Bioversity International and the International Center for Tropical Agriculture (CIAT) are CGIAR Research Centers.
CGIAR is a global research partnership for a food-secure future.

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International Center for Tropical Agriculture
Since 1967 Science to cultivate change

Establishing sustainable solutions to cassava diseases in mainland Southeast Asia

Dr Jonathan Newby

Project Leader

Cassava Program Leader

j.newby@cgiar.org

Project Mid-term Review

21th February 2022

Background

- Cassava has become an important upland crop in terms of both rural livelihoods and economic development
- Cassava Witches Broom Disease (CWBD) is now widely distributed in SE Asia, with varying field level incidence and yield impact
- Sri Lanka Cassava Mosaic Virus (SLCMV) was first reported in in Cambodia in 2015 and is now present throughout the major producing regions of Cambodia, Vietnam, Thailand, with several outbreak now identified in Lao PDR

- **Aim -** The overall project aim is to enhance smallholder livelihoods and economic development in mainland SEA by improving the resilience of cassava production systems and value chains by addressing the rapidly evolving disease constraints.

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Develop a regional plan

CASSAVA MOSAIC DISEASE
REGIONAL EMERGENCY CONTROL PLAN
IN MAINLAND SOUTHEAST ASIA

Australian Aid

CIAT

CGIAR RESEARCH PROGRAM on Roots, Tubers and Bananas

Objectives of the proposal

To kick start the CMD plan of control, agreed by representatives of the four countries (Cambodia, Lao PDR, Thailand and Vietnam) and by members of international organizations.

Duration
2 years
2019–2020

Evaluation cost

Countries participants
Cambodia, Lao PDR, Thailand and Vietnam

Composition of the CMD Emergency Plan Steering Committee

Becerra, Luis Augusto (CIAT-Cali) l.a.becerra@cgiar.org
Fauquet, Claude (GCP21) c.fauquet@cgiar.org
Legg, James (IITA-Tanzania) j.legg@cgiar.org
Newby, Jonathan (CIAT-Laos) j.newby@cgiar.org
Cambodia: **Pich, Op** (GDA) oppich1970@gmail.com
Thailand: **Sorobol, Ed** (KU) agred@ku.ac.th
Vietnam: **Le Hui, Ham** (AGI) lhham@agi.ac.vn
Lao PDR: **Phichaksoun, Siriphonh** (IPPC) syriphonh@gmail.com
Assistant to the committee:
Sok, Sophearith (CIAT-Cambodia) s.sok@cgiar.org

mary

s, the first publication of the cassava mosaic disease (CMD) lished, reporting the unequivocal identification of the Sri assava mosaic virus as responsible for CMD symptoms in ast of Cambodia as early as 2015, although it is not known e disappeared first in this location and country. Since that surveys have been conducted in Cambodia, Vietnam and s of mid 2018, the disease was present in 6 provinces in 0 in Vietnam, and now 3 provinces in Thailand. There et reported in Laos. In 3 years, the disease reports ngle plantation in Cambodia to an estimated 10% ated in the whole region. Therefore, the impact nding quickly. The disease is transmitted in al whitefly vector (presumably *Bemisia tabaci*, cassava cuttings. There is no transmission seeds. There is a very active cassava stake inces of Cambodia and between Cambodia hough there is clearly insect transmission currently the disease is mostly spread the importance of cassava in the region

(~55 million tons/year and >$10 billion business), urgent action is needed to stop the spread and put CMD under control. To this effect, the Global Cassava Partnership of the 21st Century (GCP21) and the International Center for Tropical Agriculture (CIAT), with additional funding from the Australian Centre for International Agricultural Research (ACIAR), organized a regional workshop on 18–20 September 2018, in Phnom Penh, Cambodia, aiming at establishing a unique regional plan of control of CMD in Cambodia. The workshop gathered 75 people belonging to International organizations, officers from the Ministries of Agriculture and Commerce of the four countries, donor representatives and communication experts. The outcome of the workshop is a list of recommendations in four different topics: Policy, Market Engagement, and Communication; Surveillance and Diagnostics; Virus-free Seed Multiplication; and Testing and Breeding Resistant Material (www.gcp21.org/meetings2018.html). This report provides the complete list of recommendations and also outlines the urgent need to put in place an immediate CMD Emergency Plan. The current proposal is a concept note briefly illustrating the Emergency Plan for fundraising purposes.

