



**MINISTRY OF AGRICULTURE
REPUBLIC OF INDONESIA**
Directorate General of Estate Crops



Fokus • Responsif • Kolaboratif

***Ways and Means for Sustainable Coconut Sourcing
Experience Sharing and Way Forward***



OVERVIEW



The Area of Coconut Plantations in Indonesia

updated as of 2022

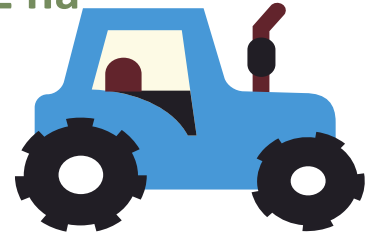
99,09%

Smallholder Plantations
area covers 3.361.145 ha



0,12%

Large State Plantations
area covers 3.962 ha



0,79%

Private Business Plantations
area covers 26.887 ha



Source: *Buku Saku Statistik Pembangunan Perkebunan 2022*

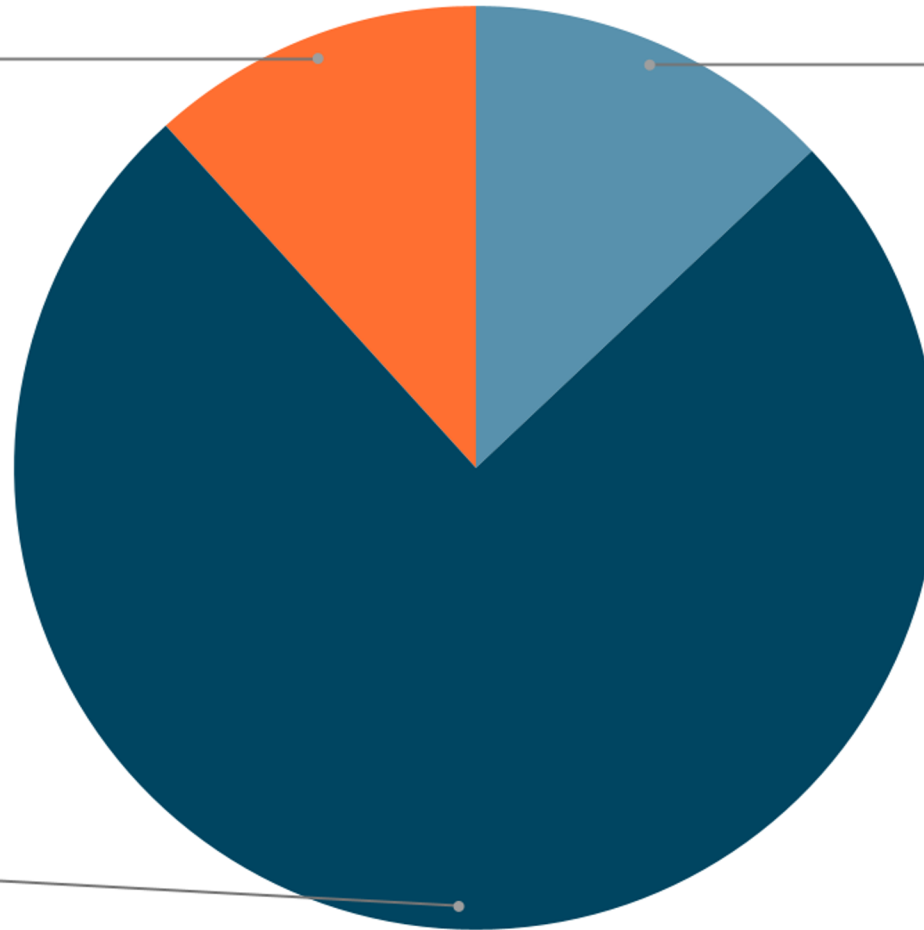


Profile of Coconut Plantations in Indonesia

updated as of 2022

Damaged Plantations
11.7%

Immature Plantations
13.0%



Mature Plantations
75.3%

