



INSTITUTE OF FOREST PRODUCTIVITY

(INDIAN COUNCIL OF FORESTRY RESEARCH & EDUCATION)
RANCHI



As part of monthly seminar series, a research seminar on the theme, “*Cinnamomum tamala*, an Important Tree Species for Generating Additional Livelihood for the Forest Fringe Villagers” was organized on 16th December 2020 at the ERS, Sukna Centre of Institute of Forest Productivity, Ranchi through virtual platform. Dr. Nitin Kulkarni, Director, IFP, Ranchi presided over the seminar. There were two speakers; Shri Pramod Chand Lakra, DCF, O-I-C, ERS, Sukna Centre under IFP, Ranchi who spoke on “*Cinnamomum tamala*, an Important Tree Species for Generating Additional Livelihood for the Forest Fringe Villagers” and Dr. Sumit Chakravarty, Professor & Head, Uttar Banga Krishi Viswavidyalaya, Pundibari, West Bengal - “*Cinnamomum tamala* for Livelihood Generation. The webinar was marked by participation of Sangeeta Dubey, IFS, APCCF (Research), Dr. M. H, Siddiqui, Professor Faculty of Forestry, Birsa Agricultural University, Ranchi, Dr. Gopal Shukla, Assistant Professor, UBKV, Pundibari and officers/ scientists/ research staff of IFP and all its centers also attended the webinar. The presentations were followed by very good discussion on the theme with prospects of future inter-institutional collaborations.

- THEME** : Managing Forests and Forests Products for Livelihood Support & Economic Growth (NTFP Resource Development)
- TOPIC** : *Cinnamomum tamala*, an Important Tree Species for Generating Additional Livelihood for the Forest Fringe Villagers
- Speaker** : Shri. Pramod Chand Lakra, IFS, ERS, Sukna Centre, IFP, Ranchi, Jharkhand

Shri Pramod Chand Lakra spoke on the importance of this promising medicinal species *Cinnamomum tamala*. The plant is known for its aromatic, stimulant and carminative qualities and has found its uses in rheumatism, colic, diarrhea, nausea and vomiting. Hence, it has lot of importance in Ayurvedic products also. The importance has lead to increase in demand for *Cinnamomum tamala*. Besides its medicinal value it has many essential oil contents like Linalool, Limonene and Camphene. He also deliberated on the Silviculture Characteristics of this species. He also delivered on the expected yield provided by Meghalaya Basin Development Authority which states that production from small trees ranges from 30-40 kg/tree/harvest for the bigger trees it ranges from 55-65 kg/tree/harvest. The transplanted bay leaf in the main field takes 10 to 12 years to get the first produce. He also informed that NREGA – Jalpaiguri is focusing on the income generation of the farmer.

According to them after the end of the third year the farmers will earn about Rs. 500.00 per plant per year After 6 years the farmers will earn around Rs. 1,000.00 per plant per year. In the meantime, the farmers have also been encouraged to resort to intercropping. Vegetables or pulse can be practised for inter-cropping for initial 1 to 2 years and later any shade loving crop can be cultivated. It is hoped that the farmers will get financial security by growing bay leaf.

As most of the plants are propagated by seeds but being recalcitrant different methods had been tried one of them being air layered. Various concentration of (100, 500 & 1000 ppm) of auxins (IBA, NAA and IAA) and systemic fungicide Bavistin were used. IBA (1000 ppm) resulted in 60.00 % rooting. Highest No of Roots 22 was formed when IBA (1000ppm) was applied.

He talked about the different research needs for the following species which has been stated by different scientific workers.

IDENTIFICATION OF RESEARCH NEEDS.

Samant *et al.*, (2001)

- a. Considering the economic potential and dwindling natural populations, it has been recommended for in-situ as well as ex-situ conservation.
- b. Wide range of its uses has put great pressure on the natural resources of the species
- c. It has been found vulnerable in Uttarakhand, Himachal Pradesh, Arunachal Pradesh and Meghalaya and endangered. This calls for conservation of the species devising appropriate strategies.
- d. Demand is increasing day by day and the species is being exploited from its natural pockets illegally.

Meghalaya Basin Development Authority

- a. Bay leaf is naturally grown in the forest without propagating it in the nursery beds. Since it grows naturally in the forest farmers only have to clean the surrounding area of the plant. Absence of a germplasm bank to determine appropriate saplings hinder possible productivity enhancements through better saplings.
- b. Farmers are not aware of the importance of training and pruning to bring the tree to the required shape.
- c. Bay leaf cultivators do not have access to proper training on maintenance and nurturing of bay leaf.
- d. They also lack training on disease and pest management like winter damage and browning of much of the foliage and also wind scorch damage.

- e. For pruning the farmers learned through indigenous knowledge passed on to them from their ancestors.
- f. Preventive insect and pest management practices was not observed with trees left to the vagaries of nature.
- g. Absence of value addition in the form of bay leaf oil extraction by steam distillation, packaging into retail packs for retail sale etc. is non-existent
- h. At the institutional and policy level, there has been limited attention to bay leaf both as a Non Timber Forest Produce (NTFP) and as a Medicinal and Aromatic plant (MAP).
- i. Reliable figures on annual bay leaf produced in the state also compound difficulty in estimating actual production and supply of the state.

He informed that august gathering that the institute have taken up a research project “Germplasm evaluation of *Cinnamomum tamala* and development of appropriate agro-techniques for higher productivity in sub- himalayan tracts of Darjeeling District” with the following outcomes.

OBJECTIVES

Long Term

To promote commercial cultivation of *Cinnamomum tamala* by vegetative propagation.