GCP21

Australian Government
Australian Centre for International Agricultural Research

CGIAR RESEARCH PROGRAM ON Roots, Tubers and Bananas

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Project Objective

Australian Government
Australian Centre for International Agricultural Research

CGIAR RESEARCH PROGRAM ON Roots, Tubers and Bananas

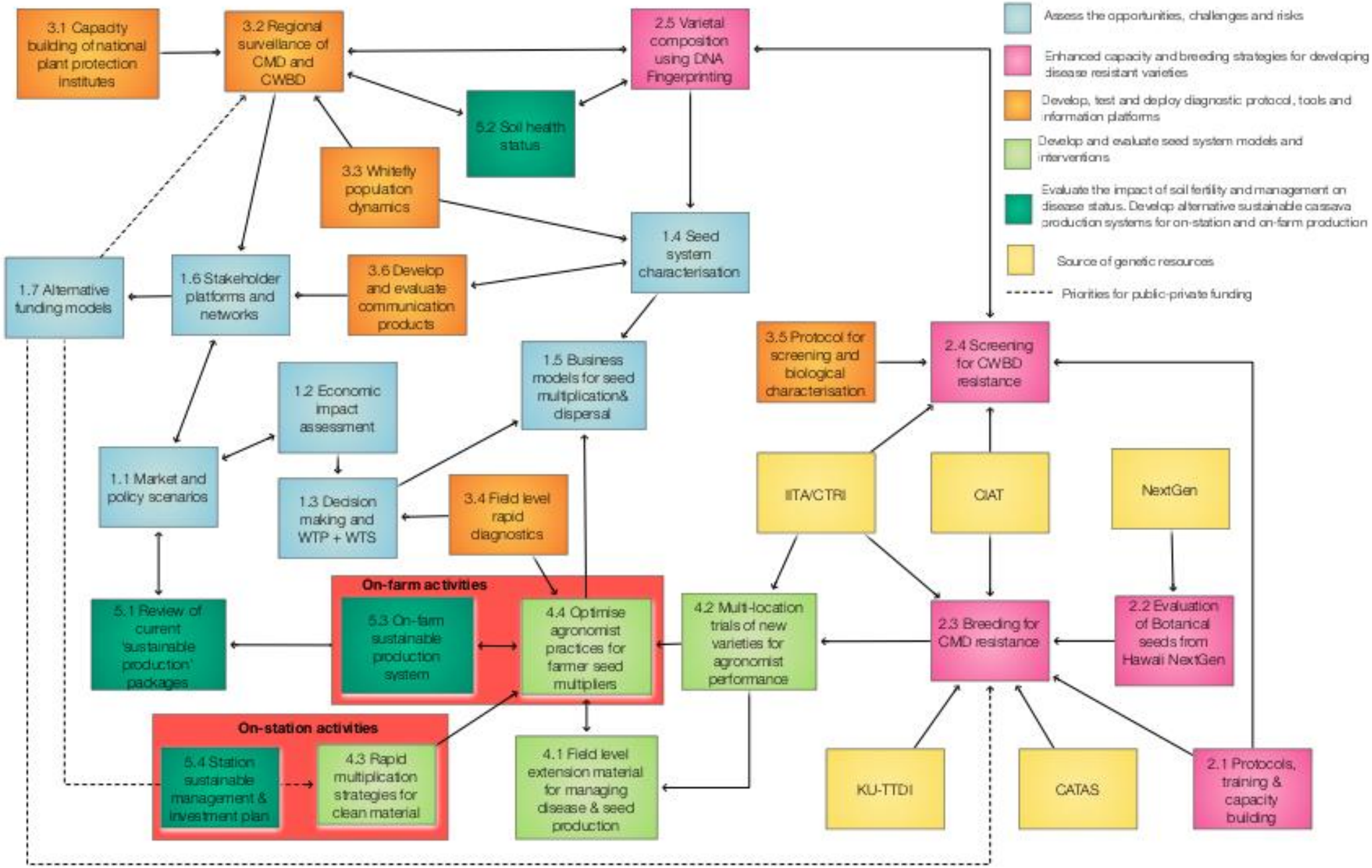
- **Objective 1**: Assess the opportunities, challenges and risks for the development of sustainable regional solutions for cassava disease management in mainland SEA including coordinated policy development, sustainable business and public-private funding models;
- **Objective 2**: Enhance the capacity and collaboration between breeding programs in mainland Southeast Asia to develop new product profiles for commercially viable cassava varieties by identifying and incorporating known and novel sources of resistance to Cassava Mosaic Disease (CMD) and Cassava Witches Broom Disease (CWBD) into national breeding programs:
- **Objective 3**: Develop, test and deploy diagnostic protocols, tools, and information platforms fit for purpose in monitoring, surveillance, and certification applications; and
- **Objective 4**: Develop and evaluate technically feasible and economically sustainable cassava seed system models for the rapid dissemination of new varieties and clean planting material to smallholder farmers in different production systems and value chains.
- ***Objective 5****: Evaluate the impact of soil fertility status and management practices on the prevalence, incidence, and severity of cassava disease. Co-develop and evaluate alternative cropping-system options relevant in different biophysical, social and market contexts that mitigate the impact of disease and improve the overall sustainability of smallholder cassava production.*

Transdisciplinary teams, engaging with stakeholders, to achieve impact at scale across Southeast Asia

Three key features of this project are:

1. **Transdisciplinary** research team and work packages;
2. **Engagement with value chain actors** (core actors - *farmers, traders, processors, exporters*, and supporting - *extension, input suppliers, credit etc*); and
3. **Regional scale** of the partnerships and networks developed.

All three elements are critical to maximising the research outputs and ensuring they are utilised by next users and rapidly scaling to target farmers across borders into the regional cassava economy.


3.1 Capacity building of national plant protection institutes
3.2 Regional surveillance of CMD and CWBD
2.5 Varietal composition using DNA Fingerprinting
5.2 Soil health status
3.3 Whitefly population dynamics
1.4 Seed system characterisation
1.7 Alternative funding models
1.6 Stakeholder platforms and networks
3.6 Develop and evaluate communication products
1.5 Business models for seed multiplication& dispersal
3.5 Protocol for screening and biological characterisation
2.4 Screening for CWBD resistance
1.2 Economic impact assessment
1.1 Market and policy scenarios
1.3 Decision making and WTP + WTS
3.4 Field level rapid diagnostics
IITA/CTRI
CIAT
NextGen
On-farm activities
5.1 Review of current 'sustainable production' packages
5.3 On-farm sustainable production system
4.4 Optimise agronomist practices for farmer seed multipliers
4.2 Multi-location trials of new varieties for agronomist performance
2.3 Breeding for CMD resistance
2.2 Evaluation of Botanical seeds from Hawai NextGen
On-station activities
5.4 Station sustainable management & investment plan
4.3 Rapid multiplication strategies for clean material
4.1 Field level extension material for managing disease & seed production
KU-TTDI
CATAS
2.1 Protocols, training & capacity building
Assess the opportunities, challenges and risks
Enhanced capacity and breeding strategies for developing disease resistant varieties
Develop, test and deploy diagnostic protocol, tools and information platforms
Develop and evaluate seed system models and interventions
Evaluate the impact of soil fertility and management on disease status. Develop alternative sustainable cassava production systems for on-station and on-farm production
Source of genetic resources
Priorities for public-private funding

