



Third International Conference on Neglected and Underutilized Species

**WELCOME TO ORAL PRESENTATION
UNDER THEME 1:**

**RESILIENCE AND LIVELIHOOD:
UTILIZATION, POST-HARVEST**



**Collective action in
managing *Ricinodendron
heudelotii* kernel extraction
machine :
Exploratory study in Southern
Cameroon**

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Presentation plan

I. INTRODUCTION

II. MATERIALS AND METHODS

III. RESULTS

IV. CONCLUSION AND IMPLICATIONS



Ricinodendron heudelotii
(njansang)

- Humid lowland forests' tree
- Fruit is green or yellow; spherical with one to three seeded lobes
- Reddish brown-black seed with a yellow kernel inside.
- Kernels: ingredient in many local dishes; strong local and urban demand
- Processing njansang takes between two and six months. Main constraint for its economic exploitation => kernel extraction



(2/5)

- A prototype njansang extraction machine was designed to provide an alternative to the manual extraction of njansang kernels from the nuts (ICRAF, 2009).



Machine parts:

- engine
- cracker
- frame

Advantages of machine:

- saves time (can crack 30 kg of nuts per hour)
- less injurious

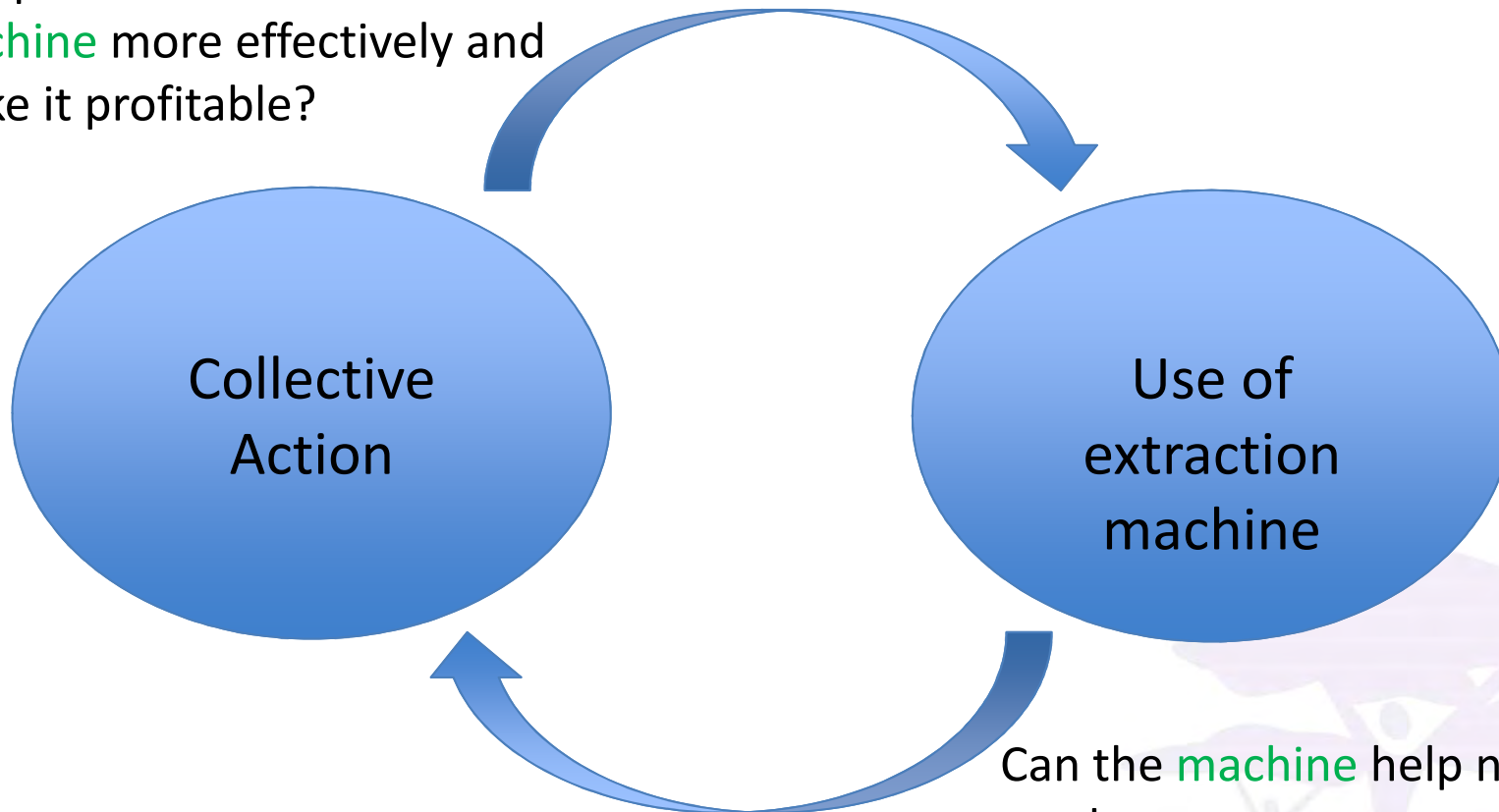
Disadvantages of machine:

- higher rate of broken kernels (23%), so requires more time for sorting
- only profitable if group members are able to extract at least 24,000 kg of seeds per year



Research Questions (3/5)

Can **collective action** enable group members to use the **machine** more effectively and make it profitable?



