper emphasizes on the long term vision required for a rural sector, opportunities and challenges faced by them.

Findings

The survey shows that there are many opportunities at rural sectors under which they can add nutritional value to their food, enhance their livelihood and improve their standard of living. Horticulture requires specialized extension approaches and skills due to its dynamism and industry needs. There are private and public extension service providers in the horticulture industry. Most of the small and medium scale horticultural farmers rely on public extension service providers while large-scale farmers depend on private extension services. However, there are inadequate extension service providers to cater for the needs of horticultural farmers. In addition, most farmers are not yet commercially oriented. Lack of operational synergy of programmes by extension providers has hindered harmonization of extension messages. The results would show that we can establish a correlation between rural sector and the organization working for development programme under various schemes.

Methodology/approach

A personal survey which was being conducted under the Project of Department of Biotechnology, data being collected from some selected districts of Uttar Pradesh in India. Another important aspect is nutritional security. In India about 1/3rd of the rural children do not reach the age of 5 years due to malnutrition. The crops selected by us were very high in nutritional content and can be easily used for fortification of the flours to combat deficiencies, and the proposed ready to eat products can also serve as a substitute in mid-day meals.

Innovative technologies such as (i) improved packaging of fresh and fresh cut /minimally processed fruits and vegetables (cling film) will help better nutrition in quality and enhance shelf life retention. (ii) Edible packaging will help in development of new product which is still a novice concept in India and will open new market opportunities for farmers and entrepreneurs. Technologies regarding low cost storage, packaging and transportation will be standardized for the selected commodities and transferred to rural sector which would benefit immensely.

Field trials of Small scale Postharvest Technologies

1. Field training- Mango Jaggery pickle

Mango-Jaggery pickle is a kind of sweet and sour pickle which is prepared from mature raw mangoes. Jaggery is a cheap source for sweetness and easily available in the rural areas. This kind of pickle is not easily available in the market and can be easily made at homes. Ingredients required are (a) Firm medium mangoes 2 Kg (b) Jaggery 500g (c) Salt 50g (d) Red chilli powder 10g (e) Cumin seeds 10g (f) Fennel seeds 20g (g) Mustard oil 100ml (h) Vinegar 50-100ml (i) Sodium benzoate250mg/kg of prepared product.

Procedure: Wash and peel raw mangoes and cut them into thin slices or dices; in a dry utensil, add 100 ml of mustard oil; after it is hot add fennel and fry for few minutes (nice aroma comes out); add mangoes, turmeric and fry on medium flame for 5 minutes; in a muslin cloth bag, add all the spices, tie it tightly and put it with the cooking pieces; at regular intervals keep on squeezing so that spices flavor is extracted ; add salt and grated jaggery to it and cook till it attains thick consistency ; allow the pickle to cool; add sodium benzoate

(Boil small amount of water, allow it to cool, mix the required amount of sodium benzoate and then add it to the prepared product) (Fig. 1)

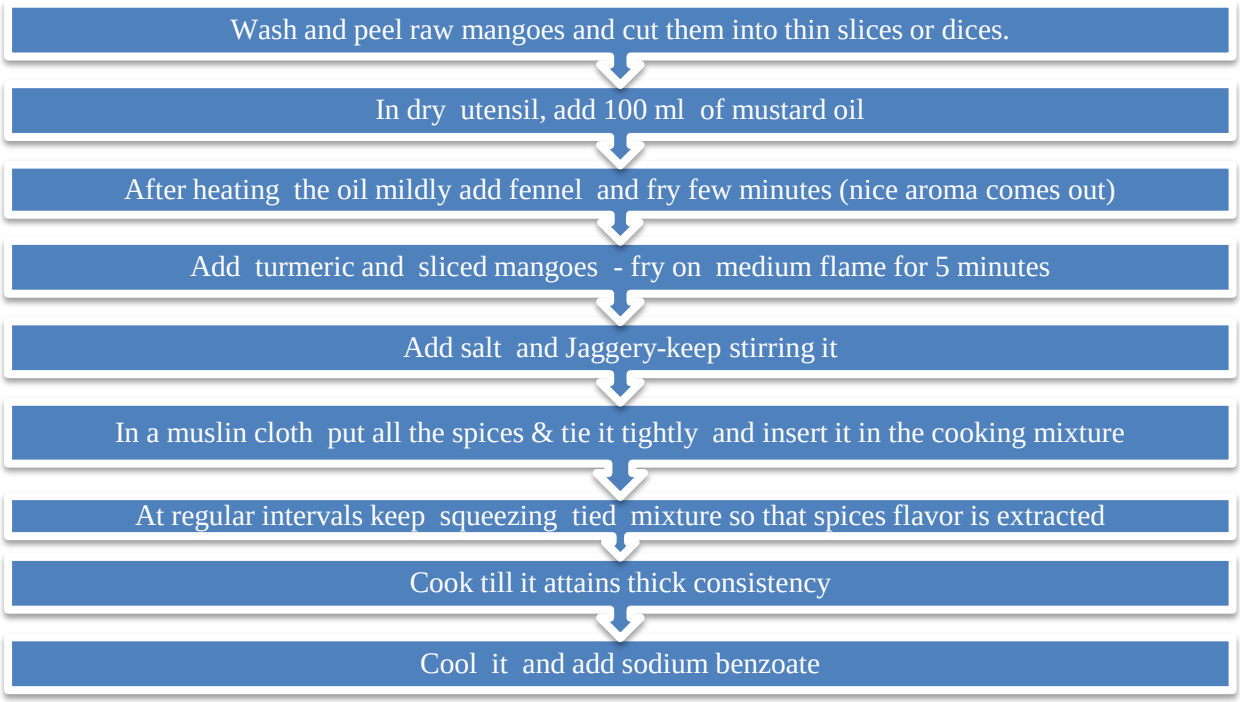
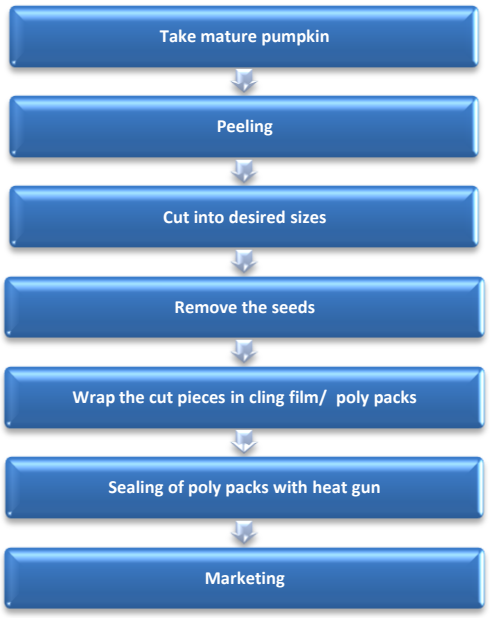