A regional research partnership

Inception meeting presentations

Supported by

Australian Government
Australian Centre for International Agricultural Research

CGIAR RESEARCH PROGRAM ON Roots, Tubers and Bananas

Alliance Bioversity International CIAT

Outputs

1. Commercially competitive and acceptable cassava varieties resistant to CMD and yield higher than the existing varieties under disease pressure through a process of screening, breeding and selection;
2. Source of resistance to CWBD identified and introduced into cassava breeding programs;
3. Enhanced regional diagnostic protocols, tools and information platforms fit for purpose in monitoring, surveillance, and certification applications across scales;
4. Models for the development of economically sustainable cassava seed systems for the rapid dissemination of new varieties and clean planting material to farmers in different value chains.
5. *Cropping system options to mitigate the impacts of cassava disease and improve the productivity and sustainability of smallholder cassava cultivation**

** Additional objective added in variation 2*

Australian Aid

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Since 1967 Science to cultivate change

Establishing sustainable solutions to cassava diseases in mainland Southeast Asia

Project Inception Meeting

11-13th September 2019, Rashmi Hotel, Vientiane, Lao PDR

With support from: CGIAR Research Program on Roots, Tubers and Bananas; Global Cassava Partnership for the 21st Century; NAFRI

Mid-term review

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Mid-term review program

Mid-term review program

	Monday	Tuesday	Wednesday	Thursday	Friday
Title	Overview and stakeholder engagement	Diagnostic and Surveillance	Breeding and selection	Agronomy, seed systems and business models	Scaling and sustainability Next steps
Online presentation	**Presentations**	**Presentations**	**Presentations**	**Presentations**	
Live Discussion 8-11 am ASIA 12-3pm ACT 8-11pm Cali	https://zoom.us/j/94187570195?pwd=TmVXRkdGKzhrSldQdXlEQVBESnI0UT09	https://zoom.us/j/93879907147?pwd=dmFrcUJ0di9VMDZSSDRiZWRUbUtyZz09	https://zoom.us/j/99319500594?pwd=dUNYZTVtOTNOaks5bW1oSFlKenoyUT09	https://zoom.us/j/97541060745?pwd=WFFMaXdkMUhRcitBNm5VR25BdkUrUT09	https://zoom.us/j/97990282574?pwd=dm92MW9QVGQzWUl3aUQ3dmorRVY2QT09
Discussion Board	Markets outlook Partnerships & Business models	Diagnostics & Surveillance	Breeding	Seed systems & Agronomy	Impact at scale Future R&D

Update & Highlights

Market demand remains strong pushing out the extensive margin.

Villagers harvest their cassava crop for sale to neighbouring countries.

Cassava tops list of Laos' agricultural exports

Times Reporters

The export value of Laos' cassava crop exceeded that of bananas last year, making cassava the top of earner among all agricultural products.

Large numbers of farmers are now growing cassava after the government banned the development of more banana plantations and the market price of rubber fell.

Foreign sales of the root crop hit US$274 million while earnings from banana exports amounted to US$235 million, according to the Ministry of Industry and Commerce.

In 2020, earnings from the sale of bananas to neighbouring countries, mainly China and Thailand, rose to about US$227.4 million with the crop heading the list of all agricultural products, but last year bananas dropped to third place after cassava and rubber.

This was because hundreds of tonnes of bananas destined for China were held up at the Boten International Checkpoint when the border crossing closed on October 25 because of restrictions imposed during the Covid-19 outbreak.

The fruit was distributed free to local people so that it did not entirely go to waste.

Trucks loaded with bananas were able to enter China when the border reopened on November 5, although the backlog of trucks that has built up is still slow to clear and is causing congestion.

Under Covid-19 control measures imposed by Chinese authorities, only 100 trucks may enter China from Laos each day, meaning that long queues of trucks are forming at the border and along the roadside.

Other key agricultural export earners for Laos are sugar, fertiliser, coffee beans, watermelons, grapefruit, tamarind, maize and rice, according to the ministry.

In 2018 Laos earned US$600 million from the export of agricultural produce, rising to US$750.8 million in 2019 and US$943 million in 2020 but falling to US$900 million last year, with 80 percent of all produce being sold to China.

The Ministry of Agriculture and Forestry has approved a list of crops, crop products and controlled substances that are a priority for negotiation in opening up the market for the sale of goods to China.

The top priority crops are sweet potatoes, tobacco, jackfruit, longan, oranges, grapefruit, dragon fruit, chillies, passion fruit, soybeans, green beans, peanuts, eggplant, cabbage and pumpkins.

Crops named as a second priority are tea, Job's tear, rubber, melons, sugarcane, limes, pineapples, coconut, papaya, rambutan, guava, sweetcorn and cardamom.

The Lao government is working with various sectors and businesses to improve the quality of agricultural produce in a bid to increase exports to China.