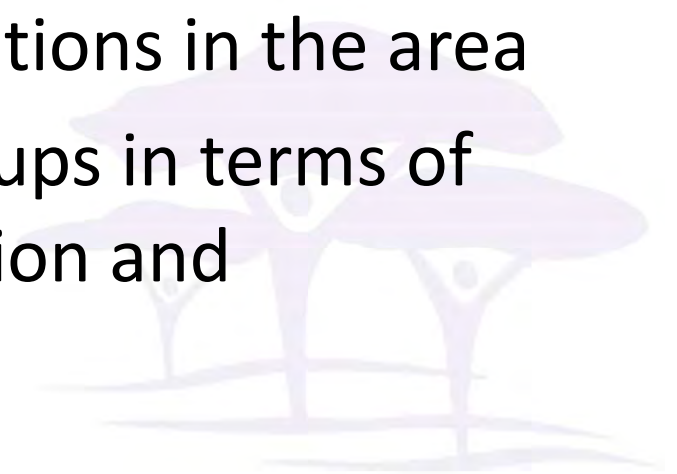
Can the **machine** help njansang producers to engage more in **collective action**?

Research hypotheses (4/5)

- Groups that have the machine and have received ICRAF support have some predispositions to work together (collective action) and valorise better njansang related activities (sales > consumption)
- Groups with no machine and no support tend to work individually and are less involved in njansang-related activities (consumption > sales)

Research objectives (5/5)

- To describe activities related to njansang and existing collective action in groups
- To analyze the utilization of the njansang extraction machine (qty, frequency of use, etc...) and assess the level of adoption of the machine
- To analyze development interventions in the area
- To compare and characterize groups in terms of njansang activities, collective action and development intervention



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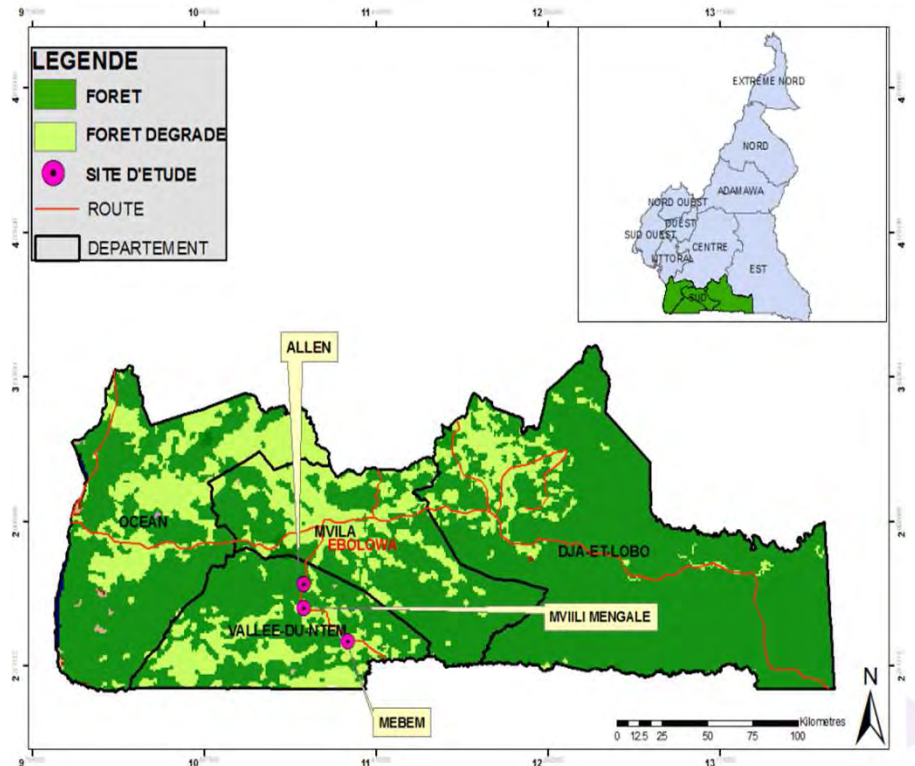
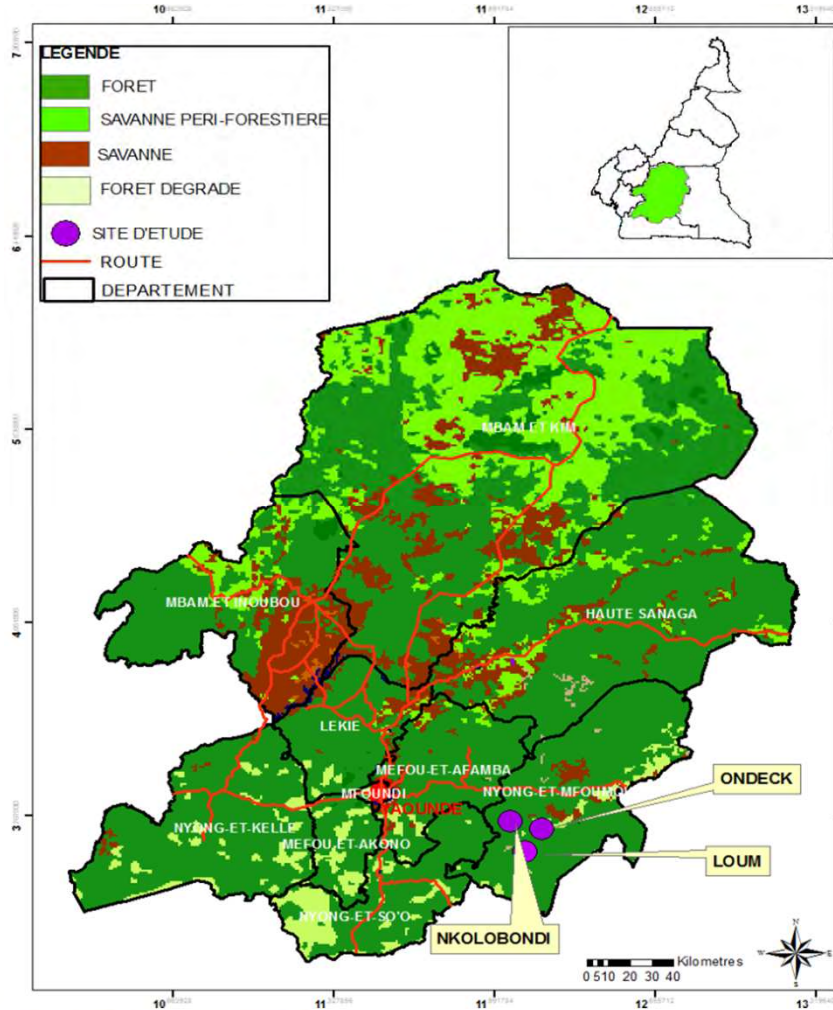


