Proceedings of the Training Course on Processing and Packaging of Rattan Shoot

Puparn Royal Development Study Centre, Muang district, Sakon Nakhon province

15 – 21 December 2002

Organized by
Royal Forest Department, Bangkok, Thailand
With the Cooperation and Support of
The International Tropical Timber Organization (ITTO)
December 2002

PREFACE

The Training Course on Processing and Packaging of Rattan Shoots is one of the important activities under the PD 24/00 Rev.1(I) Project: Promotion of Sustainable Utilization of Rattan from Plantation in Thailand. The training course aimed to promote and develop local capacity in rattan cultivation, harvesting, and processing techniques at cottage industry for additional income for the rural people. The course was divided into three parts namely, lectures (rattan shoot plantation and harvesting, establishment and management of housewife group, preservative food marketing, food processing and preservation), workshop (rattan shoot processing and packaging), and field trip (rattan plantations around Sakon Nakhon Province).

This training course was held at Puparn Royal Development Study Centre, Muang District, Sakon Nakhon province during 15-21 December 2002. The project staff were the officers from Forest Research Office, Royal Forest Department. The activities included coordinating and responsibility on the training activities, technology and experiences transfer, and achievement evaluation. Thirty participants were selected from the owners of rattan plantations and those who were interested in rattan shoot production.

Opening ceremony was chaired by Mrs. Wanida Subansenee, Consultant of the Project, followed by report on objectives and contents of the training and how the training be conducted by Miss Pannee Denrungruang, the Project Leader.

During the training course, participants were divided into 4 groups for rattan shoot processing and packaging practices. After the course is over, all participants can pass the evaluation standards (interest and outcome of their practical works). All necessary equipment and materials used during the training were transferred to the Non Wood Forest Products Research Station, Sakon Nakon province. Any interested group of trained participants can borrow and use this equipment to run their activities.

ACKNOWLEDGEMENT

We would like to extend our heartfelt gratitude to the International Tropical Timber Organization (ITTO) for providing financial support to this project and to the all participants who attended until the end of the training and made the training reach the objectives. The resource persons from Regional Office of Sakon Nakhon Province were very kind and helpful to make this training success. The kind hospitality of the staff at Puparn Royal Development Study Centre is very impressed by all visitors and should receive a lot of thanks. Finally, special thanks for all our staff who worked very hard during the entire course of training. This training course would not have been possible without their help.

Training Course on Processing and Packaging of Rattan Shoot

Puparn Royal Development Study Centre, Muang District, Sakon Nakhon Province
15-21 December 2002

Organizing Committee

Advisor

Mrs. Wanida Subansenee

Organizing Committee

Miss Pannee Denrungruang	Chair of Committee
Mrs. Mayuree Jitkaew	Committee
Miss Paiwan Lek-u-thai	Committee
Mr. Yanyong Kangkarn	Committee

Secretariat

Mr. Smit Boonsermsuk
Miss Wathinee Thongchet
Miss Varuesa Wannakhun

Budget and Finance

Miss Paiwan Lek-u-thai

CONTENTS

Program of Training Course

Sunday 15 December 2002

09.00-17.00	Registration (At Puparn Royal Development Study Centre, Muang District, Sakon Nakhon Province)
18.00-19.00	Dinner Reception

Monday 16 December 2002

09.00-09.30	Opening Ceremony
09.30-09.45	Coffee Break
09.45-11.00	Lecture on Rattan Cultivation for Shoot Production Mr. Yanyong Kangkarn, Forest Research Office
11.00-12.00	Lecture on Experience on Rattan Cultivation Mr. Wattana Prom Paison, Agriculturist
12.00-13.00	Lunch
13.00-17.00	Field Trip Visit farmer's rattan plantation Visit rattan plantation and demonstration of rattan shoot harvesting at RFD Non-wood Forest Products Research Experimental Station.

