

Fruits for the Future



Safou

Dacryodes edulis

Training and Extension Material

Final Report

Submitted by

The World Agroforestry Centre
ICRAF – African Humid Tropics

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1. Background

The International Centre for Underutilised Crops (ICUC) is implementing a global programme on Fruits for the Future. Under this programme, the ICUC is carrying out various activities which include transfer of technologies for training, development of literature and motivation to farmers through public awareness about the benefit of various fruit tree species which are in the region.

ICUC has worked with ICRAF and IRAD to provide up-to-date information on the propagation, processing and marketing of safou through extension materials (poster and manual). Training workshops were organised to get feedback from extension agents and local communities. This information will be used for further promotion of underutilised fruit tree species and to improve future training programmes in the region.

2. Objectives

The objectives of this project are:

- To develop a poster on the propagation, processing and marketing of safou
- To develop a training manual for use by farmers on safou propagation, processing and marketing
- To organise training for farmers and extension officers involved in the production of safou in Cameroon and to assess the uptake and impact of the extension materials produced by the Fruits of the Future project.

3. Activities

3.1 Production of a poster

A poster (60 x 80 cm) has been produced in 2 languages namely French (600 copies) and English (400 copies). The poster, colourful and rich in illustrations is intended to raise awareness on the importance of safou to nutrition, household income, health and the environment. The poster also presents the three main propagation methods namely propagation by seed, by cuttings and by air-layering. It is proposed to be useful during sensitisation and information meetings with local communities.

During the training workshops the poster has been distributed to various government and non-government organisations, as well as to community-based organisations. The poster will also be sent to ICRAF-HQ and regional offices and to other organisations involved in the cultivation of safou trees throughout the region.

3.2 Production of training manual for farmers

A training manual, composed of 10 technical notes has been published in 2 languages namely French (700 copies) and English (500 copies). This manual has been prepared by Ann Degrande and Joseph Kengue and is complementary to the work of the Tree Domestication programme of the World Agroforestry Centre in the African Humid

Tropics (ICRAF-AHT) and the Institut de Recherche Agricole pour le Développement (IRAD), which have carried out extensive work on safou over the last 5 and 18 years respectively. The manual is intended as a source of technical and background information on the subjects of improved propagation, management, post-harvest technology and marketing of safou fruits and fruit products appropriate to the conditions and farmers of Cameroon and other West and Central African countries. It contains individual modules that link together covering the key aspects of safou production, i.e. presentation of the plum tree, propagation, field practices and commercialisation.

3.3 Training

Two training workshops, one in Bamenda (29-30 September 2003) for the English speaking part of Cameroon and one in Mfou (2-3 October 2003) for the French speaking zone, were conducted with a view to improve the efficiency of information transfer to local communities and uptake of this information. The training workshop (see timetable in annex 2) involved the following aspects:

- Provide extension materials to participants;
- Demonstrate and practice propagation methods using the extension materials;
- Participants evaluating the extension materials and giving feedback;
- Brainstorm on a strategy to promote safou cultivation at community level.

The organisation of the workshops was facilitated by two NGOs, who took the responsibility of inviting participants and taking care of the logistics. In Bamenda, we acknowledge the assistance of the “*Cercle International pour la Promotion de la Création*” (CIPCRE) and in Mfou we are grateful to the “*Centre Rural d’Appui à l’Autodéveloppement*” (CRATAD). CIPCRE and CRATAD have been involved in agroforestry in general and in the domestication of local fruit trees for more than 5 years.

The participants were drawn from a diversity of stakeholders involved in the promotion of safou cultivation and included officers from the national agricultural extension service, NGO staff, farmers and representatives of written and spoken media. In addition to resource persons from IRAD and ICRAF, there was also attendance from a member of ICUC. The complete list of participants with their respective organisations can be found in annex 1.



Practical training sessions focused on the different propagation methods (propagation by seed, by cuttings and by marcotting) and on management of the trees in the field. The species highlighted was safou (*Dacryodes edulis*), but it was made clear to participants that the principles and techniques of propagation and management can also be applied to other fruit species.