Methodology - study sites (1/3)

Centre region

CAMEROON

South region



Methodology - Choice of producer groups (2/3)

Categories	ICRAF support	Presence of machine	Centre	South
I	Yes	Yes	Ondeck	Alen
II	Yes	No	Loum	Mviili-Mengale
III	No	No	Nkolobondi	Mebem

Methodology - data collection and analysis (3/3)

- Sample: 120 njansang producers (20 per group)
- Survey: structured questionnaire, covering:
 - General information about producer
 - Njansang-related activities
 - Njansang extraction machine
 - Collective action
 - ICRAF support
- Analyses: descriptive analysis (univariate and bivariate); ANOVA; Reliability analyses (with Likert items); Multiple correspondence analysis.

I. INTRODUCTION

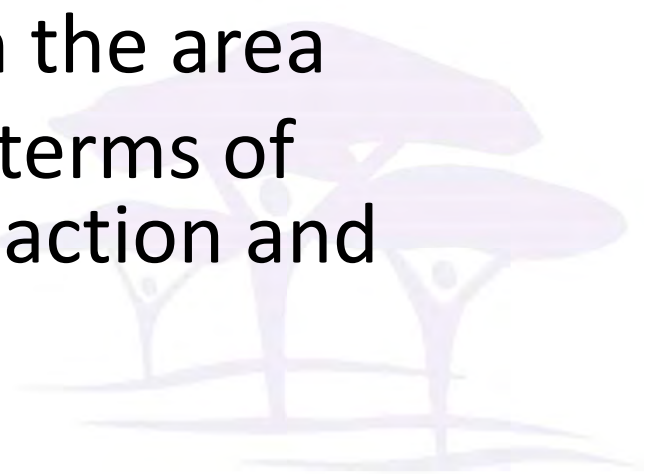