Tuesday 17 December 2002

09.00-10.30	Lecture on Establishment and Management by Housewife Group Miss Nutsuda Indhararin, Provincial Cooperatives Officer
10.30-11.00	Coffee Break
11.00-12.00	Lecture on Preservative Food Marketting Mr. Sompol Khamsuk, Sakon Nakhorn Provincial Trade Board
12.00-13.00	Lunch
13.00-14.30	Lecture on Food Processing and Preservation Mr. Sommai Plaklamyong, Project Consultant (Rattan Shoot Processing)
14.30-14.45	Coffee Break
14.45-16.30	Lecture on Food Processing and Preservation (continued) Group Arrangement for the Workshop

Wednesday 18 December 2002

09.00-16.30	Workshop on Dried Rattan Shoot Mr.Sommai Plaklamyong and Project Staff

Thursday 19 December 2002

09.00-16.30	Workshop on Canned Rattan Shoot Processing at Household Level Mr. Sommai Plaklamyong and Project Staff

Friday 20 December 2002

09.00-16.30	Workshop on Canned Rattan Shoot Processing at Small Enterprise Level Mr. Sommai Plaklamyong and Project Staff

Saturday 21December 2002

09.00-10.30	Conclusion of Workshop and Training
10.30-10.45	Coffee Break
10.45-12.00	Conclusion of Workshop and Training (continued)
12.00-13.00	Lunch
13.00-14.30	Group Discussion
14.30-14.45	Coffee Break
14.45-16.30	Course Evaluation and Certificate Award Closing Ceremony

Sunday 22 December 2002

Departure of participants

OPENING REPORT

Pannee Denrungruang

Project Leader

Chairman, Distinguished Guests and Participants;

On behalf of the Organizing Committee and all participants, I would like to thank the Consultant of the Project for coming to preside over the opening ceremony of training course on “Processing and Packaging of Rattan Shoot” today.

Royal Forest Department has aimed to develop an effective utilization of rattan shoot to increase the value of the products and income of rural people. The project receives financial support from the International Tropical Timber Organization (ITTO) to study the promotion of sustainable utilization of rattan from plantations in Thailand and disseminate the knowledge to farmers and interested people.

The objectives of the training course are to train and develop the skills on rattan shoot harvesting and processing techniques, to increase extra income for the rural people and to establish cottage industry for the production of rattan shoots.

The training course is divided into 3 parts: lecture, workshop and field trip, The resource persons who have an experience in rattan shoot plantation and harvesting, establishment and management of housewife group, and food processing and preservation will carry out lecture part. Workshop part is dealt with processing for bottled rattan shoots and dried shoots, and packaging.

This training course will be held for 7 days during 15-21 December 2002. Thirty participants composed of agriculturists and those who are interested. Lecturers are the experts invited from several organizations such as Royal Forest Department, Provincial Cooperatives Office and Sakon Nakhon Provincial Trade Board.

On this occasion, I would like to invite Mrs. Wanida Subansenee, Consultants of the Project, to officially open the training course and deliver a keynote address to the participants.

OPENING ADDRESS

Wanida Subansenee

Consultant of the Project

Project Leader, Participants and Distinguished Guests;

It is a great honor for me to come to chair the opening ceremony of the Training Course on Processing and Packaging of Rattan Shoot, today.

The Training Course on Processing and Packaging of Rattan Shoot is one of the important courses that aimed to promote research works and is expected to enhance the livelihood of the rural people to earn more income from effective utilization of rattan shoot.

Based on the report from project leader about this training course, I believe that this kind of training will develop the knowledge and skill of participants in the field of processing and packaging of rattan shoot. Moreover, the knowledge an experience from training will lead to establishing the cottage industry for production of rattan shoot that is relevant to the **One Tambon One Product** policy of the Government. I hope that all participants will take the knowledge and technique from this training to improve the livelihood and to generate an additional income to the families of the rural poor.

I would like to thank the organizing committee, the coordinator, and the resource persons who contribute their efforts to make this training course success. I hope that the outcomes of this training will be used in the development of processing and packaging of rattan shoot and beneficial for individuals and community.

May I have this opportunity to bless the organizing committee and all staff, the International Tropical Timber Organization (ITTO), and all participants to have good health and success in their training.

