

# *Allanblackia* Domestication in Nigeria

Prepared by

**Paul Anegbah, Micah Mendie**

ICRAF WCA/HT,

C/O Edo Agricultural Development Programme,  
Head Quarters, Benin City, Edo State, Nigeria

and

**Bayo David**

Forestry Research Institute of Nigeria

C/O Moist Forest Research Station,

Benin City, Edo State, Nigeria



# Topics for discussion



- Project locations in Nigeria
- Partners/collaborators
- Criteria for selecting communities
- Domestication objectives
- 2006/2007 annual national plan
- Our Achievements so far
- Management and coordination challenges
- Lessons learnt



# Map of Nigeria showing selected states capital for AB Domestication (arrows)



# Partners/Collaborators .....1



- World Agroforestry Centre (ICRAF)
- Forestry Research Institute of Nigeria (FRIN)
- Project Novella Nigeria
- Pro-Natura International
- Rivers state Government
- Edo state Government
- Cross River state Government



# Partners/Collaborators .....2



- Nyowii community, Khana LGA, Rivers State
- Yae Community, Khana LGA, Rivers State
- Marihu Ndoki community, Oyigbo LGA, Rivers State
- Okpontu Oyigbo LGA, Rivers State
- Mgbu Azuogu community, Oyigbo LGA, Rivers State
- Mbakiri Oyigbo LGA, Rivers State
- Umuagbawe communities, Etche LGA, Rivers state



# Partners/Collaborators .....3



- Ubima community, Ikwere LGA, Rivers state
- Omerelu community, Ikwere LGA, Rivers state
- Ubimini community, Ikwere LGA, Rivers state
- Apani community, Ikwere LGA, Rivers state



# Partners/Collaborators .....4



- Utekon community, Edo state
- Ayen community, Edo state
- Obagie, community, Edo state
- Obanyator, community, Edo state
- Ikoro, community, Edo state
- Evboro, community, Edo state
- Ofunmwegbe, community, Edo state
- Iguoshodin-negbemaba, community, Edo state



# Rationale for selecting participating communities



- Accessibility (road infrastructure)
- Dynamism of the community
- Viability of the nurseries in the community
- Commitment of the community
- Availability of local competencies that could be built on and used in the diffusion process
- Possibilities of mentoring the community by a partner NGO or NARS
- Possibility of expansion





# Domestication objectives .....1



The general objectives of Allanblackia initiative are:

- To support more effective domestication, conservation and use of Allanblackia in its native range.
- To find the best conditions for its growth and production.
- To develop scientific capacity to further explore, evaluate, conserve and profit from the genetic resources of this indigenous tree species on a sustainable basis.



# Domestication objectives .....2



These objectives are pursued under four major project outputs namely:

1. Establishment of Rural Resource Centres (RRC) and Satellite nurseries for propagation of *Allanblackia* seedlings.
2. Organisation and collection of seeds and cuttings for propagation of seedlings.
3. Creation of awareness about *Allanblackia* in selected communities.
4. Monitoring and evaluation of activities.

# 2006/2007 annual national plan .....1



- Sensitisation of selected communities on the concept of Agroforestry and AB domestication in 3 states
- Negotiation for domestication sites
- Sites selection for establishment of 3 Rural Resource Centres and Satellite nurseries
- Identification of superior female trees in selected communities
- Cutting of 4,500 superior trees in 3 states
- Collection of 6,000 fruits, storage for decomposition, extraction of seeds, pre-treatment and sowing

## 2006/2007 annual national plan .....2



- Site clearing and preparation of germination beds
- Construction of shades for germination beds
- Setting of 1,500 marcots on selected superior trees
- Construction of non-mist propagators and humidity chambers
- Setting of cuttings in non-mist propagators
- Training of 150 farmers and 40 extension workers on tree domestication (germplasm collection, nursery techniques, tree propagation, planting and management)



ICRAF Scientist in Nigeria briefs Edo State Commissioner for Agriculture on Tree domestication at ICRAF Nursery in Benin City. Commissioner signifies interest on *Allanblackia floribunda*





Strengthening institution: ICRAF Scientists in West and Central Africa  
Trained extension agents of 9 partner institutions on tree domestication  
at Edo Agric. Dev. Programme (ADP) in Nigeria to enhance technical  
capacity of NARS and NGOs.