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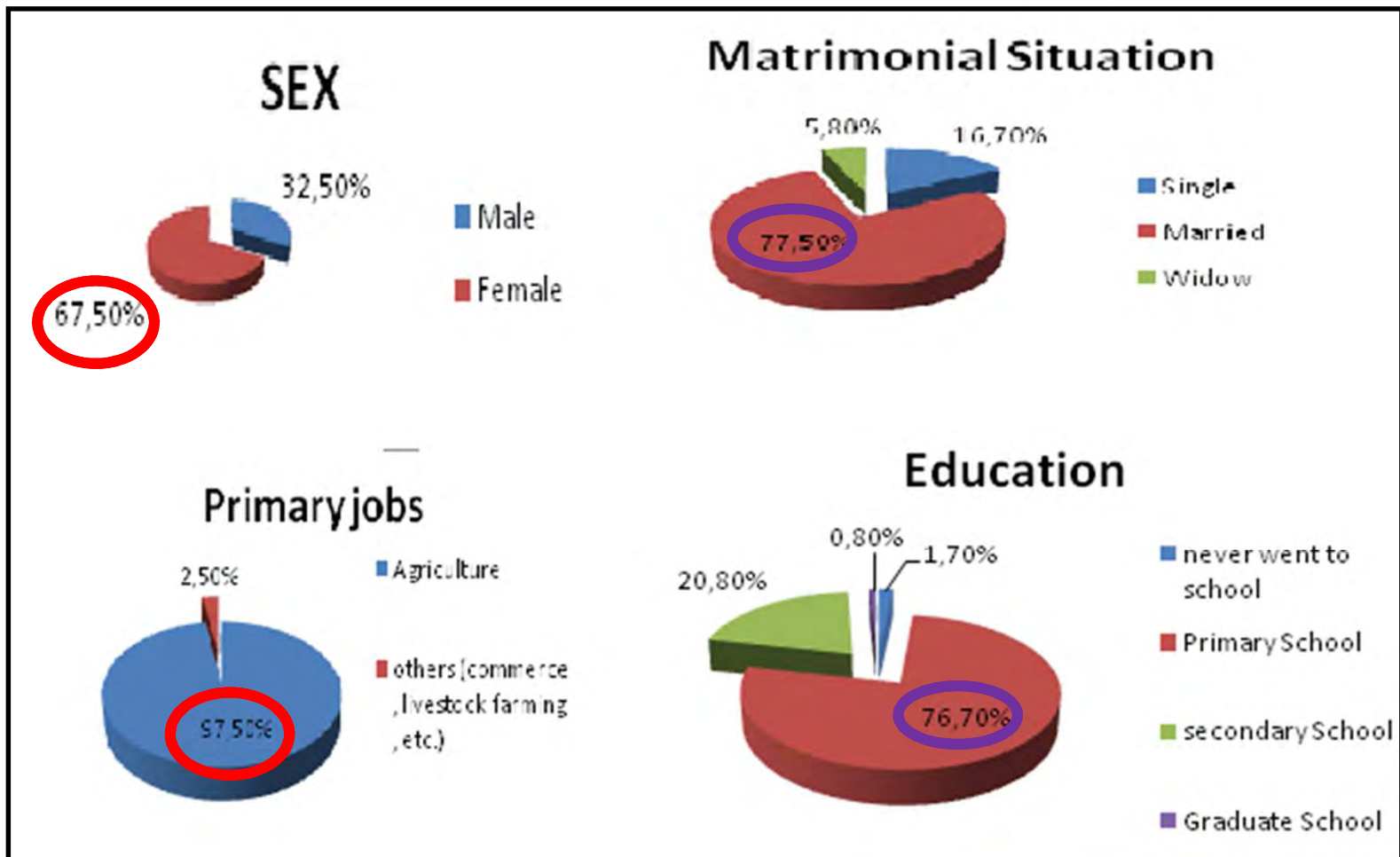
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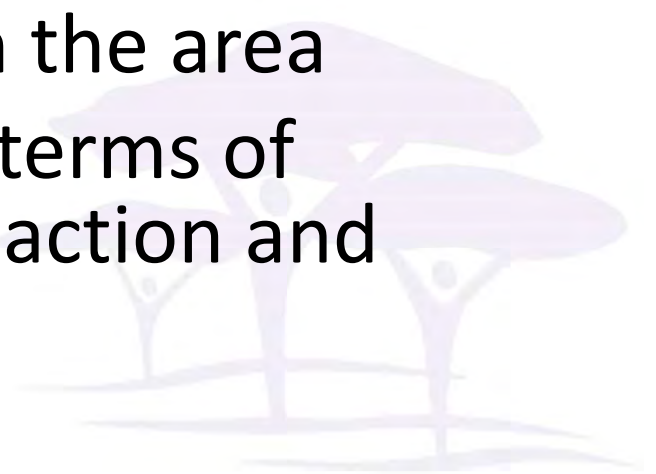
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2. Activities related to njansang
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5. Development interventions in the area
6. Characterization of groups in terms of njansang activities, collective action and development interventions



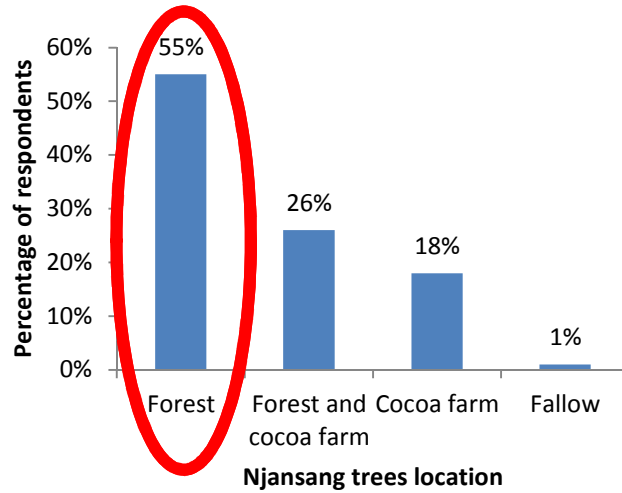


The majority of respondents are females, married with agriculture as primary job. They also have a basic level of education

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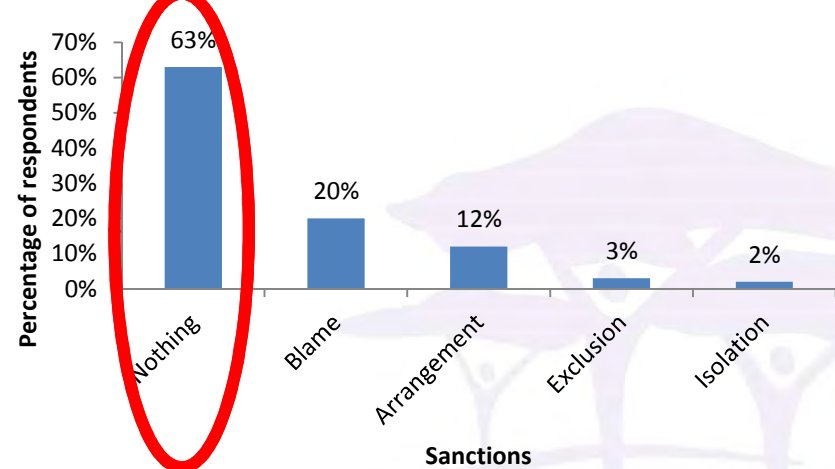
Njansang trees location