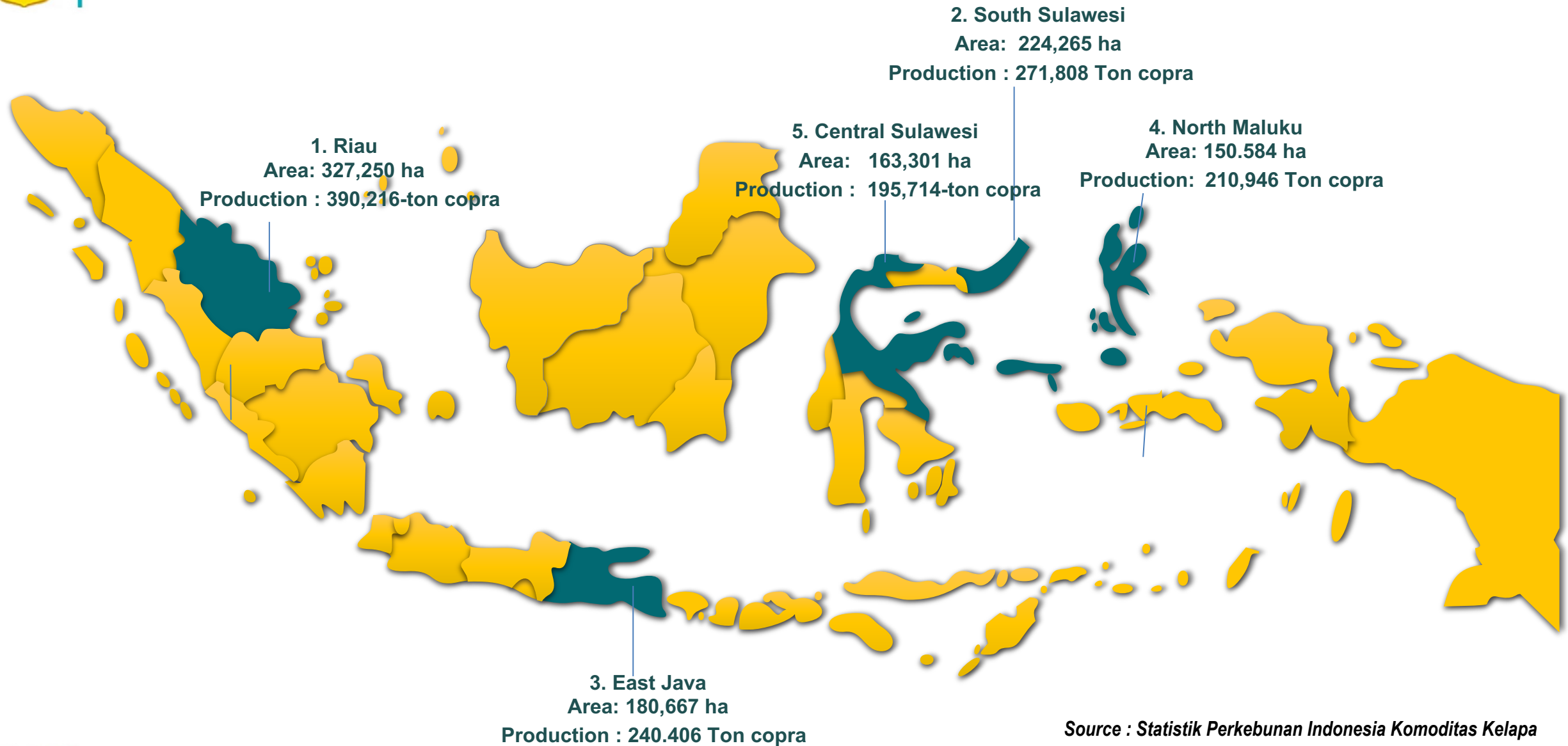
TOTAL AREA
3.391.993 ha

TOTAL PRODUCTION
2.589.515 copra equivalent

Source: Buku Saku Statistik Pembangunan Perkebunan 2022



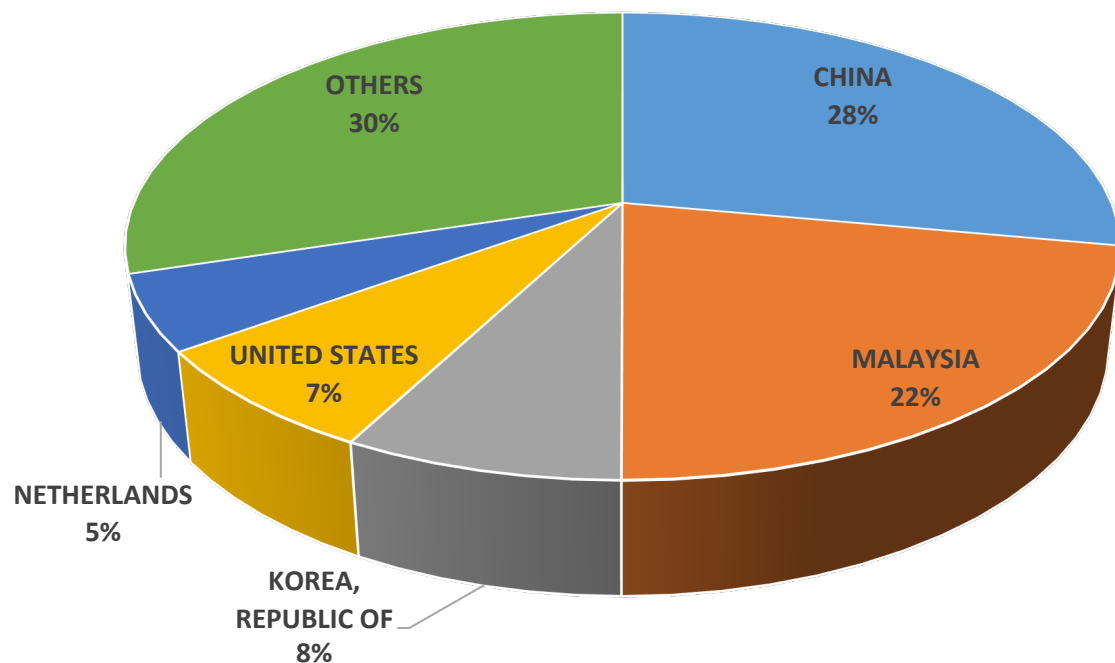
TOP 5 COCONUT PRODUCTION AREA



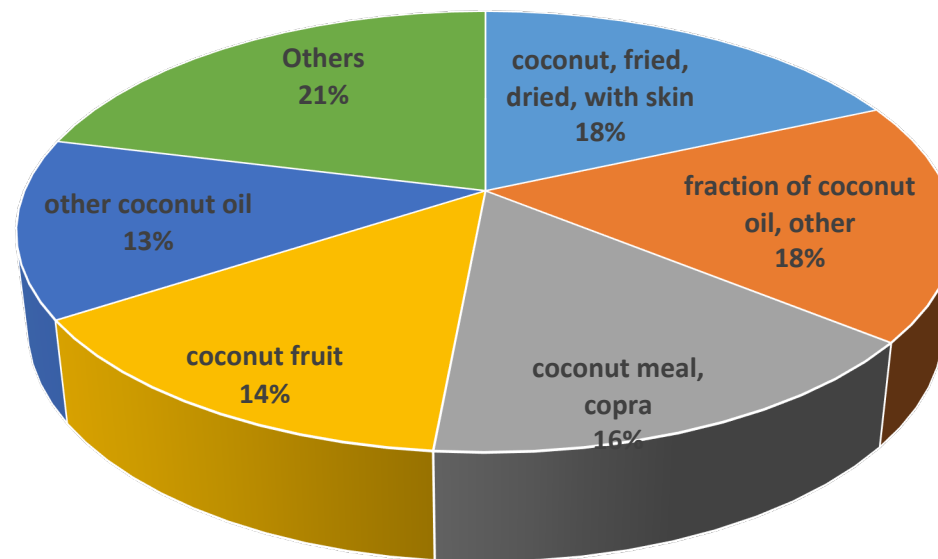


Export Performances

COCONUT EXPORT DESTINATION
2022



COCONUT SHARE EXPORT
2022



Source: Buku Saku Statistik Pembangunan Perkebunan 2022



COCONUT DEVELOPMENT



Regulations for Coconut Development

01

Bill no. 12/1992
on Plantation Practices

02

Bill No. 39 / 2014
Art. 61 on Plantation Development Area.

03

MoA Decree No. 130 / 2013
on Good Agriculture Practices for Coconut.

04

MoA Decree No. 82 / 2013
on Guideline for Farmers and Farmers' Group Development.