# Training and Capacity Building



Institutions/Persons	No of Persons Trained
Forestry Research Institute of Nigeria	5
Pronatura International	3
EDO Agric Dev. Programme	10
Individual Training (Farmers)	78
Rivers Agric Dev. Programme	4
Cross Rivers Agric Dev. Programme	4
Cross river Forestry Commission	3
Sustainable Tree Crop Programme	1
RRDC (Rainforest Resources and Dev Centre)	2
Novella Project	2



Farmers marcotting prioritized tree



Students on study tour to ICRAF Nursery in Nigeria

Increase public awareness on Agroforestry through sensitizations

ICRAF Participated at a one day *Allanblackia* Seminar workshop organized by Raw Material Research and Development Council (RMRDC) of Nigeria November 30, 2006 in Lagos.



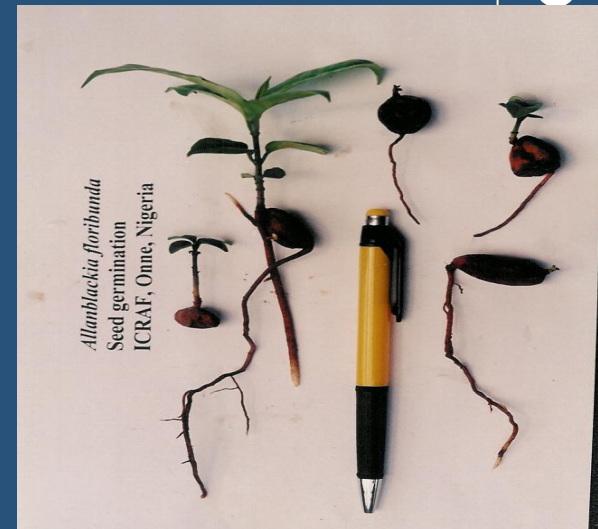
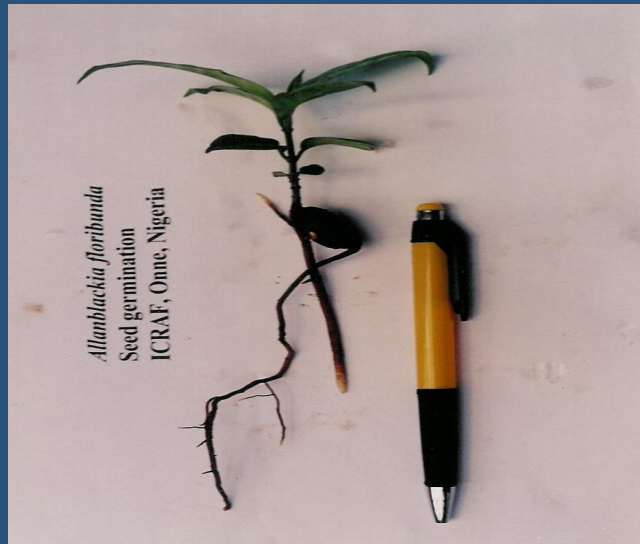
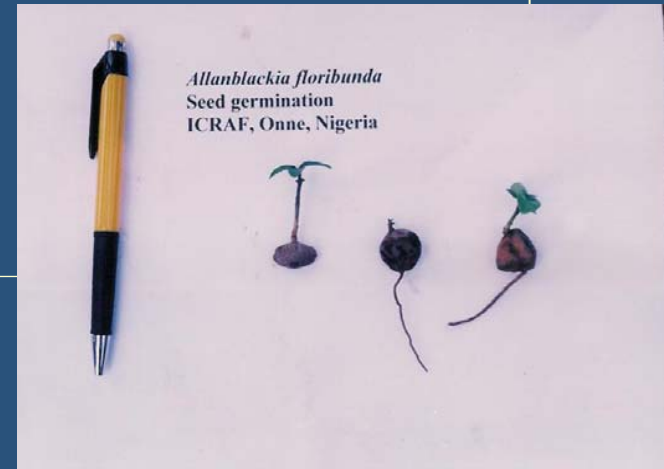