Rules related to njansang exploitation



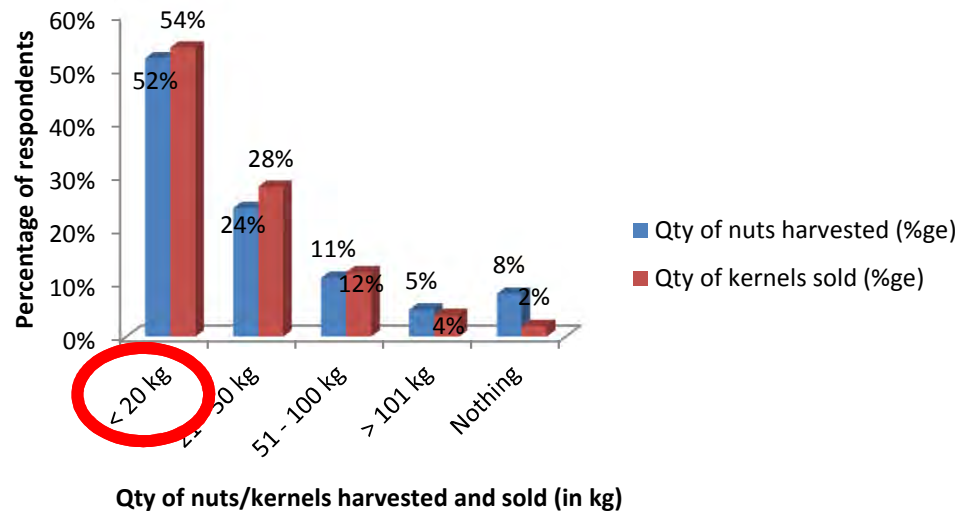
Sanctions if rules are not respected



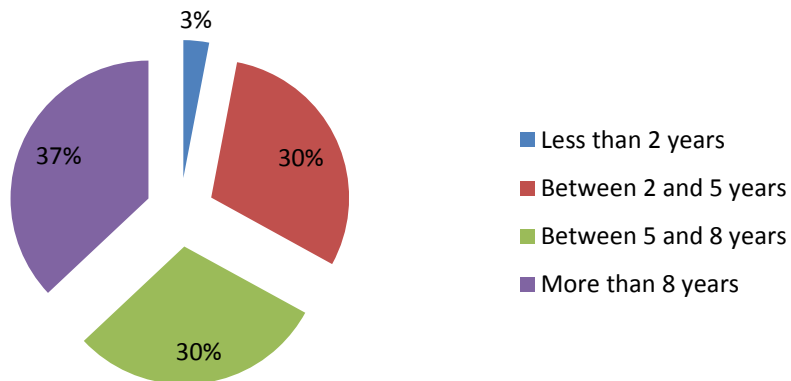
Njansang trees are found mostly in forest and ownership of trees is recognized despite the fact that sometimes nothing is done for those who don't respect the rules

Qty of njansang harvested and sold in one season

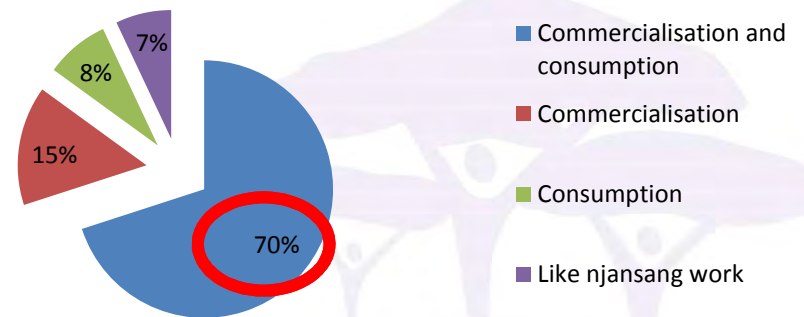
2/2



Number of years respondents are involved in njansang activity

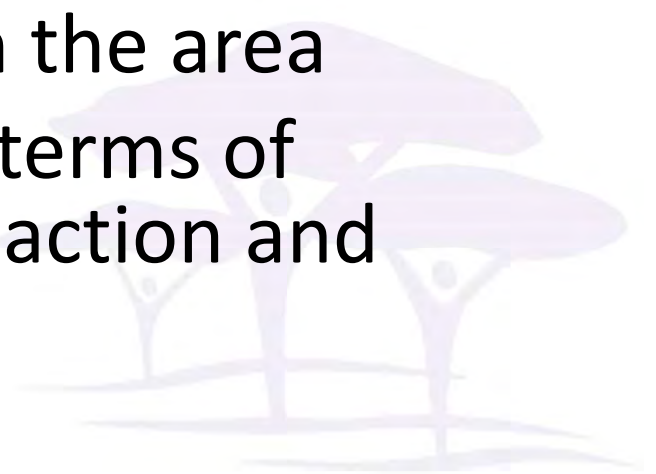


Personal objectives of getting involved in njansang activity



Half of respondents harvest and sell less than 20 kg. The majority of respondents have been involved in njansang activity for more than 8 years. The majority is involved in the activity for commercialisation and consumption purposes