Training session on propagation by seed
Participants were shown how to take into account the polarity of the seed in planting safou



Training session on propagation by cuttings
Building and filling of a non-mist propagator, followed by preparing and setting of cuttings



Training session on propagation by marcotts
Into the woods ... Demonstration on setting of marcotts

4. Evaluation of training material

At the end of the 2 days' workshop, participants were asked to evaluate the poster and training manual using a questionnaire (Annex 3). The objective of this exercise was to receive a comprehensive assessment of the quality of the material and its usefulness to intended users by the participants of the workshop. The information will aid in the development of other extension material and future training programmes in the region.



Overall, the poster and the training manual were well received. Both products scored high in terms of usefulness, appropriateness, attractiveness and flexibility of use. The participants also found that the material was easy to read and consistent with the intended users' reading level, had a good balance of text and illustrations and that the content was quite up-to-date. All participants claimed that they would certainly use the material to sensitise

and train other extension workers and farmers alike. The representatives of the media said that they would use it as background information to prepare specific radio programmes and/or news articles on safou cultivation.

Participants of the workshop appreciated the poster most for its colourful illustrations and its simple language. They also thought that it summarises the different propagation methods well and can easily be used with a wide audience, including illiterate people. Weak points of the poster comprise the lack of details on propagation techniques and the absence of information on storage, transformation and commercialisation. Some respondents also noticed few spelling errors and would like to see a more realistic picture of a safou tree.

According to the respondents, the strong points of the training manual were its usefulness to various stakeholders, the organisation in modules and the illustrations. However, a number of shortcomings were mentioned: lack of information on how to associate safou with other crops, lack of details on safou in the cooler areas, some technical terms are not well explained, some measurements units could have been translated into locally known measurements (e.g. 5 cm = length of finger).

Although some participants felt that the material could be used independently, many recommended its use for sensitisation in combination with a video or a slide show. When used in practical training sessions, the material should be accompanied with safou fruits, vegetative material, a small propagator for demonstration, propagation tools, enlarged pictures and pamphlets for farmers.

The format and size of the poster was generally evaluated as appropriate. However, few people suggested enlarging the poster for use with big groups. Others recommended printing smaller size copies for distribution to farmers after the

meeting. With regards to the training manual, many participants suggested binding of the technical notes to avoid loss of sheets or the production of a smaller size booklet to facilitate the use in the field.

The fact that most participants are willing to pay for the material gives us an indication of its usefulness. The respondents proposed a purchasing price between 500 and 1000 FCFA for the poster and between 1000 and 3000 CFA for the manual.

5. Strategy of promoting safou cultivation

In the Bamenda workshop the discussion was articulated around 6 key questions:

1. Is promotion of safou cultivation appropriate in rural development programmes in general and does it fit specifically in your organisation's programme?
2. What are the target areas for promotion of safou cultivation?
3. What are the target groups for promotion of safou cultivation?
4. What approach would you follow in promoting safou cultivation?
5. What strategy could be developed to promote safou cultivation?
6. What type of assistance would be required to implement this strategy?

1. Appropriateness

Most of the NGOs and projects participating in the workshop were convinced that promoting safou cultivation is in line with the objectives of alleviating poverty, increasing and diversifying farmers' income, enhancing nutrition and health of rural households and environmental protection. The propagation techniques presented in the extension material seem to respond to farmers' needs related to safou; vegetative propagation allows for early fruiting



and the production of good quality fruits. However, some participants were concerned whether the current market can support increases in safou production. Others disagreed with that and said one should not underestimate the importance of safou for home consumption and for sales in rural markets. On the other hand, a lot is still to be done on improving the quality of safou fruits and on increasing the availability of safou all year round. One issue that came up during the discussion was that of who can use the different techniques. For example, the non-mist propagator technology is not appropriate for production of plantlets for own use only. Conversely, marcotts give quick results and can be produced at a small scale. When extending the techniques, we should target those who can really use them.

2. Target Areas

The group agreed that three main zones should be targeted for the promotion of safou cultivation.

- a) Areas with relative good access to markets; especially if the main purpose of safou cultivation is commercialisation;
- b) Rural areas with low production; mostly if the main purpose is home consumption;

- c) Areas that are already known to be major production zones; here the main purpose will be to improve quality

It was also noted that one should not strictly keep to 'safou-friendly' ecological zones. Domestication of trees is also about pushing frontiers.