May I now declare the training course open.

Summary of the Training Course

The training course consisted of lecture, workshop and field trip. The practical work was divided into 2 parts, *i.e.*, 1) workshop on dried rattan shoot processing and 2) workshop on bottled rattan shoot processing. Contents of the training included rattan cultivation for shoot production, shoot processing and preservation, marketing, and establishment and management of housewife group.

Rattan Cultivation for Shoot Production

The content included the experience and suggestion on rattan shoot cultivation, especially Wai Dong (*Calamus viminalis)*, site preparation, planting, fertilizing, harvesting and marketing. Two resource persons were Mr. Yanyong Kangkarn, researcher from Forest Research Office, Royal Forest Department and Mr. Wattana Prompaison, farmer in Sakon Nakhon province.

According to their experience they recommended the size of 50 x 50 cm. of planting pits with cow manure at the bottom for planting pot. First shoot can be harvested 9 months after planting with regular watering and maintenance. It is suggested that the proper shoots harvested be round-shaped shoot with young leaves remained un-flushing. At this stage the shoot will be very fertile, large but still soft. Rattan shoot is cut with sharp spade at 1 inch above ground level in order to keep the axial buds. Rattan clump should not be left too dense as harvesting may be difficult. Regular watering and intensive management can increase shoot production.

Shoot Processing and Preservation

The practical works included the procedures, knowledge and skills on processing and preserving of rattan shoots, and to bottle rattan shoots at household level and small enterprise level. This step was organized by Mr. Sommai Plaklamyong, Project Consultant on Rattan Shoot Processing, and Project Staff.

To make rattan shoots more valuable and to gain more profit, the farmers should know how to process rattan shoots to be attractive products with good quality. This would improve the living standard of the farmers and create more income. Moreover, rattan shoot

processing will help reduce the effect of over production and typical low price of agricultural products.

For shoot processing and packaging workshop, rattan shoots (*Calamus viminalis*) were bought from the farmers at Sakon Nakorn Province. The portion of rattan shoots, which were used in bottling, sun drying and dehydrating, were soft edible part. It has white or cream color with a little bitter taste.

Rattan shoots in brine solution and in syrup solution

Green and spine leaf-sheaths of rattan shoots were taken off with a knife and the shoot samples cut into pieces of 3 ¼ inch long and ¼ - ½ inch in diameter. The shoot samples were immerged in clean water containing 0.1 % sodium metabisulphite, then in blanching solution of 0.1% sodium metabisulphite and 0.2% citric acid before being boiled for 10 minutes followed by cooling in 0.1 percent sodium metabisulphite solution. The samples were put into 6 oz. glass bottle filled with boiling brine solution up to ½ inch from the top of the bottle and covered loosely with the lid. Brine solution contained 2% salt, 0.5% citric acid and 0.1% calcium chloride. The samples were passed to exhausting process by steaming the bottle for 15 minutes before tightly closed the lid, then started sterilizing process by putting the bottles into boiling water (100 °C) for about 30 minutes. The water must be kept boiling during the entire process. Sterilized samples were stored under room temperature. For small-scale production, the process should be done in autoclave at 10 pounds per inch pressure for 15 minutes instead of boiling in the water.

To make rattan shoots in syrup, the syrup solution contained 30% sucrose, 0.5% citric acid and 0.1% calcium chloride can be used instead of brine solution.

Dried rattan shoots

The shoot samples were cut into pieces of 1 ½ inch long and then longitudinally sliced into thin pieces, boiled the samples for 10 minutes followed by cooling in 0.1 percent sodium metabisulphite solution. The samples were then spread on the mats or trays and kept under the sun light. Generally, it took about 3-4 days for the shoots to be dried. However, dehydration of rattan shoots at 70 °C in the oven would take only 10 hours and the products were better in texture and color.

It was found that 2,000 rattan shoots (*Calamus viminalis*) could be used produce 300 of 6-oz bottles of the products, while only 2.12 Kg of dried shoots could be made from 23.2 Kg (1,000shoots) of fresh shoots.