# Methodology for germinating *Allanblackia* seeds

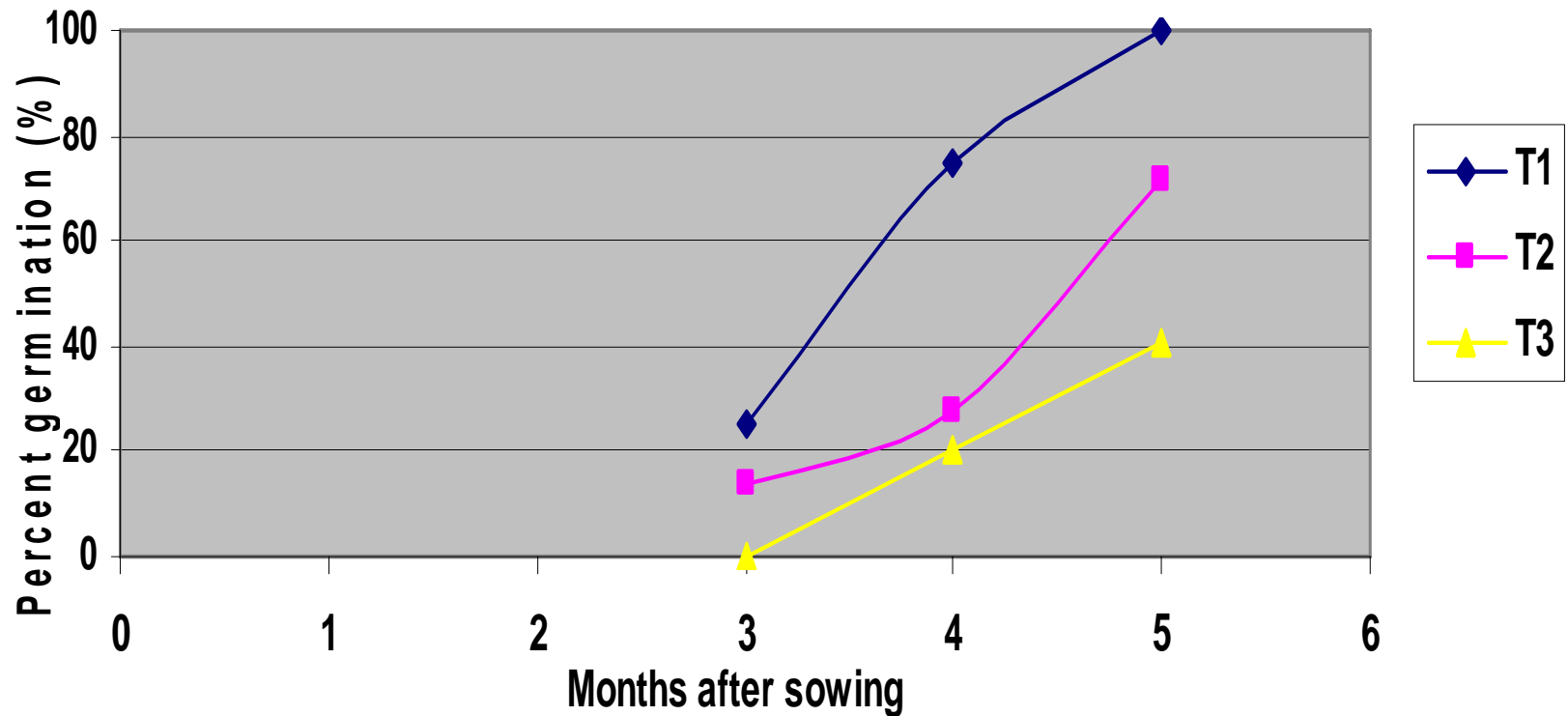


1. Matured and fallen fruits were collected from female trees
2. Trees were given identification numbers as T1, T2, T3, etc
3. Fruits were taken to the nursery to avoid risks of contamination with pathogenic fungi
4. Fruits were allowed to stay for five days prior to extracting the seeds.
5. Extracted seeds were washed in clean water, and bulked on tree basis.
6. Seeds were picked at random from the bulked seeds of the trees.
7. Completely removed seed testa or seed coat with kitchen knife,
8. Concrete boxes with internal dimension of 1 x 1 m and a depth of 10 cm were constructed in the nursery
9. Seeds were sown on the germination trays using fine river sand
10. Germination trays containing the seeds were placed in the boxes
11. Trays covered with growth chambers (Giant humidity chambers)
12. Manually, watering was done daily using knap sack sprayer

