



The status and future strategies for coconut cultivation in West Bengal

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Introduction

Coconut, “the tree of life” is ceremonially associated with worship of Gods and Goddess in different corners of the country. In addition coconut is a source of earning livelihood to the inhabitants of the coconut growing states in coastal areas. Besides, it is also having considerable importance in the national economy as a potential source of employment generation. As a result, now coconut cultivation is spreading at a faster rate from the traditional area to the nontraditional areas of the country.

Coconut situation in West Bengal

Coconut is grown in an area of 29,510 hectares with a production of 373.6 million nuts per year (2015-16).

At present, based upon the area and production, West Bengal is considered as an important coconut growing state in the eastern region and ranks fifth in terms of area, production and productivity of coconut in the country.

In the state, coconut is mostly grown in homestead gardens. Only few organized plantations exist since independence, because the farmers of the state were not interested to engage their fertile lands with long duration crops like coconut compared to short durational remunerative crops like cereals, vegetables, flowers etc. As a result it was mainly concentrated in homestead land since ancient times scattered mostly in the southern parts of West Bengal. The main coconut growing areas of the state comes

under the districts of Nadia, North 24 Parganas and South 24 Parganas, Howrah, Hooghly, Murshidabad, Burdwan, Midnapur (East), Coochbehar, Jalpaiguri etc. More than 80% of coconuts are being utilized in the form of tender nut e.g. "dab" in the state. There is a whole sale market for tender coconut at College Street, Kolkata which is more than 100 years old. The tender nuts are being marketed here during early morning from 4.00am to 6.30am every day and then the nuts are transported to different parts of the country like Delhi, Mumbai, Patna etc. There are many small units of fiber extraction and different types of coconut fiber brushes are made which has great demand in the export market for its biodegradable nonpolluting nature of fiber.



Due to the old habitual consumption habit of coconut water as natural drink, at present about 80% of total coconut production of West Bengal is being utilized in the form of tender coconut as thirst quencher (tender nut water). The high intensity consumption of tender coconut water by the local population in West Bengal may be due to the realization of the medicinal and therapeutic uses by the consumers.

Status of coconut cultivation in Sunderban delta of West Bengal

The low lying areas of Sunderban are shaped into long high land stretch where coconut plantations are being done commercially and high value processed products can be prepared for enhancing the income of the farmers of the area. There is a great potential to make the coconut cultivation more remunerative through cultivation of different types of inter crops like vegetables, turmeric, ginger, black pepper, banana, pine apple, elephant foot yam etc. It will increase the income and employment generation as an important component of livelihood and nutritional security.

Coconut also plays an important role as a climate resilient crop that protects the area from crop failure during the vulnerable weather aberration during high wind situation.

The crop flourish well in sandy soils along the sea coast. But it can also be grown well in various types of soil like lateritic soil, alluvial soil, clay soil, clay loam soil etc with proper drainage facility which allow unrestricted root growth and aeration. This type of soil and climatic conditions which is ideal for coconut cultivation exists in different parts of West Bengal. As a result based upon the soil and climatic conditions, the coconut growing regions of West Bengal can be divided into three parts; Coastal and Sunderban region which includes parts of the district of East Medinipur, parts of North 24 Parganas and South 24 Parganas, plain land area which includes the district of Nadia, Hooghly, West Medinipur, Burdwan and Howrah, terai region which includes the districts of Jalpaiguri, Coochbehar, Uttar Dinajpur, Dakshin Dinajpur and plain areas of Darjeeling in Northern part.

Opportunities:

Vast area available for coconut cultivation

Scope for employment generation

Scope for income generation through coconut based cropping system adoption

Food and fuel security to the marginal poor farmers and agricultural labors

Scope for establishment of small scale coir industry, charcoal industry and oil industry

Availability of huge biomass which will debar the inhabitants to destroy more specially the mangrove forests of sunderban area.

Reduces the air pollution through more biomass generation

Conservation of forests

Role of AICRP on Palms, Mondouri Centre in West Bengal

In coconut research, ICAR-Central Plantation Crops Research Institute, Kasaragod and All India Coordinated Research Project on Palms, HQ at ICAR-CPCRI, Kasaragod are playing a major role throughout the country. Similarly, in West Bengal the research activities on coconut through introduction of different location specific high yielding disease tolerant varieties (Tall and Dwarf), new technology development on integrated farming system approach in coconut garden for higher productivity, introduction

of High Density Multi-species Cropping System (HDMSCS), technological development for production of virgin coconut oil, sweet coconut inflorescence sap "Neera" and its value added products like jaggery, honey, sugar which are meeting the diverse needs of the coconut farmers were started since 1982 through establishment of All India Coordinated Research Project on palm at Mondouri, BCKV, West Bengal. Though the impact of these developmental activities were more prominent in four southern states like Kerala, Andhra Pradesh, Tamil Nadu and Karnataka because of higher area coverage and increased production due to large scale organized plantation. But the impact of these developmental activities has started to spread in other coconut growing states including WB also. As a result farmers of these states have started to give more importance on coconut cultivation.