Marketing

The training was conducted by M.r. Sompol Khamsuk from Sakon Nakhorn Provincial Trade Board.

To increase the value of product; producers should take a serious concern with the customers' preference on good packaging, attractive color or odor, and price of the products. For example, most of the people in northeastern region usually use rattan shoot as an ingredient in daily food. Therefore, the price of canned rattan shoots should be 30-50 Bath, while the taste must be similar to the fresh ones. The details of the components of product, usefulness, and expiry date must be displayed.

Good packaging will make the products attractive while the product quality maintained. Promotion through media such as newspaper, television, and radio help the products known to the public..

Price setting also has an effect on promotion of the product. Products with lower price are suitable for an individual customer. Rattan shoot products are still new and less known by the markets. Thus, it is suggested that the key issues for marketing strategies be product presentation and demonstration, service-minded dealers, clear descriptions of the products, and promotion techniques.

Establishment and Management of the Housewife Group

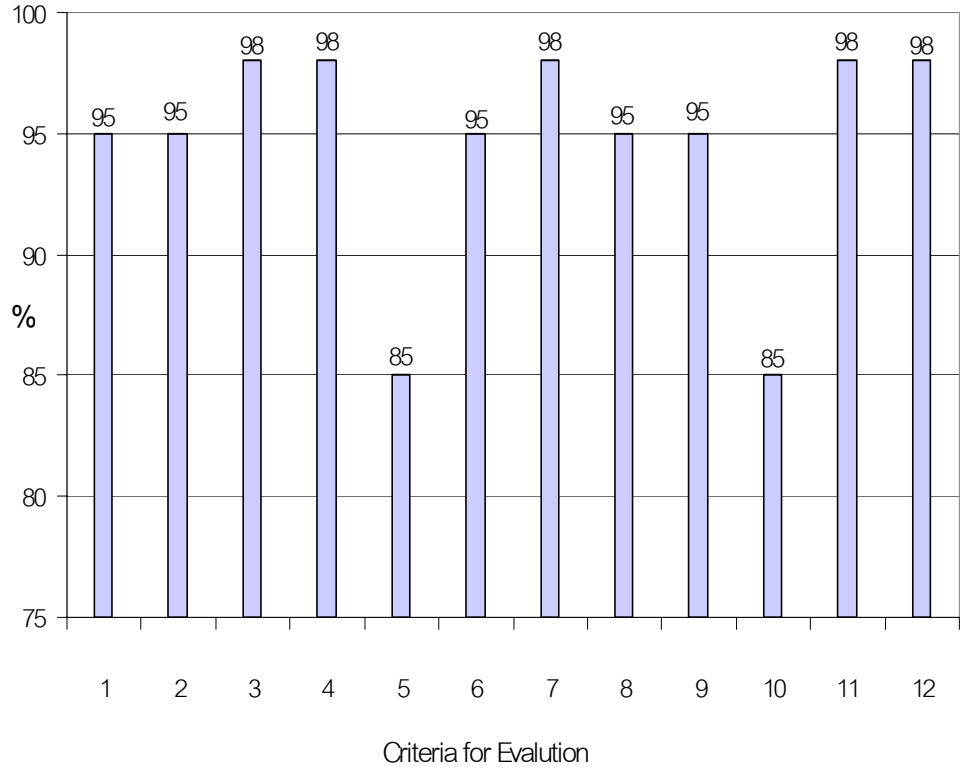
The activities were led by Miss Nutsuda Indhararin from Sakon Nakorn Provincial Cooperatives Office. The contents covered the principles and concepts of establishing the housewife group, the importance of housewife group, advantage of group establishment as well as how to establish and manage the group, roles and activities of a group.

Due to high competition and problems, government service is the choice for the farmers and rural people. However, government service is always time-consuming process. It is therefore recommended that rural people set up the group to help each other to protect their gains and to encourage the status of the group.