05

MoA Decree No. 50 / 2015
on Production, Certification, Circulation and Monitoring of Plantation Crop Seeds

06

MoA Act No. 81 / 2019
on Guideline for Coconut Seed

07

MoA Decree No. 56 / 2016
on Guideline for the Development of Agricultural Zones

08

MoA Decree No. 472 / 2018
on The Establishment of National Agricultural Zones





The Policy for Coconut Development





STRATEGY TO ACCELERATE PRODUCTIVITY & VALUE ADDED

SUBJECT

Smallholder Plantations



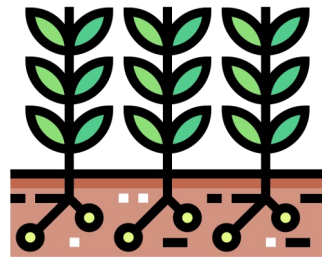
OBJECT	METHOD
1. Area	<ul style="list-style-type: none">• Mapping the potential of smallholder coconut plantations• Land Ownership Right Certification
2. Licensing/Permit	<ul style="list-style-type: none">• Relinquishment of area, HGU, Plantation Business Permit (IUP)
3. Seed	<ul style="list-style-type: none">• Development of seed source plantations and nurseries• Introduction of high productivity seeds
4. Fertilizer	<ul style="list-style-type: none">• Increasing the availability of the appropriate six (type, dose, method, location, price and time)
5. Pesticides and Control Substances	<ul style="list-style-type: none">• Assistance with pesticide facilities at OPT endemic locations at coconut development locations
6. Infrastructure	<ul style="list-style-type: none">• Production road infrastructure assistance (plantation roads)• Development of tools and machines
7. Downstream	<ul style="list-style-type: none">• Construction of a coconut derivative product processing factory
8. Market	<ul style="list-style-type: none">• Market development for processed coconut products• Export promotion of derivative products (charcoal, fiber, etc.)
9. Human Resources	<ul style="list-style-type: none">• Training, internships, field schools, field trips
10. Financing	<ul style="list-style-type: none">• Agriculture Credit for Smallholder, Investment



Programme for Coconut Development



Rejuvenation



Expansion



Intensification

Rejuvenation, expansion and intensification
2010 - 2022

222.148 ha

Rejuvenation, expansion and intensification
2023

10.500 ha





COCONUT PROCESSED PRODUCTS IN INDONESIA





SUSTAINABLE PRODUCTION



SUSTAINABLE PRODUCTION AND INCOME FOR FARMERS

**Increasing Production,
Productivity, and Land
Optimization**

**Extensification, Rejuvenation,
Rehabilitation, Intensification
and Intercropping**



Intercropping Coconut - Cocoa



Intercropping Coconut - Coffee



Intercropping Coconut - Paddy



Intercropping Coconut – Banana



Intercropping Coconut - Corn



Coconut Planting and Intercropping

**New Pattern for Coconut Planting
Distance and Fence System 6 x 16 with intercropping**



Paddy



Groundnut



Corn



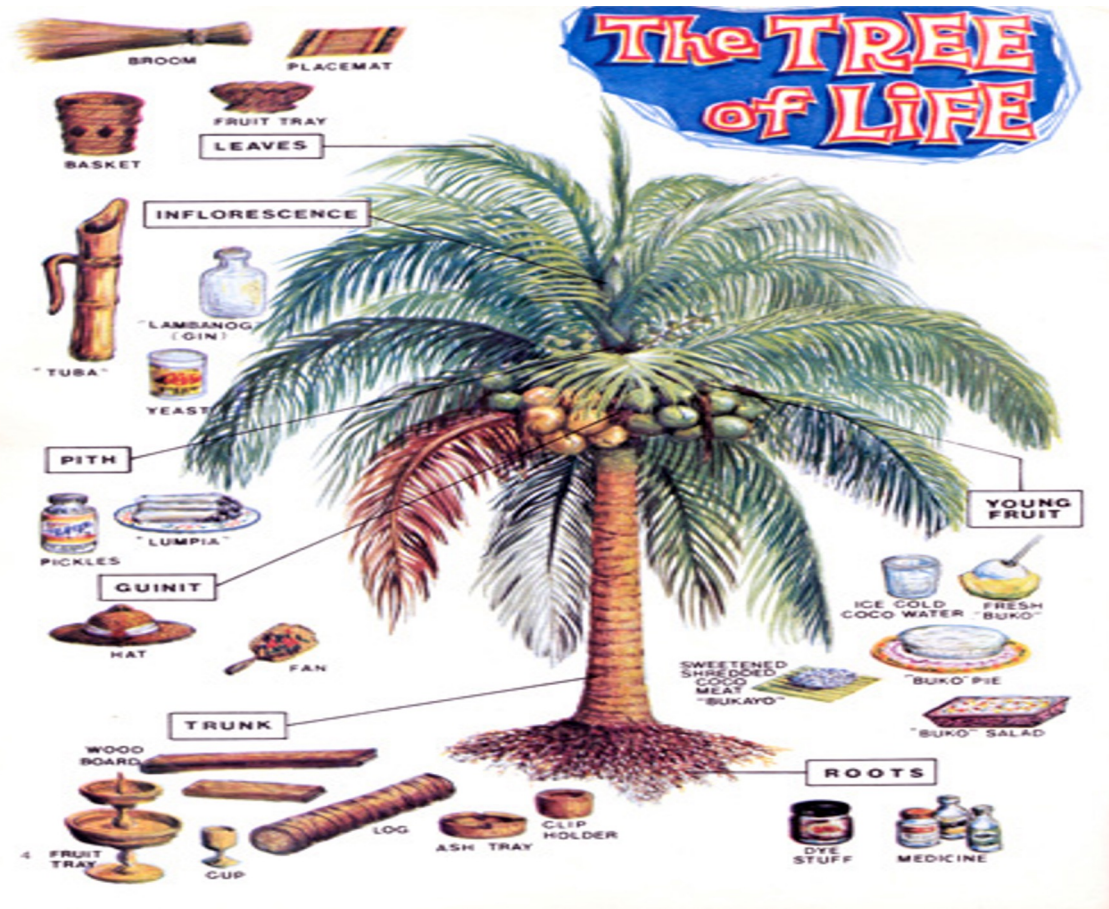
Sweet Potato

Food Crops for Intercropping



DOWNSTREAM POTENTIAL

As it is called “the Tree of Life”, actually the downstream potential of coconut is very large, because almost all parts of the plant can be utilized.



The Government of Indonesia supports the development of processing and downstream industries of coconut to produce more value-added products, such as:

- nata de coco
- chips
- shell charcoal briquettes
- coconut coir
- coconut flour



The main obstacle is the lack of integration between processing factories and coconut cultivation areas, especially for the downstream products.