National January 4, 2022

Non-rice agricultural product export nets $3.16 Billion in 2021

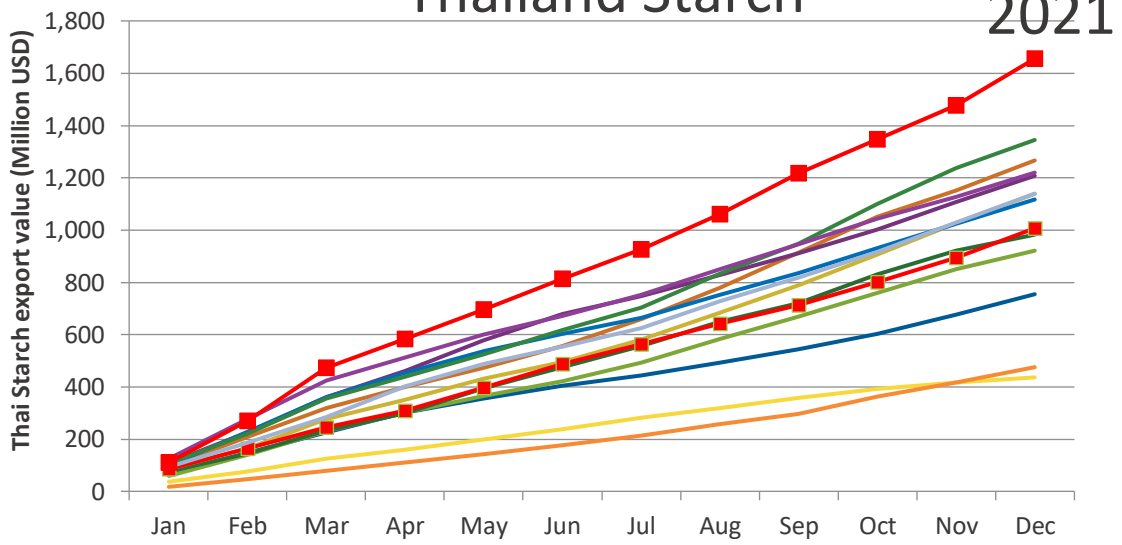
Khmer Times /

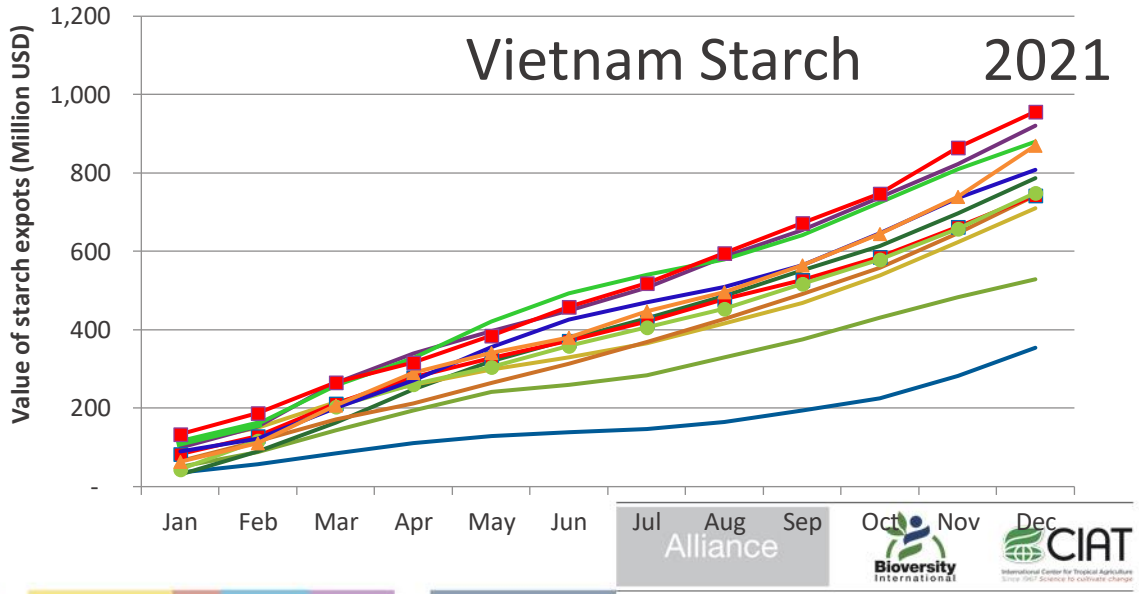
Click here to get Khmer Times Breaking News direct into your Telegram

Cambodia exported some 5.18 million tonnes of non-rice agricultural products in 2021, a 48.14 percent increase compared to the same period last year.

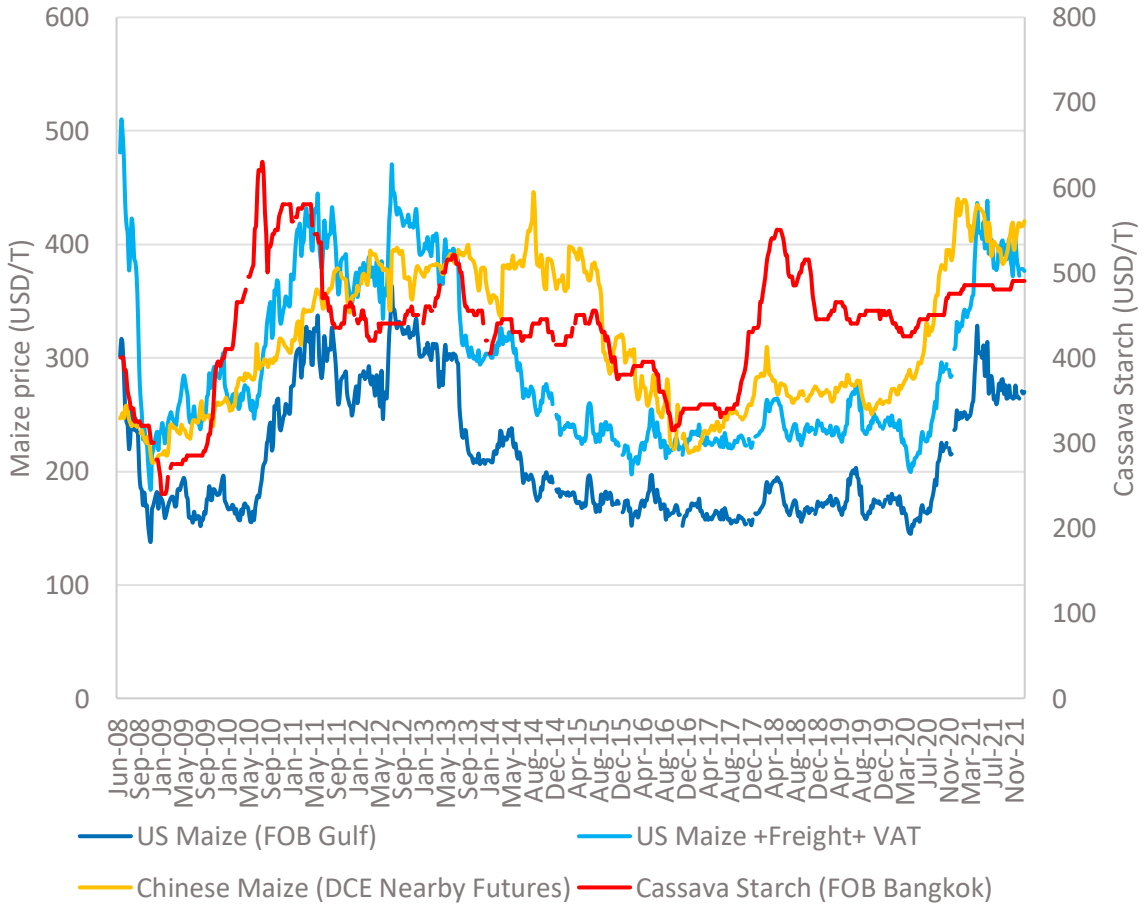
Figures from the Ministry of Agriculture, Forestry, and Fisheries showed that the commodity exports earned $3.16 billion in value.