# Breakthrough on seed germination of *Allanblackia floribunda* in Nigeria



# Selected trees of *Allanblackia floribunda* tested for germination in Nigeria



**Fig. 3 Germination of *Allanblackia floribunda* at Onne, Nigeria**

# ICRAF Planting Strategy for Participatory Domesticating *Allanblackia* by cuttings in Nigeria



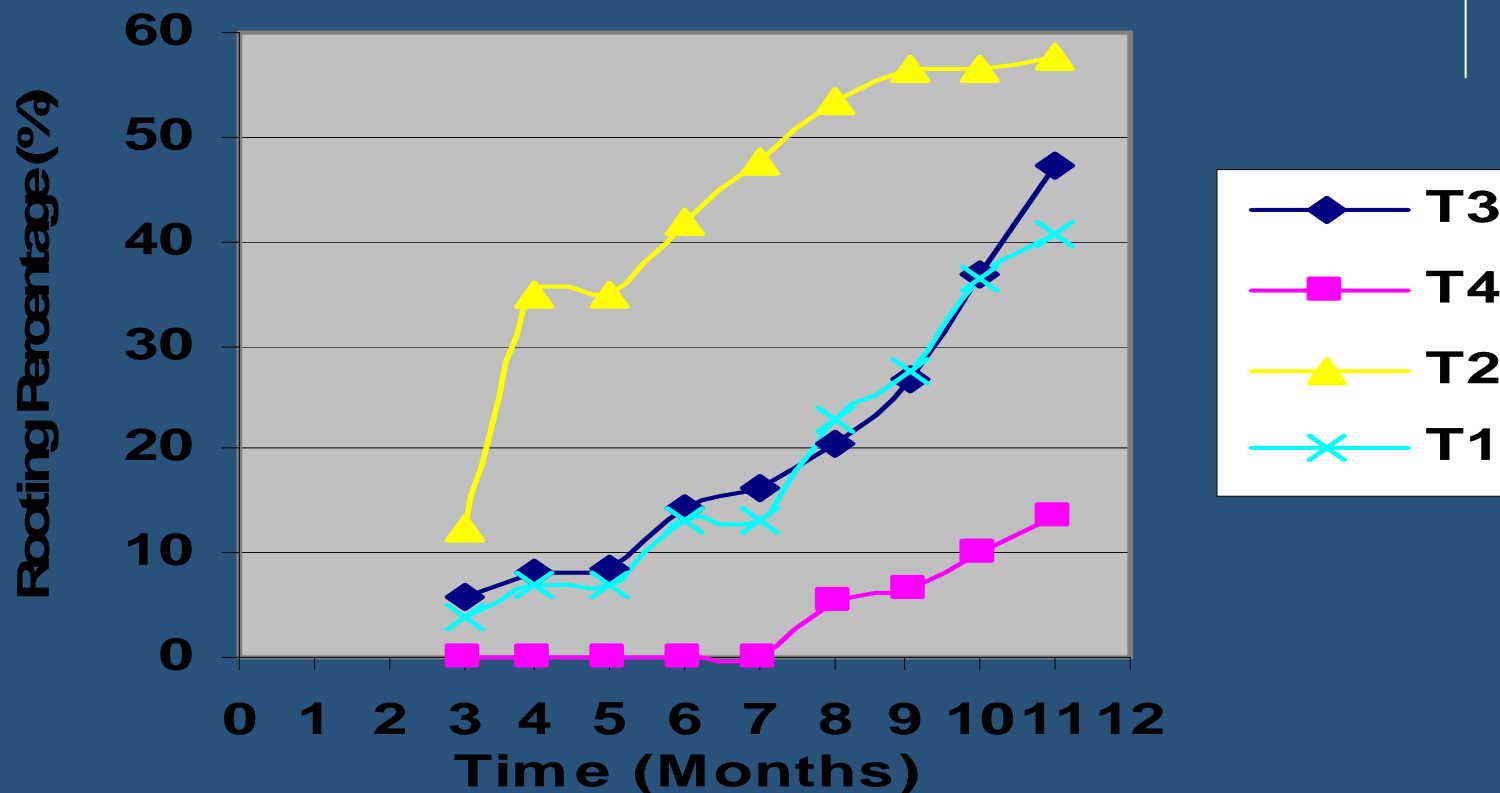


# Methodology for rooting AB in Nigeria



1. Test conducted from 2005 to 2006 at Onne, Nigeria
2. Superior trees with desirable traits were selected from fruit bearing trees
3. Trees given identification numbers as T1, T2, T3, and T4.
4. (T1, T2, and T3) were felled to obtain re-growth (coppicing) (T4 control).
5. Non-mist propagators were constructed in the nursery
6. Cuttings of *A. floribunda* were collected from the selected female trees
7. The selected cuttings were free-from diseases and insect pests.
8. Four hundred cuttings of *A. floribunda* selected from the trees
9. The cuttings were prepared using standard procedure developed by ICRAF.
10. Pair of scissors and surgical blade were used to trim the leaves
11. Leaves inserted inside substrate, white river sand, of the non-mist propagators.
12. A knapsack sprayer was used to water the cuttings.
13. Rooting of cutting was monitored at one month interval.
14. The treatments consisted of softwood cuttings (re-growth) of felled female trees
15. Hardwood cuttings collected from canopy of mature tree (control), T4.
16. The rooted cuttings removed from the non-mist propagators
17. Harvested cuttings were potted directly inside black polyethylene bags
18. They were arranged inside giant humidity chambers.
19. Watering of the cutting was done to maintain high humidity
20. Rooted cuttings hardened for three months in a partially shaded condition
21. Sept 2006 rooted and weaned plants of *A. floribunda* planted in field gene bank
22. Planted at 10 m x 8 m spacing (125 plants per hectare).