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Activities done collectively

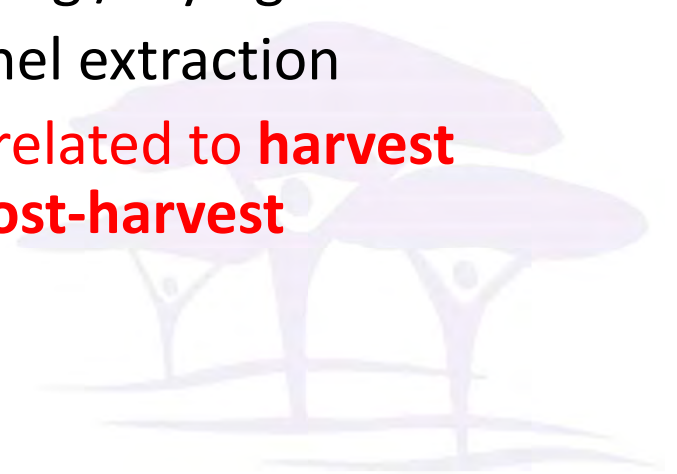
4-point Likert items
(from 4=always work together
to 1=never work together)

Activities producers do
collectively:

- Group sales
 - Decision to sell
 - Price negotiation
- => All related to sales

Activities producers do
individually:

- Harvest
 - Depulping
 - Boiling of kernels
 - Sorting /drying
 - Kernel extraction
- => all related to **harvest
and post-harvest**



Significant differences between group categories in terms of experience in activity, rules and sanctions, type of collective activities and objectives

Variables	Cat I	Cat II	Cat III
Number of years people are involved in njansang activities (P = 0.000)	2-5 years Less than 2 years = 0	2-5 years	More than 8 years Less than 2 years = 0
Rules fixed for njansang activities (P = 0.000)	Trees ownership and group work	Huge quantity	Nothing
Sanctions due to non respect of rules on njansang (P = 0.004)	Exclusion	Isolation	Nothing
Activities done collectively on njansang (P = 0.000)	Group sales	Group sales	Nothing
Personal objectives by working njansang (P = 0.001)	Consumption and commercialization	Consumption and commercialization	consumption

Group management

5-point Likert items (5=strongly agree and 1=strongly disagree)

OVERALL:

- leaders are honest
- leaders represent group very well outside
- solidarity among group members
- good communication between members
- point of view of members taken into consideration
- good communication between executive and other members

PER CATEGORY

Significant difference between group categories in terms of:

Variable	Cat I	Cat II
Confidence on executive members (P = 0.000)	Excessively	Not really
Difficulties encountered with group activities (P = 0.004)	Individual sales	Tedious work
Major strength (P = 0.013)	Group work	Group work, but internal regulations

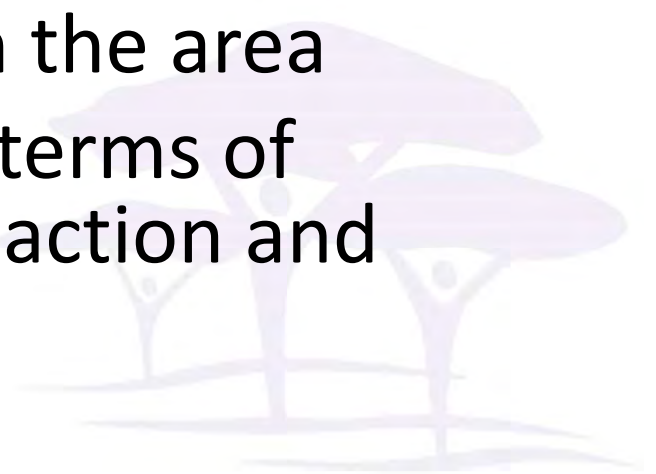
Effect of collective action on incomes

- Producers in Cat1 have incomes superior to those in Cat3
 - difference in income (Fcfa 36,763) is highly significant ($p=0.001$)
- Producers in Cat2 have incomes superior to those in Cat3
 - Difference in incomes (Fcfa 46,170) is highly significant ($p=0.000$)
- The difference between Cat1 and Cat2 was not significant

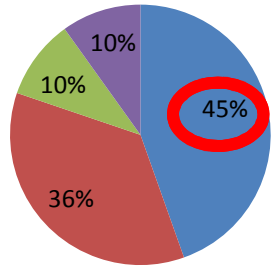
One way ANOVA multicomparison of Turkey

=> **Collective action seems to increase incomes from njansang**

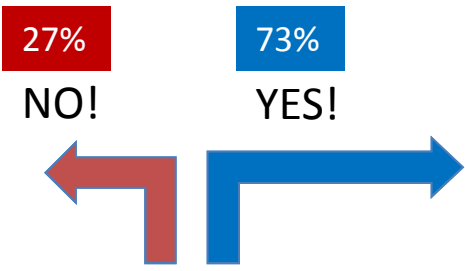
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WHY NOT USE?