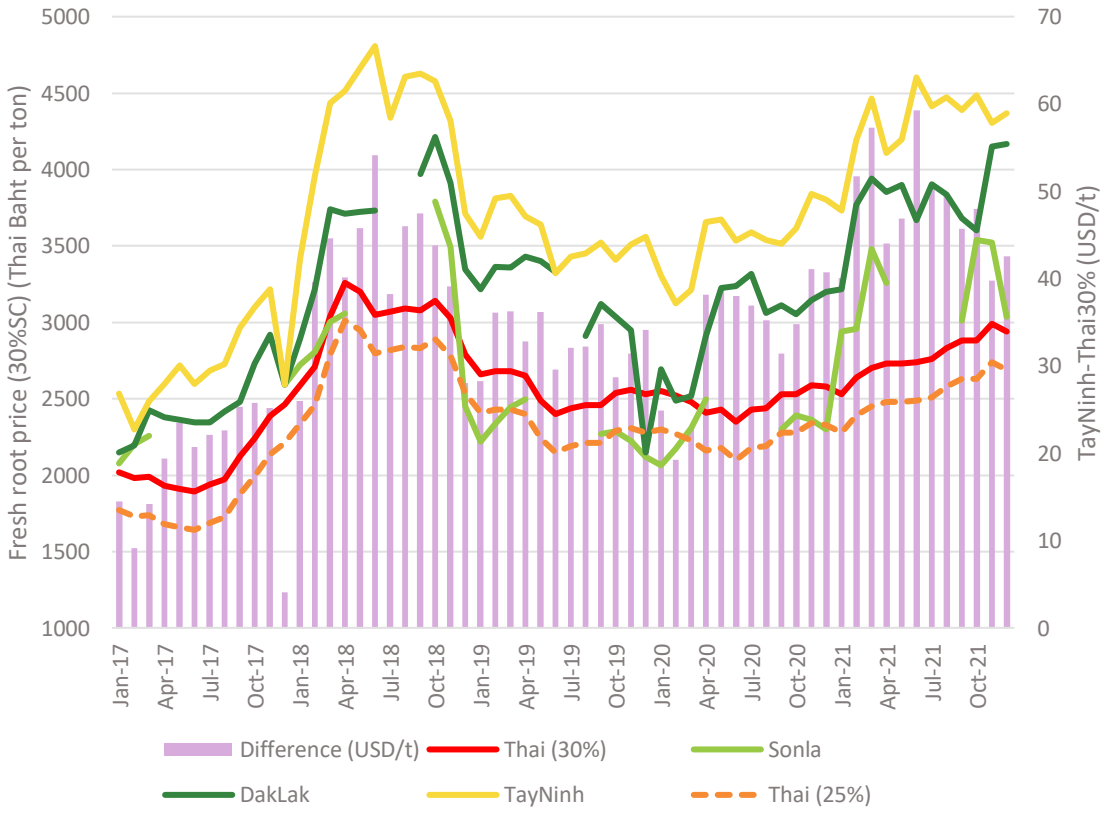
Cassava, cashew nut, mango, banana, and pepper were among the potential and main non-rice agricultural products the Kingdom had exported last year.

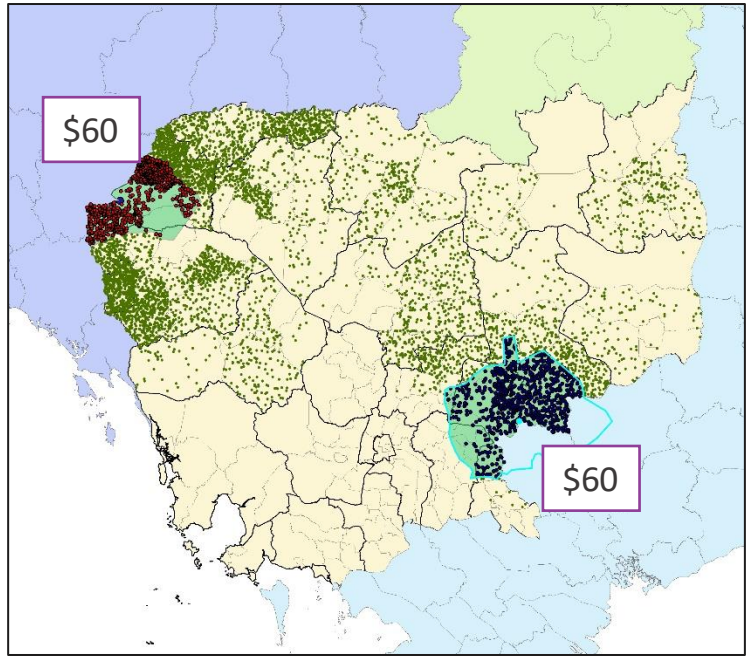




Global price, transport costs, farm gate prices, influence the direction roots move and connection to between actors