# Effects of leafy stem cuttings of selected trees on rooting ability and cultivar development of *Allanblackia floribunda* in Nigeria



**Fig. 1. Rooting Percentage of *Allanblackia floribunda* cuttings in Onne, Nigeria (11 MAS)**

# Felling of Selected female tree of *Allanblackia*



# Marcots set on selected female tree of *Allanblackia floribunda* in Nigeria





Cuttings of *Allanblackia floribunda* produced at ICRAF Tree Nursery Onne, Rivers State, Nigeria to complement farmers production.





ICRAF established *Allanblackia floribunda* field gene bank, with cuttings, at Onne, Rivers State, Nigeria to conserve gene resources of the high-value fruit tree





# Other achievements .....1



*Output 1: Establishment of Rural Resource Centres (RRC) and Satellite nurseries for propagation of Allanblackia seedlings.*



- A piece of land measuring 2,560m<sup>2</sup> at the FRIN out-station in Benin City, Edo state has been cleared and preparation is currently going on for establishment of the RRC
- Land donation agreements has been signed with 12 selected communities for establishment of satellite nurseries in Edo state



# Other achievements.....2



- While in Rivers state, a land measuring 2,736sq metres has been cleared at FRIN sub-station in Onne and construction of shades will commence soon.
- 6 communities have been selected for satellite nurseries namely: Nyowii; Elele; Unualika; Mbakiri; Marihu Ndoki and Ubimini . However, land donation agreements are yet to be signed because the communities are demanding for monetary payments/compensation before lands can be made available
- In Cross River state, sites have not been selected both for the RRC and satellite nursery establishment due to late commencement of field activities



# Other achievements.....3



## **Output 2:** *Organisation and collection of seeds and cuttings for propagation of seedlings*

- In Edo state, a total of 605 female trees was cut down
- In Edo state 2 different height levels were experimented: 75cm & 100cm
- 594 marcots were set on female trees in Edo state
- 1,500 fruits collected
- 25,702 seeds were sown