Figure 1 : Processing of Mango-Jaggery Pickle

2. Field training :Minimal Processing of pumpkin:

An average pumpkin weighs about 5-8 kgs and sometimes even more than 15 kgs. This size of vegetable is not suitable for a small family of 4 persons. They want a unit size packaging varying from 200 gms – 500 gms. Even the retailers who sell it in the market cut it into small pieces but they don't pack it and the pieces are exposed to all type of insects and dust. Different types of sizes, cuts and packaging were shown to trainees.



Procedure

- Farm fresh mature pumpkin is taken, washed and peeled
- This is cut into small pieces depending upon the consumer demand- 200 gm, 250 gm, 500gm
- The core and the seed is removed
- The seed can be deep fried, salted and can be marketed as snack

- The cut pieces are either wrapped with cling film or can be kept in poly bags and sealed with the help of heat gun.

Benefits

- With one pumpkin which fetches about Rs. 20 in a retail market one can prepare 4-5 packets and sell each of the at Rs. 10-15/ packet and get a higher price of the produce
- Pumpkin seed can be sold as snack(Pumpkin seed is a good source of Magnesium, Zinc and Vitamin E)
- It will be beneficial for the working ladies
- It is single handed and hygienically packed

Fig 2. Flow chart for minimal processing of pumpkin

Utilization of processing waste: Utilization of pumkin seeds for preparation of value added products

Pumpkin seeds are a concentrated source of many health-benefiting vitamins, minerals, anti-oxidants, and all important essential amino acids like tryptophan and glutamate. Pumpkin seeds are a very good source of anti-oxidant vitamin E. Furthermore, its seeds contain very good levels of essential minerals like copper, manganese, potassium, calcium, iron, magnesium, zinc and selenium. Therefore, these can be used as salty snacks after drying, roasting/frying and salt dressing.

Procedure

- Waste originated from the minimal processing of pumpkin was collected and seeds were separated.
- Seeds were washed properly to remove pulp and dried under shade.

- Dried seeds can be roasted/fried and dressed with salt and chilli powder and served as savoury snacks

Challenges

An emphasis on creating rural employment should form the most important element of the approach for mitigation of poverty. The difficulty of changing human behaviour on the rural sector suggests that, little room to relax our efforts to improve agricultural production efficiencies and optimum utilization of the produce. For example, to develop technologies that convert more of the discarded food in human garbage into some forms of edible food, or at least animal feed. They experience financial resource limitation to promote or to develop a venture and there is also lack of research and innovation to meet with marketing challenges. Most of the farmers are not yet commercially oriented. Lack of operational synergy of programmes by extension providers has hindered harmonization of extension messages. Appropriate extension packages require constant reviewing and updating. There is low awareness among extension providers of quality requirements for horticultural produce and few guidelines for good agricultural practices.

Conclusion

Through formation of skills relevant to rural areas, rural man-power can be developed for taking up self-employment programmes. This would initiate the development of a well-designed and broad based support system, capable of assisting the new class agriculture entrepreneurs all crucial stages formation of groups, procurement of finance, raw materials at reasonable rate and marketing of finished goods. For development of skills, groups should be set up and adequate training to be given by qualified persons. Emphasis should be on self-employment rather than on wage employment.

Results: The implementation of a set of postharvest technologies that will be cost effective and appropriate for reducing losses and keeping perishable foods fresh longer. It will also process them into durable products to fetch better return. In turn, this will promote the well- being of the rural population as a whole and help improve the rural economy. The most relevant aspect is postharvest loss assessment. The result gives an indication and suggests technologies directly to the farmers to protect their crop and enhance their income. Thus by adopting simple technologies for the optimum of

utilization of horticultural produce especially at rural sector canimprove food, nutrient and value of humanity.

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