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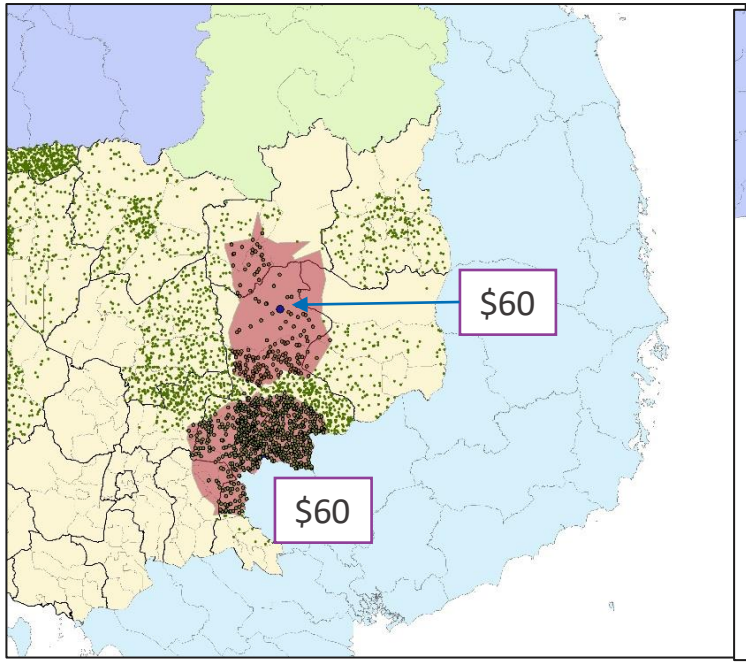
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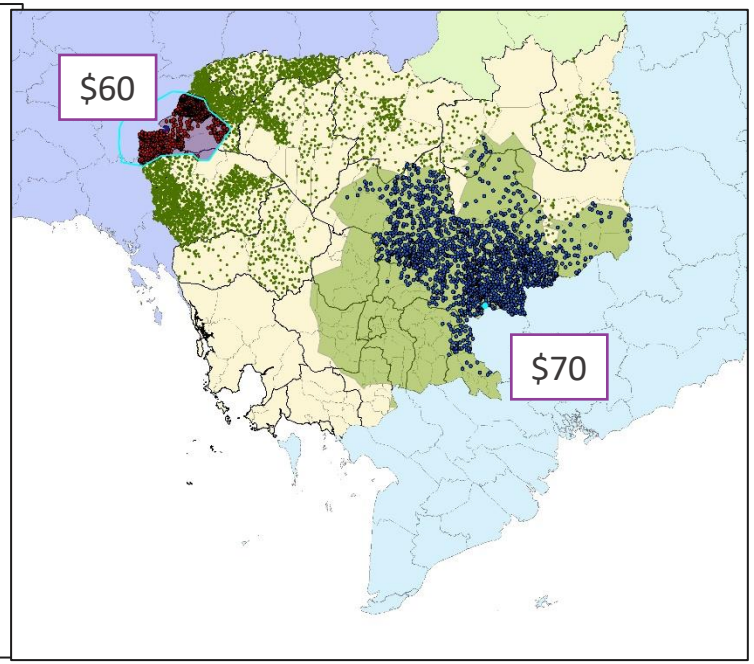
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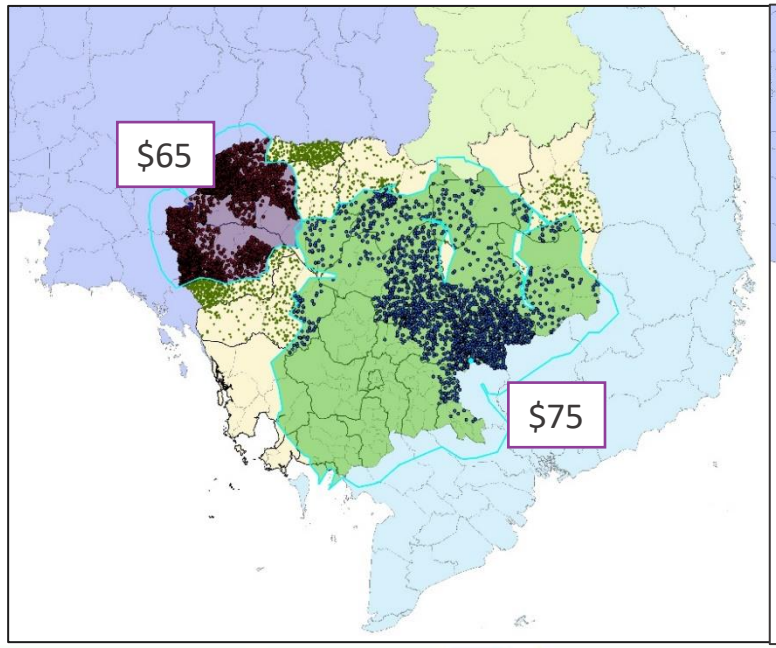
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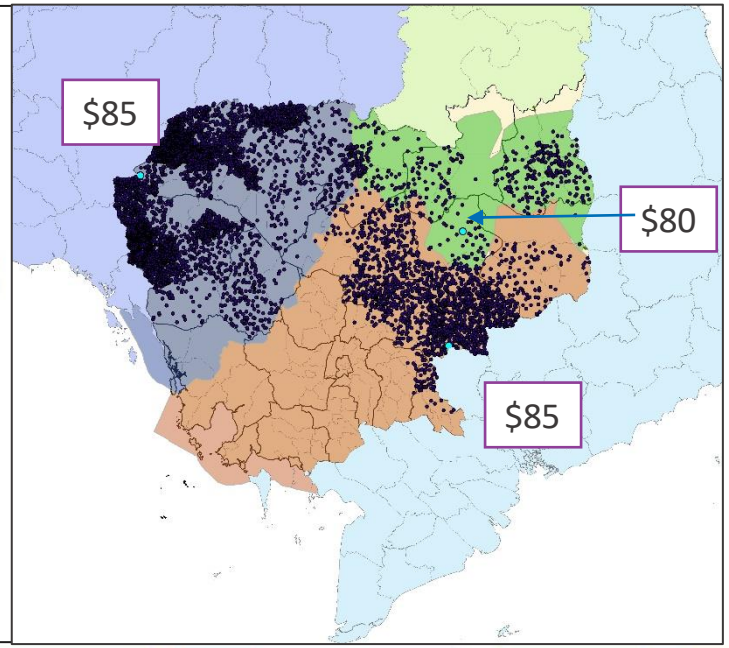