For location specific research activities on coconut, a center of ICAR-All India Coordinated Research Project on Palms, (AICRP on Palms) was established at HRS, Mondouri, Bidhan Chandra Krishi Vishwavidyalaya, Mohanpur, Nadia W.B. in 1982. Since then, location specific recommendations were developed by the AICRP on Palms, Mondouri centre and disseminated to the coconut farmers through awareness program, FOCT program, publications etc.

Technologies generated under AICRP on Palms for the development of coconut farmers of W.B

A coconut variety Kalyani coconut-1 was released for West Bengal from Mondouri centre, BCKV.

The fertilizer recommendation for tall coconut a variety in West Bengal was 500:250:750g of N: P: K per palm per year was standardized under ICAR-AICRP on Palms experimental area.

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The fertilizer recommendation for dwarf coconut varieties in West Bengal was standardized @1000:500:1250g of N: P: K per palm per year.

The following coconut based medicinal crop combinations like Coconut + Sarpagandha, Coconut + Aswagandha, Coconut+ Arrowroot were recommended for commercial adoption in West Bengal condition.

Under coconut based cropping system most remunerative flowering crop combination of Coconut + Gerbera recorded maximum B: C ratio and recommended for farmers of West Bengal

Ginger and Turmeric were also recommended as a most remunerative crop combination with coconut under West Bengal condition.

Banana and pineapple fruit crops recorded maximum income generation with coconut under West Bengal condition.



The nut yield and copra yield per palm per year in fertigation of 50% RDF was on par with fertigation of 75% RDF and soil application of 100% RDF. Hence fertigation of 50% RDF can be recommended for West Bengal.

Value addition of Coconut

Very recently ICAR-CPCRI, and BCKV, has started a work jointly on Cocosap "Neera" collection and its value addition at Balagarh, Hooghly, West Bengal. With the support of AICRP on Palms, Mondouri, BCKV, 1st technological MOU in Eastern India was signed in between the ICAR-CPCRI and farmer Mr. Kaushik Ghosh of West Bengal during 2016 on "Neera Production" and this work is gaining popularity very rapidly as the sap contains very low Glycemic Index along with a considerable amount of Na, K, and other minerals. The global demand for low GI sugars is increasing for diabetic patients and hence Neera and palm sugar can fill up this gap. With the support of AICRP on Palms, Mondouri, BCKV, 2nd technological MOU was also signed between the ICAR-CPCRI and M/S Felu Modak of West Bengal on value addition of Neera for preparation of Neera based milk sweets.

Rationale for tapping Neera (Kalparasa)

The inflorescence sap of coconut is the phloem sap which is used by the plant mainly for the growth of the palm and development of the fruit. In West Bengal condition generally coconut produces 10 to 11 inflorescences (spadix) in a year with scientific management e.g. on an average one per month. Each spadix can support 10-12 nuts either tender or mature coconuts. A tender nut requires 6 to 8 months while a mature nut requires almost a complete year for maturity. At a reasonably high water content of 400 ml per tender nut, the total water per spadix is just 4 to 4.8 liters. If the same unopened spadix is tapped for sap, it could produce average 30 to 35 liters of sap in a period of just 40 to 45 days which is rich in nutrients and photochemical as compared to tender



coconut water. The sap thus collected can be sold as a health drink or can be processed into sugar, honey or syrup which has great demand in domestic and international market.

There is tremendous scope for marketing of Neera as fresh or its value added products like Neera jaggery, Neera sugar and milk based Neera sweets. Unlike many traditional sweetening agents the products made from Neera is capable of providing the same sweetness without causing spikes in blood sugar levels. Therefore it is considered as a safe and healthy drink for diabetic patients. As a result now Neera and its value added products are getting popularity day by day in West Bengal among general people more specifically among the diabetic patients and global demands for low GI sugar is increasing.

ICAR-CPCRI has already recognized this work by publishing the same in their web site. Application for patent is also filed for the process of preparation of milk based Neera sweets.

Initially milk based Neera sweet preparation was started by M/S Felu Modak in Rishra, Hooghly, W.B. Now more than 50 sweet makers of West Bengal at different corners of the state are preparing milk based sweets for diabetic patients using either jaggery or neera sugar. There is a very good demand for fresh neera, jaggery and neera sugar in West Bengal.

Strategies for future development:

Introduction of high yielding location specific varieties

Commercialization through area expansion

Increasing availability of quality planting material

Adoption of scientific package of practices through training and on farm demonstration by the farmers for making coconut cultivation remunerative.

Dissemination of integrated nutrient managements recommendation,

Dissemination of cropping system management technologies to the farmers' for income and employment generation. This might be able to open a new path for the rural economic development of the state. In this concept more emphasis on research activities especially on techno economic aspect with special relation to size of the land holdings need to be given.

Establishment of progeny orchard for product planting materials

Establishment of small scale processing unit for preparation of value added products of coconut which will make coconut cultivation more remunerative. ■