Short Term

- a. To identify and collect germplasm from different agro- climatic zones viz. the Hills and Terai District of Darjeeling Hills.
- b. To evaluate collected materials for growth performance and productivity.
- c. Development of package of practice for commercial cultivation of the plants.
- d. Extension of technology among farmers and other Stakeholders

Expected Outcome

- a. Increase the productivity (TOF) as well decrease the pressure on the forest as leaves collected by lopping, causing depredation of the forest resource.
- b. Increasing the tree outside forest cover.

- c. Resource and economically efficient agro- techniques.
- d. It will also help conserving the native species.

Finally Shri Pramod Chand Lakra concluded his presentation with the following points.

- a. Bay Leaf is a widely cultivated crop in India.
- b. Bay Leaf farmers have different agro-techniques available which may be refined for better production.
- c. Farmers need access to quality saplings.
- d. Germplasm of wild and cultivated nature should be conserved as the demand are increasing.
- e. Further Research needs to be carried out in the field of pre- production, production and harvesting stages.
- f. For better understanding of this crop we need quality data which would act as a guiding light.
- g. Farmers need awareness and markets for marketing of its products.

After presentation by Dr. Sangeeta Dubey, APCCF, West Bengal talked about the extent this species can be helpful to the forest fringe villagers. Dr. Yogeshwar Mishra, GCR, IFP Ranchi gave his critical remarks and stated about the importance of this species and the different improvements that can be taken up for improving the Research. Dr. Nitin Kulkarni concluded the session with the analysis of the presentation and suggestion for improvement and the need for this kind of Research.

THEME	: Managing Forests and Forests Products for Livelihood Support & Economic Growth (NTFP Resource Development)
TOPIC	: <i>Cinnamomum tamala</i> , for livelihood generation
SPEAKER	: Dr. Sumit Chakravarty, Professor & Head, Uttar Banga Krishi Viswavidyalaya, Pundibari, West Bengal

The second presentation was made by Dr. Sumit Chakravarty. He made a detailed power point presentation on the topic:

He talked about the importance of this *Cinnamomum tamala* species and emphasized on the cultivation of the species in the parts of North Bengal. He dealt in details the Agro-techniques dealt for the cultivation of this crop.

Land preparation

- Land preparation is done by clearing weeds and potential contaminants.
- Nutrients or fertilizers with organic matter based on the soil analysis and requirement should be added.
- Soil is well tilled and pits of 30 x 30 cm size were prepared at 2-2.5 m spacing.

Plantation

- When seedlings are 1-2 years old or about 45 cm tall, it become ready for planting.

Irrigation

- Irrigation is done regularly in the establishment phase.

Manures and fertilizers

- Fertilizers and soil additives shall be applied according to soil analysis.
- In general about 5 kg of well decomposed cow dung or organic compost per pit/plant is applied as a basal dose before plantation.

Intercropping

- If intercropping practice followed, compatible species should be selected.

Weeding and shading

- Weeding should be carried out frequently in initial stage.

Pest and diseases management

- Very few diseases have been

Harvesting and Post- Harvesting

- Since Cinnamon leaf is an evergreen tree, farmers collect its leaves throughout the year. However, leaf quality is better in the winter period.

Leaves collection:

- Generally leaves are collected from October - February by breaking immature branches of 4-5 years old tree.

Weeding and shading

- Weeding should be carried out frequently in initial stage.

Pest and diseases management

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Harvesting and Post- Harvesting

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Bark collection:

- The bark is stripped or peeled by cutting the main stem and limbs of 5 to 6 years-old trees having 3-5 m height and 6-10 cm diameter or when the stem colour becomes brown in colour.

Post harvest processing

- Transportation to destination - Harvested leaves and bark are transported to drying place as soon as possible. Mechanical damage due to heat, rain, high compaction and stacking during transportation should be avoided.

Primary processing site

- A clean location, protected from direct sunlight that is near from the place of harvest is chosen as primary processing site where cleaning, drying and grading of plant produce is done prior to processing.

Grading

- A clean surface, preferably a cemented floor or a tarpaulin sheet that is in good condition.

Drying

- The harvested materials should be dried properly in shade in primary processing site.

Storage

- Storage room should be free from pest and inaccessible to other domestic animals

Personnel hygiene and sanitation

- Persons, handling plant produce should always wash hands and feet with soap and wear clean masks, dress and gloves before starting to work.

Dr. Sumit Chakravarty discussed on various aspects of diversity of this species which would bring a land mark change in North Bengal. He further elaborated on the themes presented by the earlier speaker with his critical analysis for e.g a) Silviculture Characteristics b) Economical and Medicinal Values c) Trade in *Cinnamomum tamala* c) Scientific Studies on *Cinnamomum tamala*. d) Vegetative Propagation method and finally he talked of Networking research options and opportunities.

The seminar ended with critical discussion on the presentation and formulation of future collaborative strategies and inter-institutional networking under the chairmanship of Dr. Nitin Kulkarni, Director, Institute of Forest Productivity, Ranchi.

Expected outcome of the seminar:

1. Identification of research needs:

- Increase the productivity (TOF) as well decrease the pressure on the forest as leaves collected by lopping, causing depredation of the forest resource.
- Increasing the tree outside forest cover.
- Resource and economically efficient agro- techniques.
- It will also help conserving the native species.

2. Formulation of future strategies/road map

- Maintenance of CPTs identified.
- Further inputs and development in Agro-techniques.
- Value addition in the form of bay leaf oil extraction.
- Sustainable extraction of barks.
- Sustainable harvesting of Leaves.
- Study on extent and coverage of the species in different areas.

3. Networking research options & opportunities

- Molecular studies of the CPTs of the species identified.
- Chemical analysis of the CPTs identified.
- Development of Agro-forestry Models.
- Documentation of the existing knowledge.
- Study on the Conservation Status.
- Extension Activities.