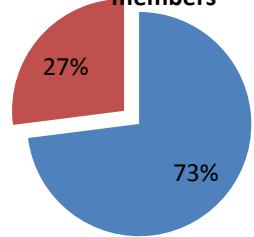


- Small quantity
- Distance to the machine
- Broken kernels
- Not interested by the machine



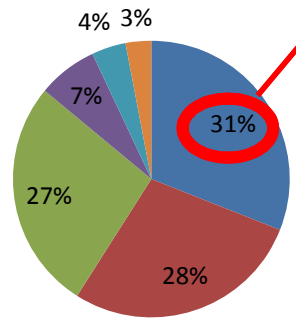
USE?

Utilization of the machine by group members



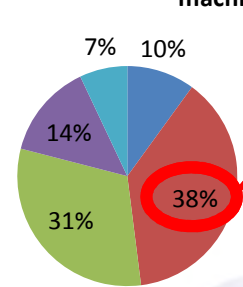
- Those who have used the machine
- Those who have not used the machine

WHY USE?



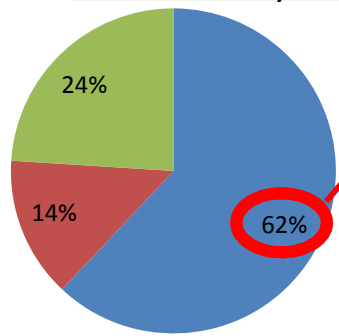
- Fast
- Easy
- Few broken kernels
- Good Kernels
- New knowledge
- Low extraction price

HOW OFTEN?



- 1 time
- 2 times
- 3 times
- 4 times
- more than 5 times

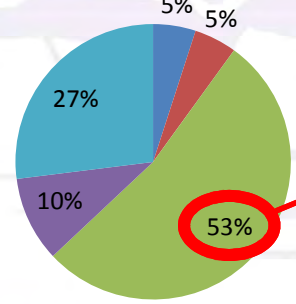
SATISFIED?



- Very satisfied
- Satisfied
- Not satisfied

HOW MUCH?

Qty of nuts extracted by the machine

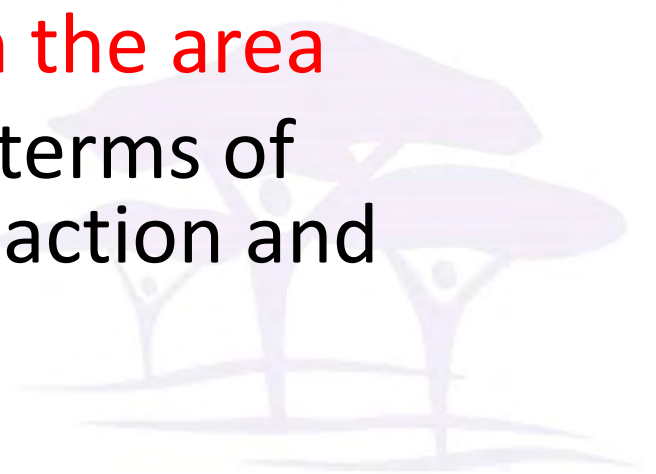


- < 5 kg
- 6 - 10 kg
- 11 - 30 kg
- > 31 kg
- Nothing

Impact of machine use on group performance

- 48% of producers interviewed mentioned many changes in the way the group operates
- 90% said that the presence of the machine improved the performance of the group considerably
- Reasons for group performance improvement:
 1. Working collectively
 2. Adhesion of new members
 3. Increase in quantities of njansang exploited

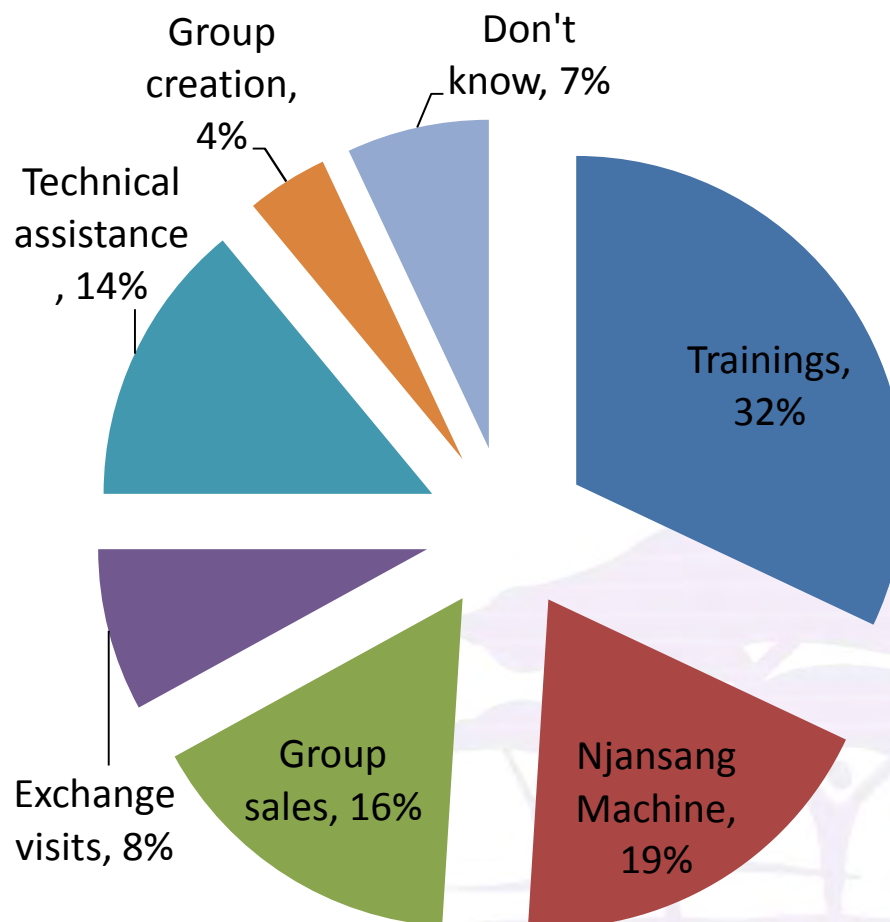
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- **ICRAF interventions mentioned by producers interviewed:**

