Smallholder Rubber Agroforestry System (SRAS) project: translating research results into action

Context

- In addition to its latex production role, Jungle Rubber is rich in biodiversity and habitat conservation. The niche is at risk due to its low latex productivity (rubber yield is in a range of 400-600 kg/ha/year, and income generated is too low) as more profitable alternatives (such as monocultures of oil palm, rubber, coffee) become available.

- Earlier research has identified potential interventions to increase latex productivity without compromising on biodiversity value of this system. Technology were developed to meet requirements of rubber farmers and context.

- Introducing high yielding clones significantly increases productivity.

- Managed natural regeneration ensures significant biodiversity.

- RAS technology are particularly suited for resource poor farmers due to its low input, low labour requirements.

Project objectives

To enhance the productivity of traditional rubber agroforests by adapting available technology through active participation of smallholder rubber farmers.

Project components

Component 1. Demonstration and training plots

- smallholder farmer participation
- develop and test recommendations of improved clones and techniques
- assess adoptability by smallholder rubber farmers

Component 2. Budwood gardens

- low-cost production and distribution of improved rubber and non-rubber planting materials
- farmer training on nursery management and grafting techniques

Component 3. Agronomic monitoring

- reduced competition between species in order to optimize cropping densities, patterns and practices in different socio-environmental situations
- develop practical recommendations agronomic practices
- modeling simulation

Component 4. Biodiversity assessment

- assessment of evolution of biodiversity in RAS systems
- tangible benefits from biodiversity in RAF
- study of non-rubber components

Component 5. Farming systems characterization

- socio-economic surveys
- constraints in smallholder rubber agroforestry
- farmer adoption of innovations
- develop locally appropriate recommendations

Component 6. Dissemination of results

- farmer groups and networks
- extension and researcher networks
- institutional capacity building
- production of practical action orientated extension materials
- appropriate scientific publications

Results from earlier research

- Productive rubber clones can grow in an agroforestry environment along with natural vegetation. Planting rubber soon after slash-and-burn reduces the risk of infestation by *Imperata*.

- Natural vegetation re-growth effectively shades out *Imperata* and other weeds.

- A weeded strip of a 1 to 1.5 m wide along rubber rows is sufficient to prevent weed competition on rubber. A moderate fertilization during the two or three first years is recommended to ensure tree opening at 5½ years.

RAS 1 : productive jungle rubber

Rubber tree growth in RAS 1
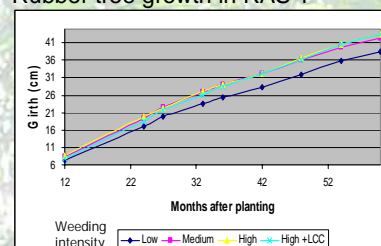
Natural vegetation re-growth is promoted between rows of rubber trees for maintaining favorable conditions for rubber growth while keeping noxious weeds like *Imperata cylindrica* under control.

RAS 1: after 18 months
RAS 1: after 9 years
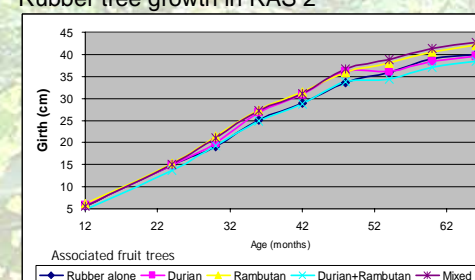
Technology package for RAS 1

- Planting clonal plants grown in polybags
- Weeding every 3 months on rubber rows
- Limited inputs of rock phosphate and urea applied in first two years only

RAS 2 : complex rubber agroforestry system

- Often farmers prefer a mixture of rubber and other crops.
- Fruit trees and other crops can be grown between rubber rows.
- After two cycles of upland rice, other crops such as chilly, maize and banana are planted.

Rubber tree growth in RAS 2
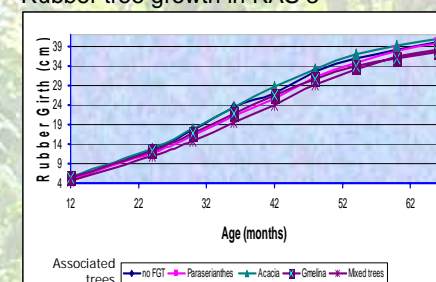

Technology package for RAS 2

- Planting clonal plants grew in polybags
- Weeding every 3 months on rubber rows only
- Limited inputs rock phosphate and urea applied in first two years
- Regular weeding around associated crops

RAS 3: Reclaiming Imperata grasslands

- Developed for rehabilitating *Imperata* grasslands with clonal rubber.
- Legumes and other cover crops or fast growing trees are planted between rubber rows to control *Imperata* weed.

Rubber tree growth in RAS 3

Technology package for RAS 3

- Planting clonal plants grew in polybags
- Weeding every 3 months on rubber rows only
- Limited inputs of rock phosphate and urea applied in first two years
- Promotion of cover crops, fast growing trees, and shrubs to control *Imperata* weed