## **Output 2:** *Organisation and collection of seeds and cuttings for propagation of seedlings*

- In Rivers state, a total of 836 female trees were cut
- In Rivers state different height levels (50cm, 75cm, 100cm & 125cm) was experimented
- 525 marcots were set on female trees in Rivers state
- 658 fruits collected
- No seeds sown so far



# Other achievements .....4 (Edo state)



Height levels (cm)	Number of trees cut	% of total trees cut
75	160	26.4
100	445	73.6

# Other achievements .....4 (Rivers state)



Height levels (cm)	Number of trees cut	% of total trees cut
50	41	4.9
75	59	7.1
100	698	83.5
125	38	4.5

# Other achievements .....5 (summary)



- Total number of female trees cut: 1,441
- Total number of marcots set: 1,119
- Total number of trees cut at 50cm ht level: 41
- Total number of trees cut at 75cm ht level: 219
- Total number of trees cut at 100cm ht level: 1,143
- Total number of trees cut at 125cm ht level: 38

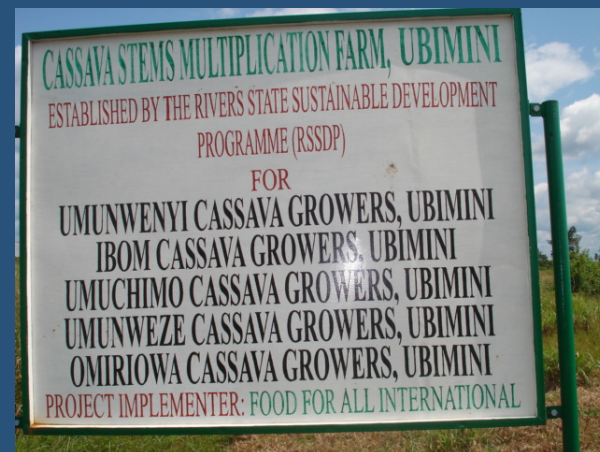
# Other achievements.....6





# Management and coordination challenges.....1

- AB domestication in Rivers state is experiencing competition for land with Arable crop cultivation programme sponsored by the state government
- Late commencement of field activities (last week in May) due to logistic constraints led to our inability to meet domestication set targets
- Delayed and untimely release of funds for implementation of activities.
- Youth harassments and hostile reception in some communities. In some instances, work could not be continued in those areas.
- Community youths were apprehensive and constantly demanded that they should be part of the domestication team



# Management and coordination challenges.....2



- Sparse distribution of trees in supposedly heavy density areas was contrary to our assumptions of closer clusters. More time was required to trace out trees in the forest even when forest guides that were involved in the original survey were engaged.
- Low enthusiasm for fruit collection by communities due to low compensation rate of N3/pod (\$.07/pod)
- In Rivers state, there is low interest in farming because oil and gas business is the predominant sector in of the state's economy. Thus interest in AB domestication is equally low in most oil producing communities where domestication is taking place
- Set target for fruits collection could not be achieved because fruits had stopped dropping in some areas while it had not started to drop in other areas

# Lessons learnt.....1

- AB fruiting trees found on farms appears to produce more fruits with bigger sizes than trees found growing in the forests
- In forests where Rubber trees are dominantly found, AB trees are usually seen growing in such forests
- AB trees are very resistant to fire but are unable to cope with repeated exposures to fire
- Farmers needs, perceptions and aspirations are yet to be properly captured and conceptualised. There is need to harmonise and mainstream these into the projects' strategy
- It is important to conduct a stakeholder analysis in all project locations to enable us identify the stakeholders, their interests, their level of influence and impact they have on the project





# Lessons learnt.....2



- Community entry strategy and sensitisation is very crucial to community participation and project ownership because it helps in getting the desired support the project needs
- Youth groups should be properly sensitised and enlightened about project outcomes and impact as this will help in curbing the problem of youth restiveness and harassments which is a major challenge to manage especially in the Niger Delta region of Nigeria
- There is need to organise a monthly/quarterly stakeholders' meeting







**Thank you**