One of the main solutions: building partnerships between farmers and processing companies, so they don't get entangled in debt bondage with middlemen and ongoing downstreaming.



THE CONCEPT OF CORPORATION DEVELOPMENT

DEVELOPMENT CONCEPT

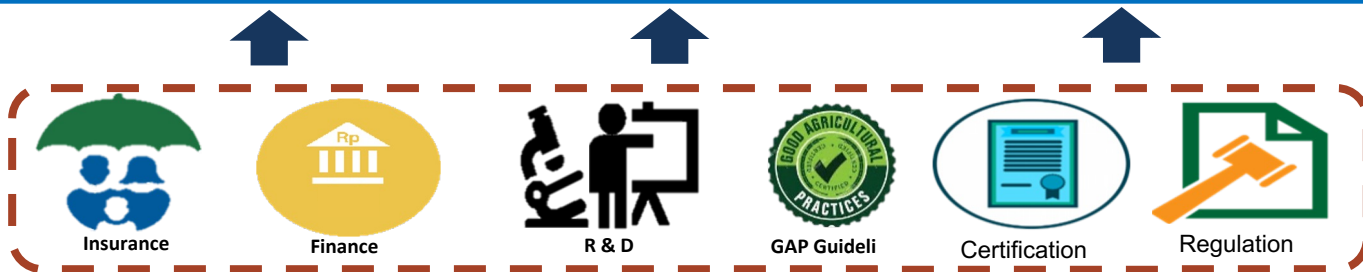
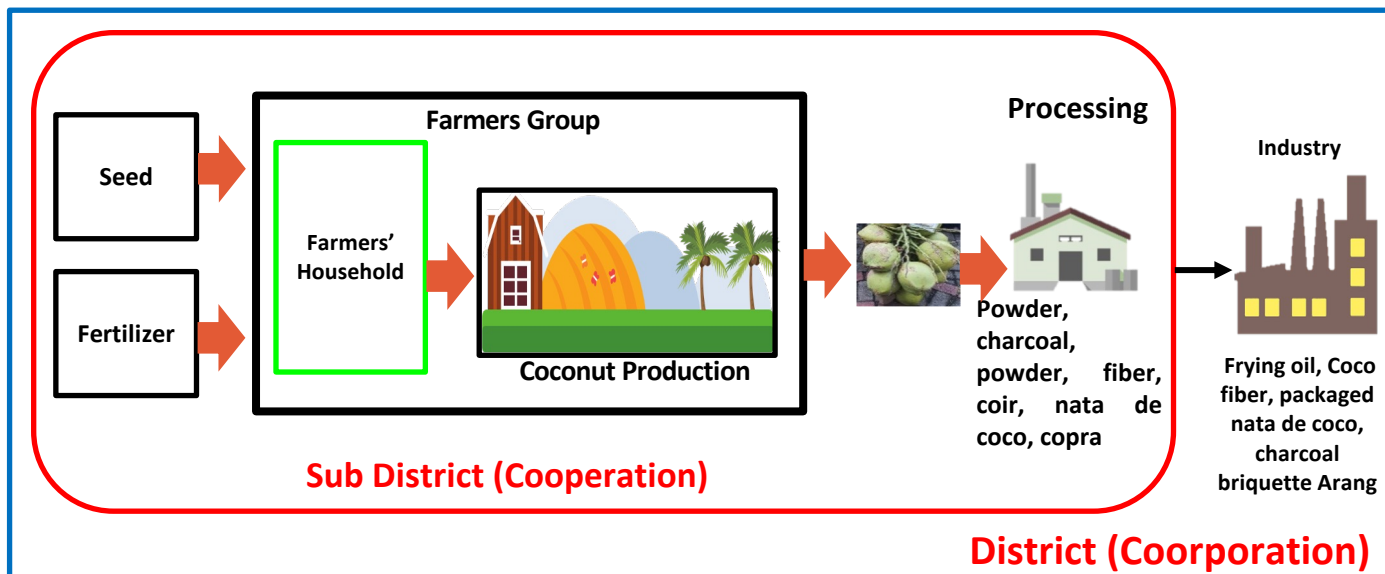
- Upstream-Downstream Approach
- District-based clusters
- District-based corporations

COCONUT PRODUCTION IMPROVEMENT TARGET

54.000 Ton Copra
21.600 ton Coconut charcoal
43.200 ton coconut coir
3.585 ton Nata de coco

TARGET

- Increasing production, productivity and added value through the development of coconut areas
- 10,244 families of coconut farmers
- Increasing the coconut processing industry based on the household area of farmers in North Maluku



OBJECTIVES



Income



Workforce



Export and Investment



National Income

PICTURE EXPLANATION:

- RT Farmers are members of poktan/gapoktan
- Facilitation of infrastructure and other supports
- RT Farmers as members of poktan/gapoktan carry out coconut cultivation
- The private sector as a corporate strategic partner
- The corporation markets coconut products and their derivative products

INCREASING THE VALUE-ADDED

Main product: Cooking oil
Derivative products:
Charcoal Briquettes, Coco fiber and Nata de Coco in packs



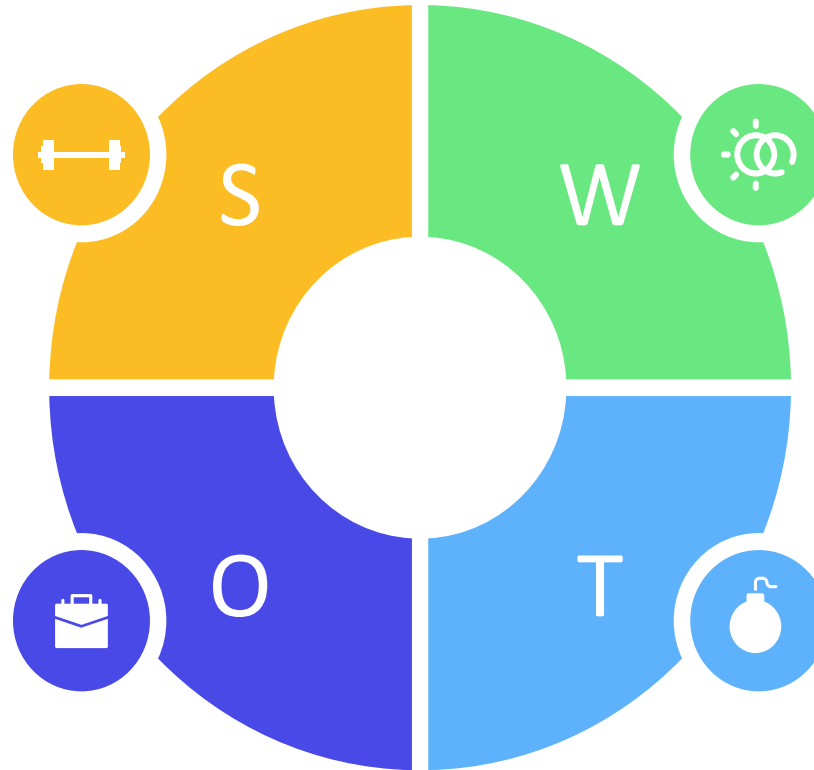
POTENTIALS, CONSTRAINTS AND OPPORTUNITIES OF CORPORATE-BASED COCONUT DEVELOPMENT