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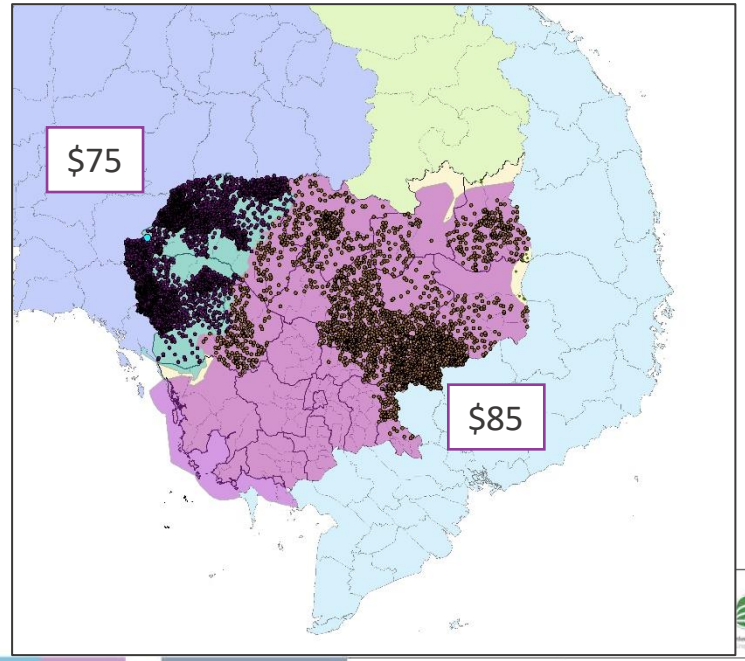
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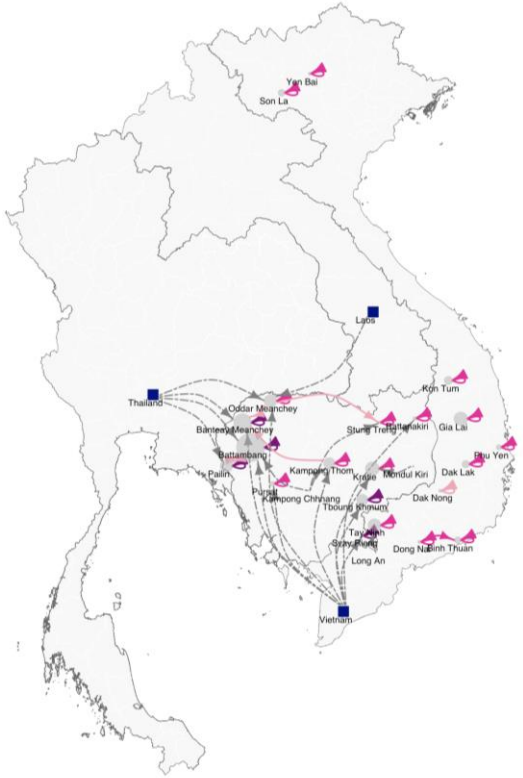
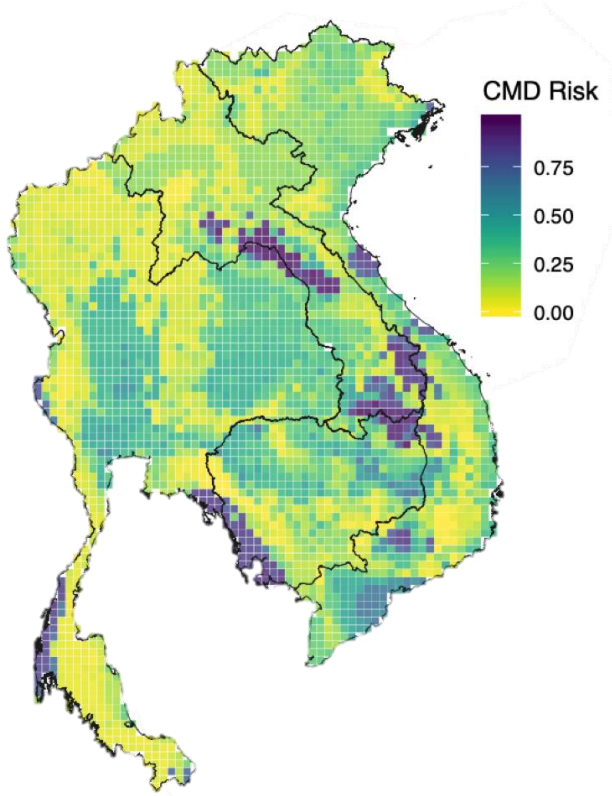
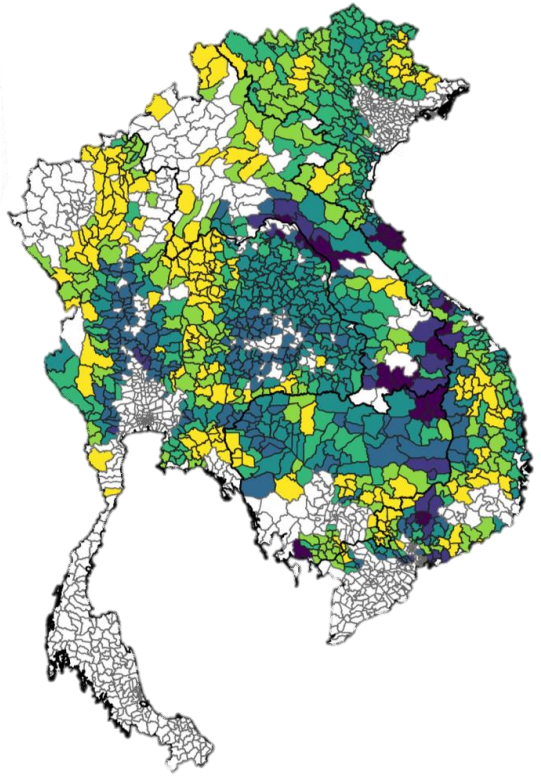
Seed exchange