3. Target Groups

Participants discussed about who should be involved first in activities to promote safou cultivation. The group came up with the following recommendations:

- a) farmers and farmer groups who have agroforestry and tree planting as an objective;
- b) farmers who have been trained in nursery and propagation techniques before;
- c) resource-poor farmers, selected using criteria set by our respective organisations;
- d) individuals who are willing to train other people;
- e) female farmers who are willing to integrate trees in their farming systems. In this respect it was recommended to actively involve both men and women in activities in order to reduce cultural barriers that may exist against women's involvement in tree planting;
- f) jobless youth in rural areas in order to encourage them to remain in the village and earn a living from agriculture. In this respect it was recommended to associate some short-term benefits to tree planting activities, which are known to generate income only after a few years.

4. Approach

First of all, the group insisted on the fact that whatever approach is followed, it should be participatory. Then, several activities were listed depending on objectives and stages of development of the project.

- sensitisation meetings, poster sessions, radio programmes
- training sessions with farmer groups and technical backstopping
- training workshops to train farmer-to-farmer trainers
- exchange visits
- work with NGOs

5. Strategy

The group agreed that sharing of information and experience is key to success of wide scale promotion of safou cultivation. However, the proposed ways to achieve this differed. Some suggested the organisation of period workshops to exchange information. Others believed that collaboration with a limited number of active partners is more effective, because then concrete action plans are made and followed up. All participants agreed that networking between all institutions involved would be useful, but many are familiar with the difficulties to make a network operational, strong and sustainable. It is clear that networking needs funding and one strong organisation leading and coordinating the network. For members of the network to register, participate and pay their annual dues, they need tangible outputs, and that is often lacking. At this stage, the group recommended that participants in this workshop should develop an action plan and submit to their management, who will decide whether the activities can be integrated in their respective programmes and budgets. ICRAF should prepare a complete list of partners active in this domain and send updates on progress in research and development. Dr Kengue took this opportunity to

present ASANET, the African Safou Network that was created in 1997 and has as main objective the promotion of safou and other non-conventional oil crops. More details can be obtained from Joseph Kengue, Executive Secretary (e-mail: jkengue2002@yahoo.fr).

6. Assistance

The participants felt that in addition to technical assistance for training workshops and exchange visits, financial support for transport, food allowance of extension agents and for nursery materials is necessary. The group also asked to establish a monitoring system to facilitate impact assessment in order to find out whether promotion of safou has positive effects on local communities.

In the workshop held in Mfou, the group examined the rationale of promoting safou, identified opportunities and constraints and formulated some actions to be taken to remove the blockages.

1. Rationale

After a long discussion, the group summarised the justification for the promotion of safou cultivation in their intervention zones as follows:

- Safou is a means of diversification of sources of revenue;
- Safou plays an important role in a household's nutrition;
- Safou is widely commercialised
- Safou can be used as a companion crop for cocoa and coffee
- Cultivating safou is ecologically sound

2. Opportunities

Following opportunities were identified by the participants in the Mfou workshop:

- Many communities are familiar with safou;
- Safou is suitable to many different conditions;
- There is a well known market for safou;
- In many areas there is still a lot of land available;
- Improved propagation techniques exist;
- Existence of well structured farmer organisations;
- Existence of a network of extension services: national extension service and NGOs
- Interest of local populations for intensification of safou cultivation;
- Existence of a great genetic variability;

3. Constraints

In spite of the opportunities mentioned above, a list of constraints restricting the intensification of safou cultivation was formulated as well.

- a. Lack of good quality planting material;
- b. Some areas have land shortage;
- c. Many farmers are hesitant to intensify safou cultivation;
- d. Problems with storage and transformation of safou;
- e. Lack of funds to purchase nursery materials;
- f. Lack of well-informed and well-trained extension agents;
- g. Lack of follow-up after training;

4. Actions

Faced with the problems above, the group suggested the following actions in order to facilitate promotion of safou cultivation in the region.