Strengths

- Area: 31.571 ha
- Abundant production: 35.267 ton

Opportunities

- Increasing farming household income
- Development of coir, charcoal and nata de coco derivative products



Weaknesses

- Limited number of products
- Processed products are only limited to copra

Threats

- Increased productivity in cultivation schemes
- The number of superior seeds is limited
- Limited application of GAP, GHP & GMP



Dwarf Coconut Development

Development Strategy

To support food security in the world food crisis management program and improve the welfare of farmers.



Variety

1. Genjah Nias
2. Entog
3. Pandan Wangi



Financing Scheme

1. State Budget
2. State-District Budget
3. Small-business credit
4. Self-financing





DISTRIBUTION OF DWARF COCONUT IN INDONESIA

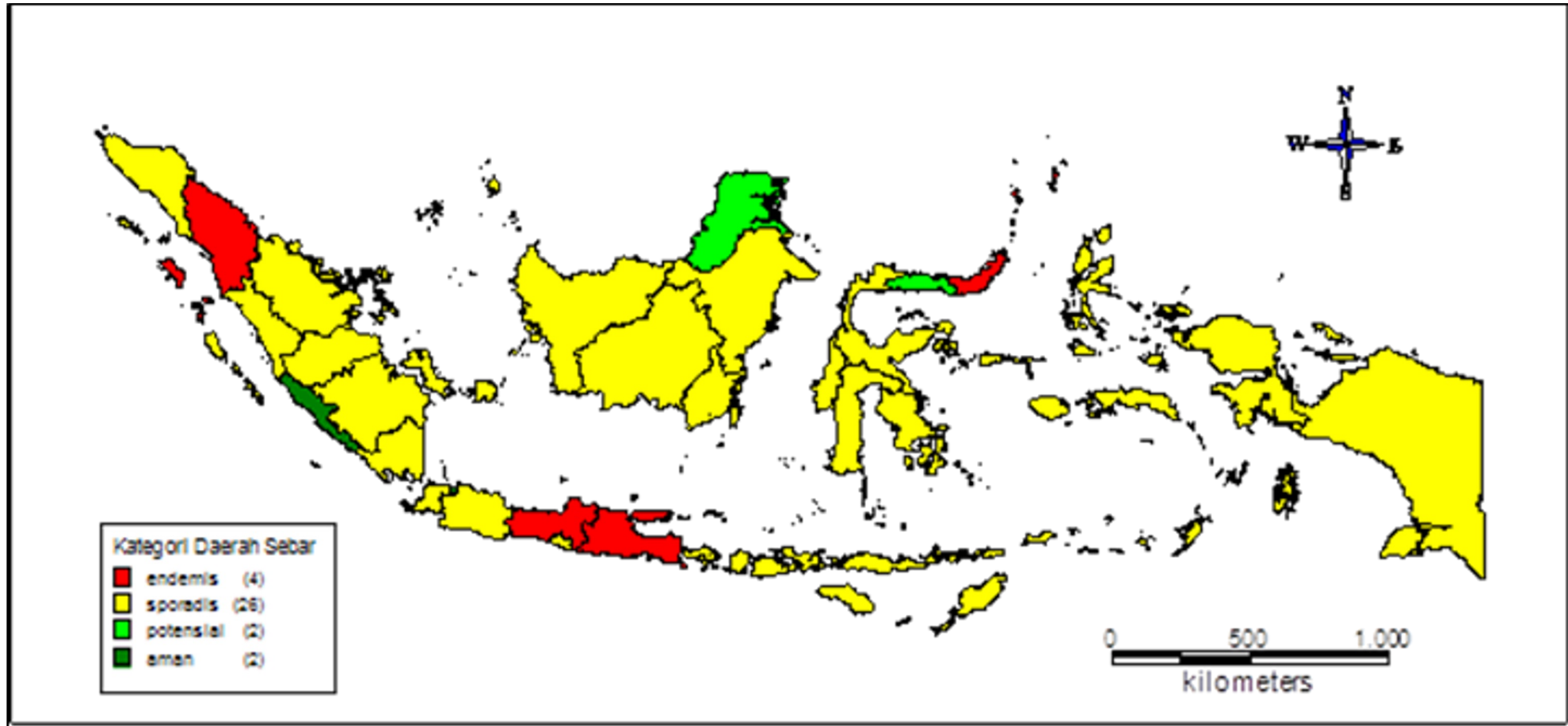




PEST AND DISEASES THREATS



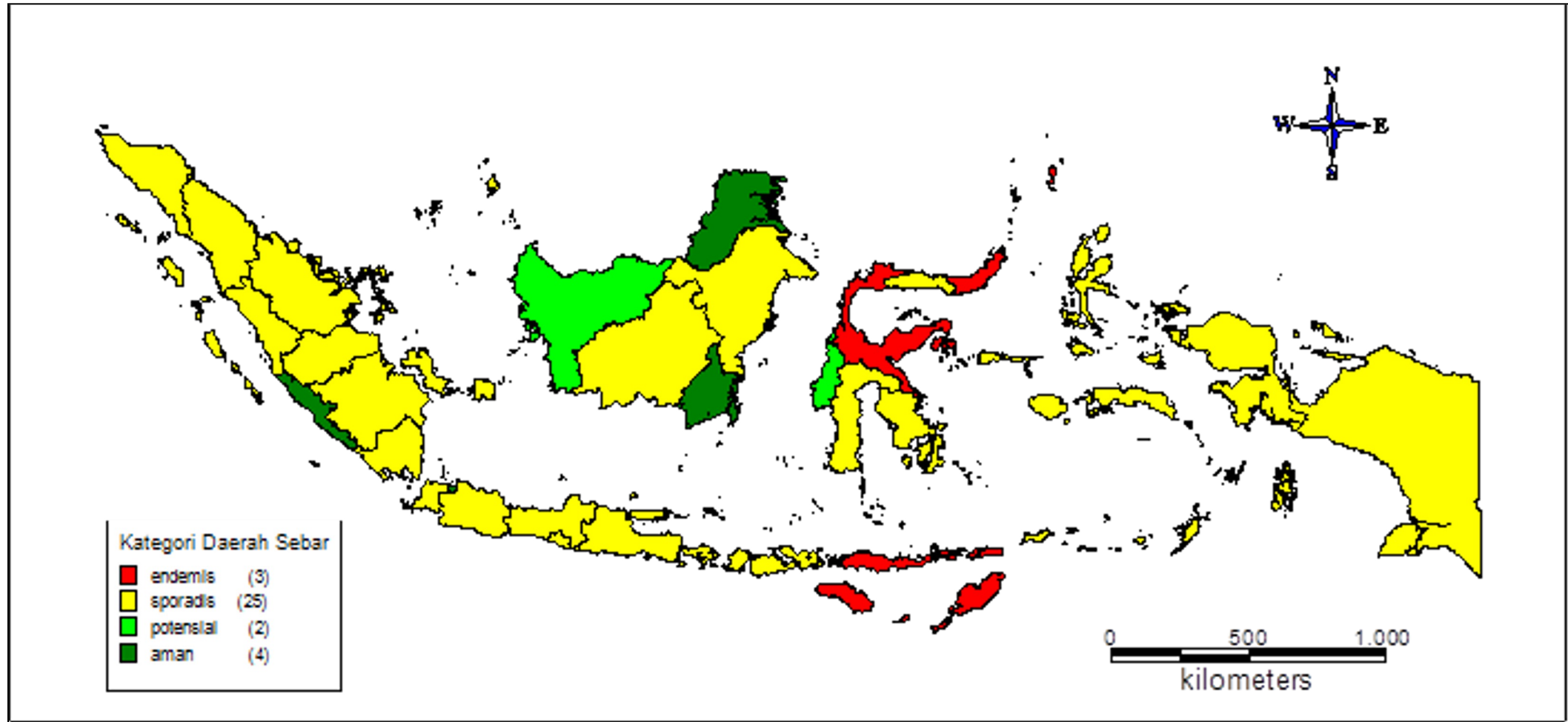
Distribution area map of *Oryctes rhinoceros* on Coconut Plant in Indonesia*



*) : Analyzed from 2016-2021 attack data



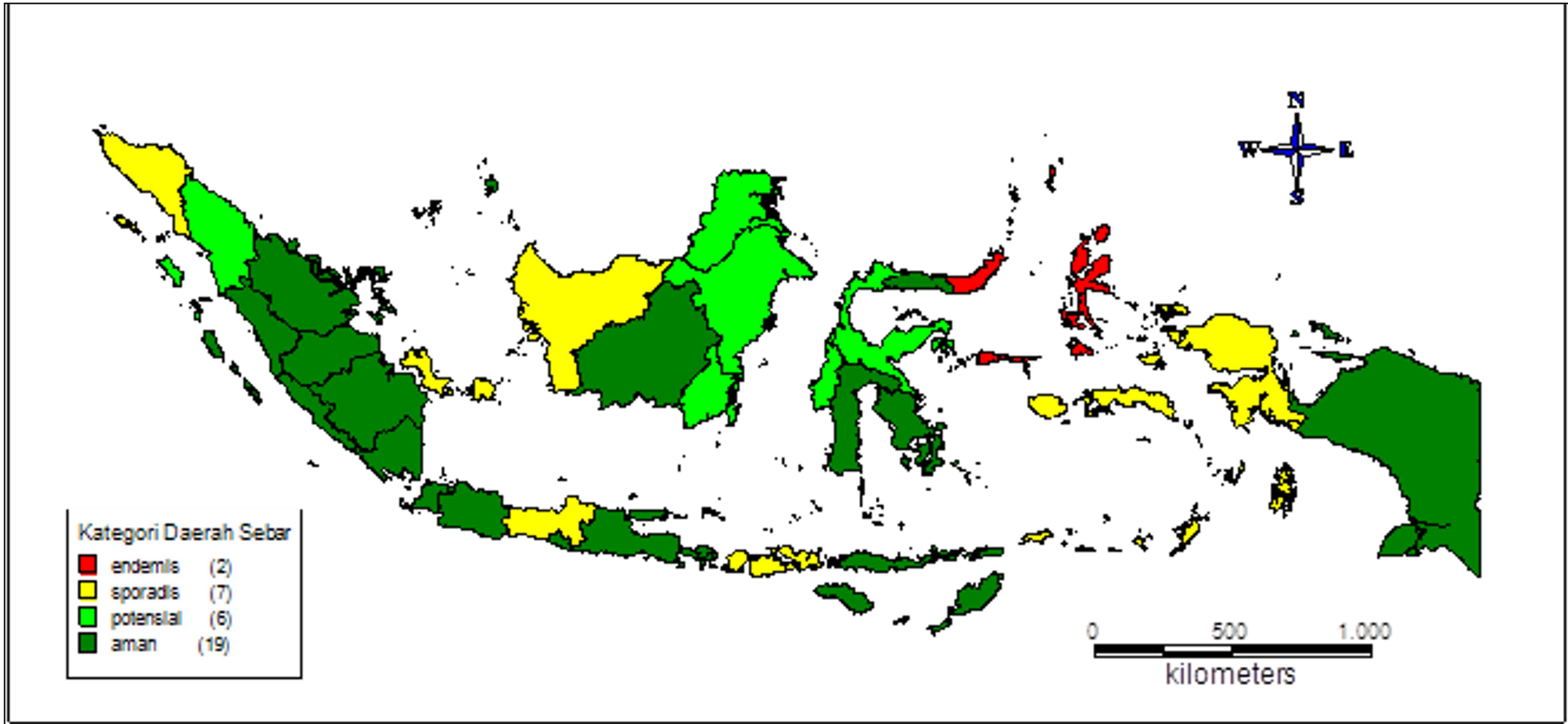
Distribution area map of *Brontispa longissima* on Coconut Plant in Indonesia*