- njansang production/sale (52%)
- vegetative propagation (43%)
- Mechanical njansang extraction (5%)

- **ICRAF interventions most appreciated**

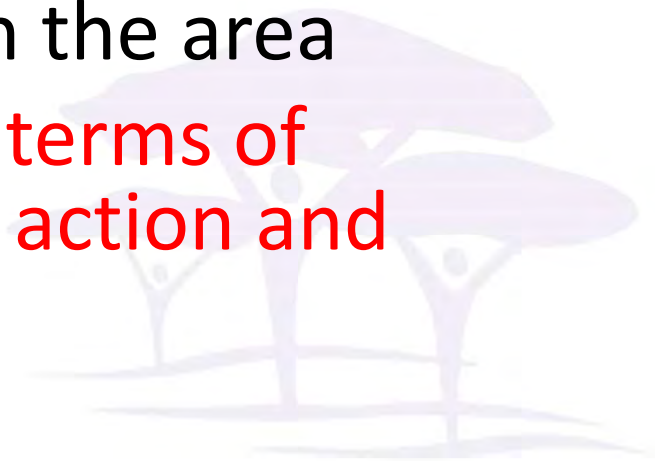


Analysis on group categories and variables around development 2/2 institutions were done using Chi-Square test

Results revealed that at a significance level of 5%, a strong difference exist between group categories and

Criteria	Cat I	Cat II
Suggestions to ICRAF (P=0.000)	Solve their other problems	Provide them with materials
Activities developed by ICRAF within groups (P=0.004)	Trainings and group sales	Trainings
What group appreciate most in ICRAF intervention (P=0.024)	Group sales	Trainings

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ICRAF, no MACHINE

- Mvili Mengale
- major strength is work within group
- training and technical support by ICRAF
- collaborate with other organisations
- main objective = produce in large quantities
- **difficulty with manual extraction**

ICRAF, MACHINE

- Alen, Ondeck and Loum
- **legalised groups**
- technical assistance and training in marketing and group sales, tree propagation
- Improved skills in negotiating price, link with buyers, production and sale
- **strength is work together, reinforced by the arrival of the machine**
- work with other organisations

planta_cacao

No ICRAF, no MACHINE

- mainly from villages Nkolobondi and Mebem
- **not part of any group**

not collaborate with other people on nsang
 in problem is the poor work organization.
 t linked to any other organisation
in purpose - consumption

0.5

1.0

1.5

Facteur 1

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II. MATERIALS AND METHODS

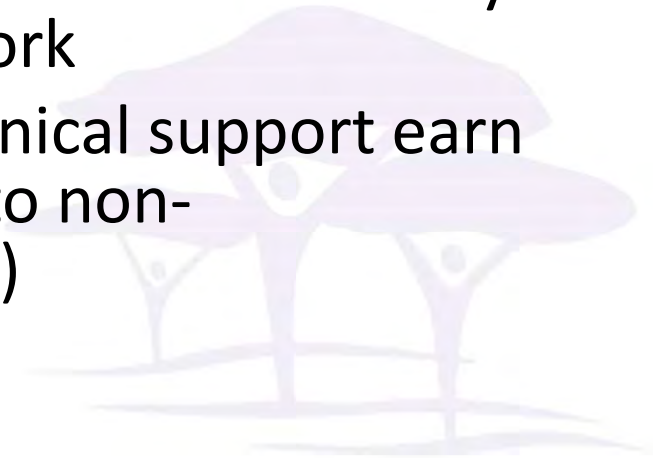
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Conclusion

- Collective action enables group members to use the machine effectively, but the machine is far from being profitable (under-exploitation of the species)
- The machine helps more producers to engage in collective action due to new knowledge and important level of capacity building
- With presence of ICRAF, producers became excessively demanding, which can affect their work
- Groups with no machine and no technical support earn very low income from njansang due to non-organization (lack of collective action)



Policy implications

- Innovative technology and capacity building should complement each other
- Technology revolution should be seized as income growth opportunity
- For good use and exploitation, more work should be done on the domestication of the species. Also, some local and national policies (law) in the sector should be reconsidered

Thank you for your attention



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