- a. Train and assist nursery operators in vegetative propagation of safou; Encourage the exchange of high-quality planting material between communities; Develop high-quality rootstock material and make available to users;
- b. Develop and extend systems that associate safou with other crops;
- c. Establish pilot and demonstration plots;
- d. Involve the private sector in the research on preservation and transformation of safou; Encourage the production of locally-made but appropriate package material that can increase shelf-life; Facilitate the exchange of information and experience in conservation and transformation of safou;
- e. Adapt the techniques to local conditions; Develop a system of assistance to small-scale enterprises;
- f. Organise training and refresher courses at local level;
- g. Encourage the development and implementation of action plans and formulate performance indicators;

6. Recommendations

At the end of the workshop, the following recommendations were gathered:

- Involve more stakeholders in future workshops, especially MINEF officials;
- Harmonise practices and knowledge;
- Invite more female farmers;
- Organise more training workshops with a view of building capacity and creating a chain reaction;
- Include a field visit in future training workshops;
- Update stakeholders on new developments
- Continue research on plum, especially on improving fruit quality
- Involve media as much as possible in this kind of events;
- Produce audio-visual material that can be easily used by media.

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Annex 1: List of participants

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Bamenda			
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4	Anthony BANGHA	Ijim Tree Farmer Union	Belo Sub-Division
5	Emmanuel BAH TOKOH	Journalist Radio Abakwa FM	Bamenda
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4	Germain NG YONGA	Farmer	B.P. 18 Makenene
5	Isidore AYISSI	Cameroon Wildlife Conservation Society CWCS-Mouanko Réserve de	B.P. 54 Mouanko Cel : 781 85 84

		Faune de Douala-Edea	
6	Martin Ze MINKOULOU	Association pour le Développement intégral des Exploitants Agricoles du Centre (ADEAC)	B.P. 107 Akonolinga
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8	D. MENGOUMOU AMOUGOU	Representative Farmer group Nkul Ndi Bene	Mfou
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Resource Persons			
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Annex 2: Timetable

Date	Hour	Activity
Day 1	09.00h	Arrival of participants and registering
	09.30h	Welcome and Objectives of the workshop Presentation of participants
	10.30h	Coffee Break
	11.30h	Presentation of extension material
	13.00h	Lunch
	14.00h	Training session on seed propagation and field practices
	15.30h	Coffee Break
	16.00h	Training session on propagation by cuttings
	17.30h	End of day 1
Day 2	09.00h	Training session on propagation by marcotting
	10.30h	Coffee Break
	11.00h	Evaluation of extension material; Brainstorm on promotion of plum cultivation to local communities Recommendations
	13.00h	Lunch
	14.00h	Distribution of extension material
	15.00h	Departure of participants

Annex 3: Evaluation form

1. Title of product : _____
2. Name of respondent (optional) : _____
3. Job title / Responsibility : _____
4. Organisation : _____
5. Please mark (x) the column that best describes the product; 1= best ; 5 = worst

	1	2	3	4	5	
Useful						Useless
Technically correct						Technically incorrect
Appropriate						Inappropriate
Illustrations are efficient						Illustrations are not efficient
Illustrations are adequate						Illustrations are not adequate
Illustrations are clear						Illustrations are not clear
Good balance illustrations – text						Illustrations and text are not well balanced
Visually attractive						Bad visual quality
Easy to read						Difficult to read
Information up-to-date						Information out-of-date
Consistent with intended users’ reading level						Not consistent with intended users’ reading level
Adaptable to various training situations						Difficult to adapt to various training conditions
Appropriate amount of content						Content too limited
Free from bias and prejudiced attitudes and concepts (gender, etc.)						Existence of bias and prejudiced attitudes and concepts (gender, etc.)
Overall excellent						Overall poor

6. Would you use this material for training? In what circumstances? If not, why?

7. Indicate the strong and the weak points of this product.

8. Is this material sufficient to be used on its own or should it be accompanied by other materials?

If the content is insufficient, what other information would you include?

9. Is the format and size of this material appropriate and what other formats would be useful for training and distribution of information?

10. Would you be willing to buy this product in future? If yes, at what price? If not, why not? _____

11. Other recommendations : _____

Thank you