*) : Analyzed from 2016-2021 attack data



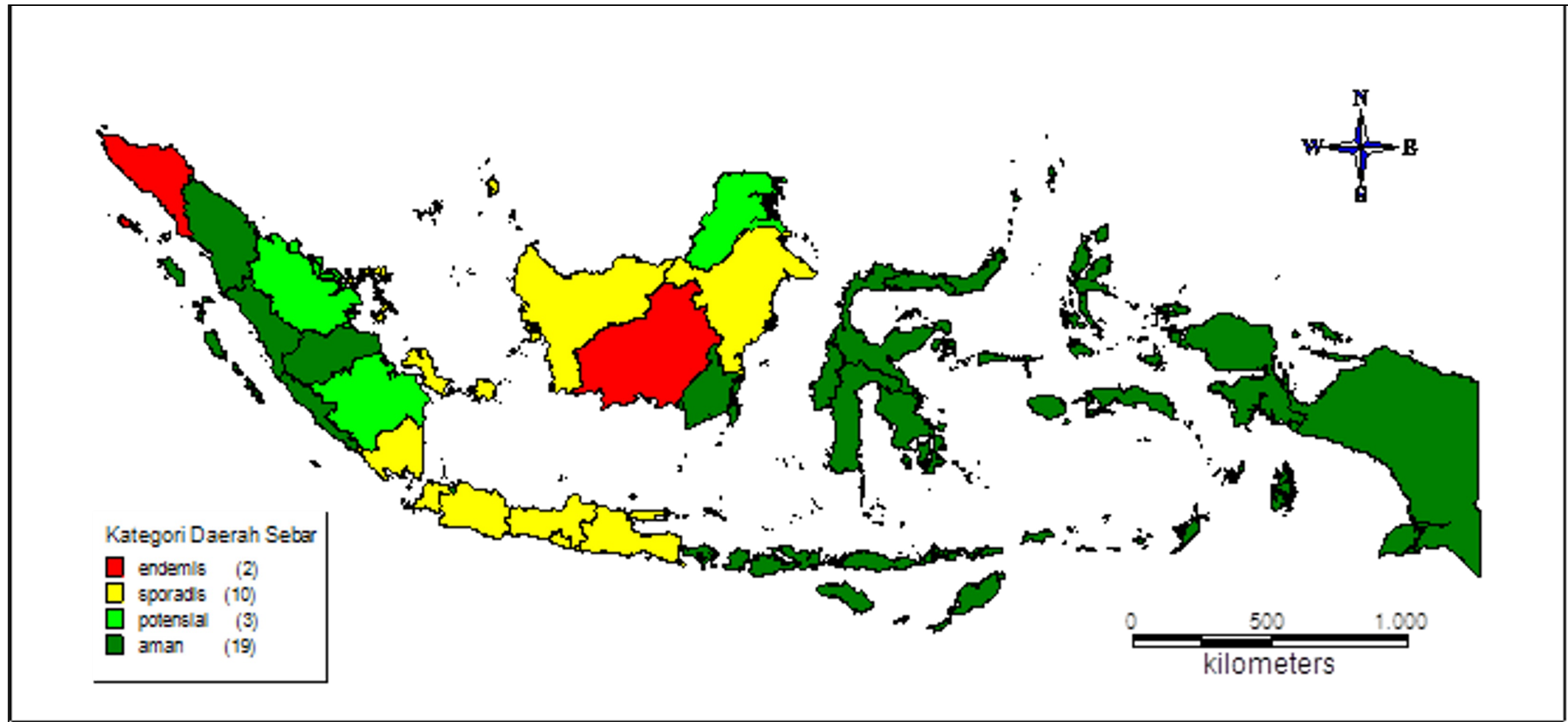
Distribution area map of *Sexava* spp. on Coconut Plant in Indonesia*



*) : Analyzed from 2016-2021 attack data



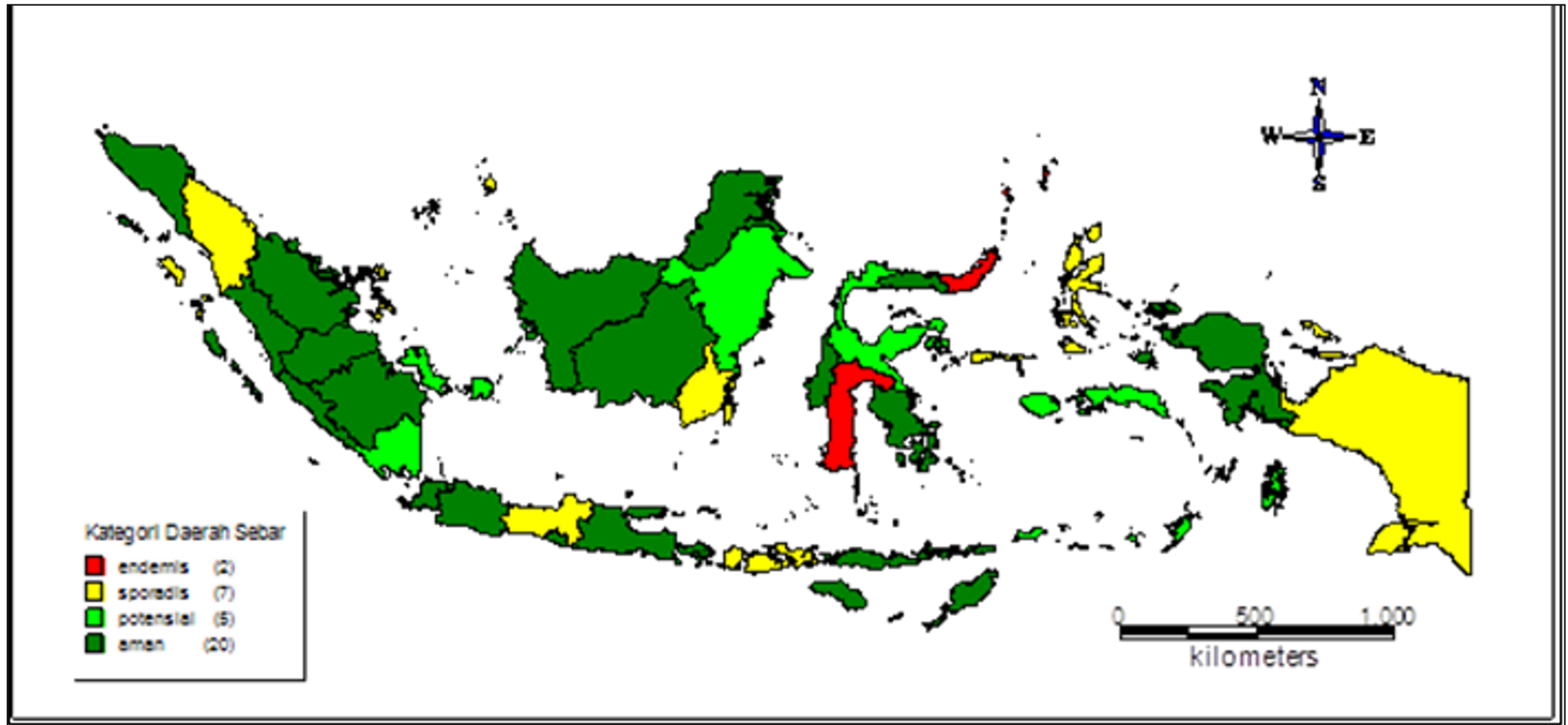
Distribution area map of *Arttona catoxantha* on Coconut Plant in Indonesia*