The advantages can be obtained from establishment of the group. They can help each other to solve the problems make a marketing plan, set the network to sell the products or even exchange of the products, as well as the exchange of the knowledge. The concepts for the group work can be categorized into brain storming, planing and working together, sharing the benefit and evaluating. After the group is established, role of the people in the group should be clearly identified.

Training Course Evaluation

Results of training course evaluation.



Note : Criteria for Evaluation

1. Technique of presentation (of the resource person)
2. Suitability of the content
3. Training procedure
4. Learning achievement
5. Experience exchange among participants
6. Knowledge about equipment
7. Knowledge about rattan species, size, age, and suitability for utilization
8. Achievement on rattan shoot preservation
9. Achievement on bottled rattan shoot production
10. Understanding of products and marketing
11. Satisfaction of resource persons and coordinators
12. Satisfaction of the participants

Expectation and commitment from the training course

Participants' expectation and commitment

Expectation	Commitment
• Knowledge, experience, occupation • Gain new knowledge and experience • Bring back knowledge to the village • Transfer experience and extension • Application of skill for practical work • The knowledge learnt will be useful for present and future generations	• 100% satisfaction • Interesting in training • Training with satisfaction and strong intention • Pay attention to all programs for best outcomes • Satisfy to exchange experiences • Believe in resource persons and bring experience back home • Complete all the training programs with interest for future application

SUGGESTIONS

The Training Course on Processing and Packaging of Rattan Shoot is among the middle of the program to promote value added to rattan shoots apart from selling fresh shoots for food. The training course was aimed to train the farmers on the processes of drying rattan shoots and how to make bottled rattan shoots. Moreover, the course also provided an information on marketing and how to establish the housewife group in order to gain more benefits. It is expected that participants will transfer their experiences to their group members for their own benefits. According to this training course there are some suggestion as follows.

1. There should be some monitoring program to evaluate the development of each participant.

2. Rattan shoot products should be on a commercial scale and exhibit on different occasions.

3. Cooperatives for rattan shoot products should be established.

4. Number of rattan plantations for shoot harvesting should be sufficient to support sustainable raw material.

5. Coordination among participants, resource persons, and concerned institutions should be strengthened to help improve the product quality and marketing

CLOSING REPORT

Yanyong Kangkarn

Chief of the Non Wood Forest Products Research Station
Sakon Nakon Province

Project Leader, Participants and Distinguished Guests;

On behalf of the training committee and all participants, it is my great pleasure to make the report on the Training Course on Processing and Packaging of Rattan Shoots.

This training course is held under the PD 24/00 Rev.1(I) Project on Promotion of Sustainable Utilization of Rattan from Plantations in Thailand" supported by the International Tropical Timber Organization (ITTO). Objectives of the training are to train and develop the skills on rattan shoot harvesting and processing, such as how to make the bottled shoot, dried shoot and packaging to obtain the quality product that is convenient to consume and sell to increase the income. The training cause was started on 15 December 2002 and complete today. Total period of training course is 7 days. The 30 participants; composed of agriculturists, government officers and interested people; were attended in several topics of knowledge both in lectures and workshops such as rattan shoot plantation and harvesting, marketing, establishment and management of housewife group, food processing and preservation especially on how to make bottled shoot and dried shoot at cottage scale industry.

During the entire course of training, we have received kind assistance from the staff of Puparn Royal Development Study Center, resource persons, and well accompanied by all participants who were attempting to be trained until the training is successful.

On this special occasion, I would like to request the project leader to present the Certificate of Achievement to the participants and give a closing speech.

CLOSING REMARKS

Pannee Denrungruang

Project Leader

Training Committee, Distinguished Guests and Participants;

It is a great honor for me to chair the closing ceremony of the Training Course on Processing and Packaging of Rattan Shoot, today. I am glad to hear that this training course is successful and reaches our objective as expected.

The objectives of this training course are to train and to develop the skills on food preservation, including rattan shoot processing and packaging techniques that will make the participants get more experience and be able to establish the group of producers. I would like all of you to get back with knowledge and skills which can be applied to your way of living leading to the career development in rural area.