*) : Analyzed from 2016-2021 attack data



Distribution area map of Bud Rot Disease on Coconut Plant in Indonesia*



*) : Analyzed from 2016-2021 attack data



Handling the Threats

Pest & Disease Controlling on Coconut Plant

IMPLEMENTING THE INTEGRATED PEST MANAGEMENT (IPM) METHOD

What is Integrated Pest Management (IPM)?

- ❑ IPM concept emphasizes the management of pest and disease controlling environmentally safe without causing any damage for the ecosystem.
- ❑ Priority method to do in pest and disease controlling is using natural enemies and biological control agent.



Pest '*Oryctes rhinoceros*' Controlling

Physically/Mechanically

1. Eradicate all breeding sites of *Oryctes rhinoceros*
2. Installing nets 1 meter above ground level.

Technical Culture

Planting cover crop plant such as *Legumin ceae* family: *Mucuna Bracteata*



Cover crop *Mucuna bracteata*

Biological Method

Feromon trap
Metharhizium trap

Feromon Trap

Pheromone (etil-4 metil oktanoat) is being used to trap the imago as much as 1 set/ha

The ways to applying Pheromone trap?

1. Hang the Pheromone on the trap
2. Place the Pheromone around coconut plant
3. Duration of the Pheromone trap approximately 3 months



Installation of Pheromone trap



PEST CONTROL OF GRASSHOPPER (*Sexava spp.*)

Mechanical method

Collect and eradicate eggs and nymph of grasshopper as well as using fabric trap on Cocont's stem.



Biological method

Using parasitoid *Leefmanskia bicolor*, predator (*Lanius schach* bird, spider, rangrang, green frog) and entomopathogen such as *Metarhizium* sp.

Tanda Serangan Hama *Sexava nubila*

Technical Culture

Planting cover plants such as *Centrosema*, *Calopogonium* sp. etc



Black fabric trap blocking in the way of nymph and imago of *Sexava* spp. (source: hosang, 2021)



Lem serangga (lem lalat) yang dipasang pada batang kelapa (a), nimfa muda (b) dan nimfa tua (c) *Sexava* yang terperangkap



YOUNG COCONUT LEAF BEETLE PEST CONTROLLING (*Brontispa longissima*)

Physically

1

Cut off the infected young coconut leaf in order to eradicate the larva contained therein



eradicating the infected leaf

Technically culture

2

Planting of cover plants such as Leguminosae: *Mucuna Bracteata*



Cover crop *Mucuna bracteata*

Biological

3

Releasing parasitoid larvae and *Tetrastichus brontispae* pupa, carried out at 5 points diagonally as many as 25 parasitoid pupa per ha



Parasitoid *Tetrastichus brontispae*

MS-APH *Metarrhizium* Application (to control *Oryctes* sp. *Brontispa* sp. and *Sexava* spp.)

Materials:

Box with size 2x1x0,5 M;

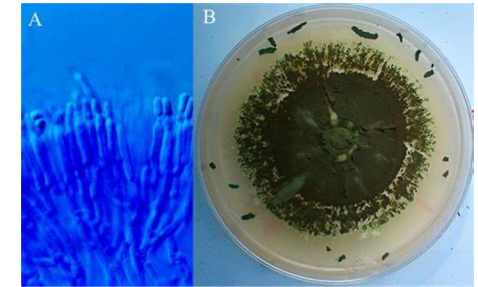
Water

Isolate of *Metarrhizium*

sp.

Organic materials

Litter of coconut leaf



A. *Metarrhizium* under microscope. B. isolate *Metarrhizium*

- Fill the box with organic materials up to 30 cm
- Mix the water and metarrhizium, then watering to the organic materials
- Cover up using litter of coconut leaf to keep its humidity
- 1 trap for 5 ha area
- Do the evaluation regularly every 2 weeks



After getting infected by *Metarrhizium* sp. a. larva *O. rhinoceros* b. imago *B. longissima* c. imago *Sexava* spp.



CONTROLLING OF *Rhynchophorus sp.*

Sanitation

Decrease the breeding site, eradicate the larva and imago once they found at first opportunity.

Using natural enemies such as:

Parasitoid larvae *Scolia erratica*, Nematoda entomopathogen at larval stage and imago (*Heterorhabditis indicus*, *Steinernema riobrave*, dan *S. carpocapsae*)





CONTROLLING OF *Rhynchophorus sp.*

Technically culture

- ❑ Chop down and eradicate all trees infected by the pest in order to remove source of disease around coconut plant.
- ❑ Controlling weeds aimed to reduce the host of vector insect.





COCONUT BUD ROT CONTROLLING

- ❑ All individual plants infected have to be eradicated while its pistil have to be burned to remove inoculum source
- ❑ Do the sanitation and leaf pruning in, so that the sunlight can penetrate to all part of plantation
- ❑ Build the rorak with size 150 x 40 x 50 cm among 5 individual plants of coconut and canal around the plantation
- ❑ Application of NPK fertilizer as recommended
- ❑ Application of APH *Trichoderma* sp. at the preliminary and at the end of rainy season..

COCONUT KALIMANTAN WILT CONTROLLING

- ❑ Chop down and eradicate all infected trees in order to remove pathogen source around Coconut plantation.
- ❑ Weeds controlling aimed to reduce the host of vector insect.





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Thank You