At present, wild rattan is scarcely found and the processing and packaging of rattan shoot have to deal with “rattan” that is one kind of forestry resources. So that participants should take serious concern about culturing, harvesting and utilizing to create sustainable management of rattan resources in the future.

I would like to thank the organizing committee, resource persons, training committee and all participants for your kind cooperation and contribution to make the training successful.

I would like to wish all of you the good luck and safe and sound journey home. I now declare the Training on Processing and Packaging of Rattan Shoos close.

PD24/00 Rev.1(I) Project

Promotion of Sustainable Utilization of Rattan from Plantation in Thailand

Training Course on Processing and Packaging of Rattan Shoot

15 – 21 December 2002

Puparn Royal Development Study Centre, Muang district, Sakon Nakhon province.

LIST OF PARTICIPANTS

Sakon Nakhon Province

Mrs. Kasai Chamvongla
Mrs. Jome Hongsrivong
Mrs. Nong Tawinrak
Mrs. Pajjai Srimukda
Mrs. Plae Srimukda
Mrs. Maneewan Srimukda
Mrs. Rasri Polrachom
Miss Vongsa Srimukda
Miss Hatta Pongbhrom
Mrs. Nuhphan Srimukda
Mrs. Warnjai Srimukda
Mrs. Wei Srimukda
Mrs. Swart Chamvongla
Mrs. Yosa Srimukda
Mrs. Khong Srimukda
Mrs. Tongorn Srimukda
Mrs. Boonlorm Mongkol
Mrs. Suntorn Srimukda
Miss Samai Sriparkdee

Chieng Rai Province

Mr. Pong Kaboonkham
Mr. Viwal Tanta

Lampang Province

Mr.Boonme Khumtan

Mr.Tawee Srithep

Mr. Samarnmit Suksawad

Tak Province

Mr. Banthung Chandee

Peth Chaboon Province

Mr.Winai Uhpanyakhum

Nakon Ratchasima Province

Mrs.Thongpol Amphan

Mr. Ormsin Amphan

Rat Chaburi Province

Miss Jiranuch Sakkhamduang

Kan Lasin Province

Miss Sudaporn polahong

Annex

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Training Course on Processing and Packaging of Rattan Shoots

1. Registration. 2. The organizing committee. 3. Project Leader reports to the Chairman.
4. Opening remarks by Chairwo man (Mrs. Wanida Subansenee)
5. Visit rattan cultivation and demonstration plots at NWFPs E xperimental Station.
6. Visit farmer's rattan plantation.
7. Visit Royal Project ; Phuphan Development and Training Centre, Sakon Nakorn prov
8. Mr. Yanyong Kangkarn gives a lecture on rattan shoot cultivation.
9. Mr. Wattana Prompaison presents his experiences on rattan shoot cultivation.
10. Miss Nutsuda Indhararin gives a lecture on establishment and management of Housewife group.
11. Mr. Sompol Khamsuk suggesting the participants about marketing technique.
12. Mr. Sommai Plaklamyong presents Food Processing and Preservation techniques


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Making of dried rattan shoot

13. Rattan shoot raw materials.
14. Preparation of food chemicals.
15. Peeling.
16. Peeled rattan shoot in the anti-oxidant solution.
17. Cutting into thin and small size.
18. Boiling in blanching solution.
19, 20. Spread on the tray for sun drying.
21. Drying in hot air oven.
22. Weighting dehydrated samples.
23. Packing in plastic bag and seal.
24. Dried rattan shoot products.


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Making of bottled rattan shoot

25. Working group of participants.
26. Clean the bottles in boiling water.
27. Preparing brine and syrup solution.
28. Put rattan shoot into the bottle.
29. Fill the bottle with brine or syrup.
30, 31. Exhausting process.
32. Sterilize in boiling water.
33. Sterilize using autoclave.
34. Cool down and storage at room temperature.
35. Labeling
36. Sealing the bottle.
37. Rattan shoot product.
38. Workshop participants at closing ceremony.
39. Certification.
40. Finish the training course