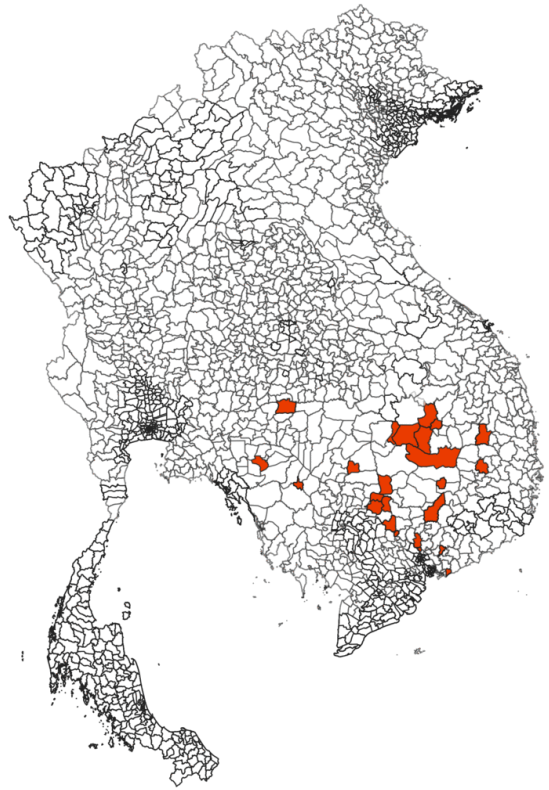
CMD presence and climate favorability



Combined model



Scenario simulations



Data-based simulation of clean seed deployment:

1) Locations for surveillance
2) Effects of trade restrictions
3) Different clean seed deployment strategies

UF IFAS
UNIVERSITY of FLORIDA

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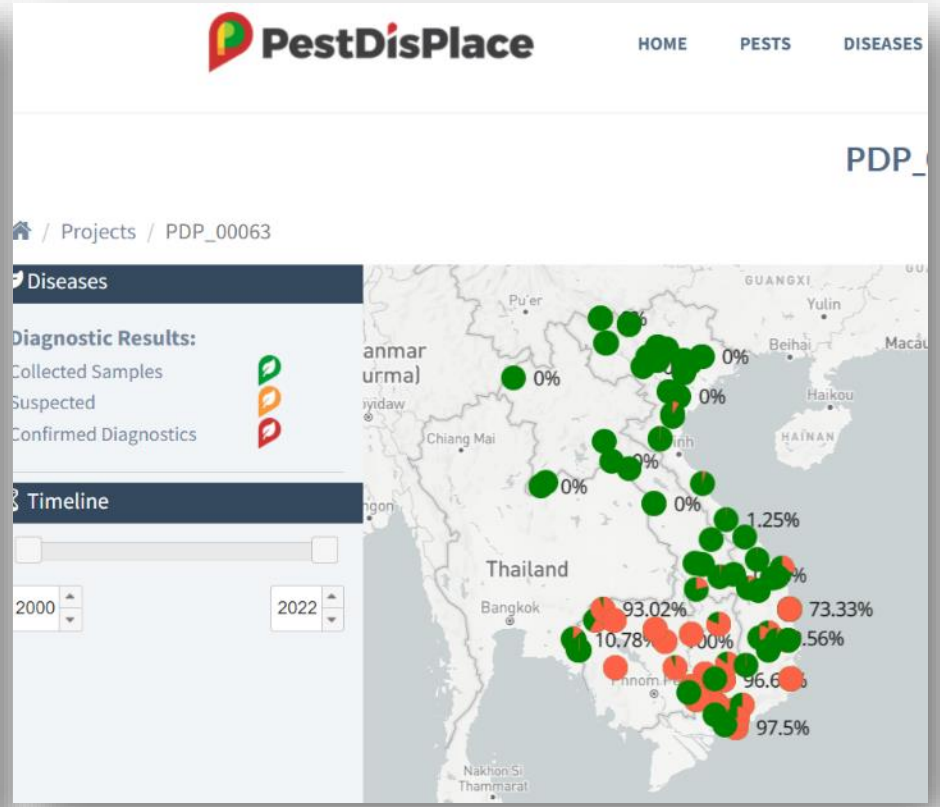
Assessment of farmer demand (WTP) for cassava stems of different quality status

Surveillance and diagnostics

SOP, Regional surveillance & information platforms



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First report and awareness raising leads to early detection

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Interventions in infected fields and destruction of infected stems made possible through rapid (1hr) in-field diagnostics

Challenges remain when smallholders have invested in the crop

Extension information

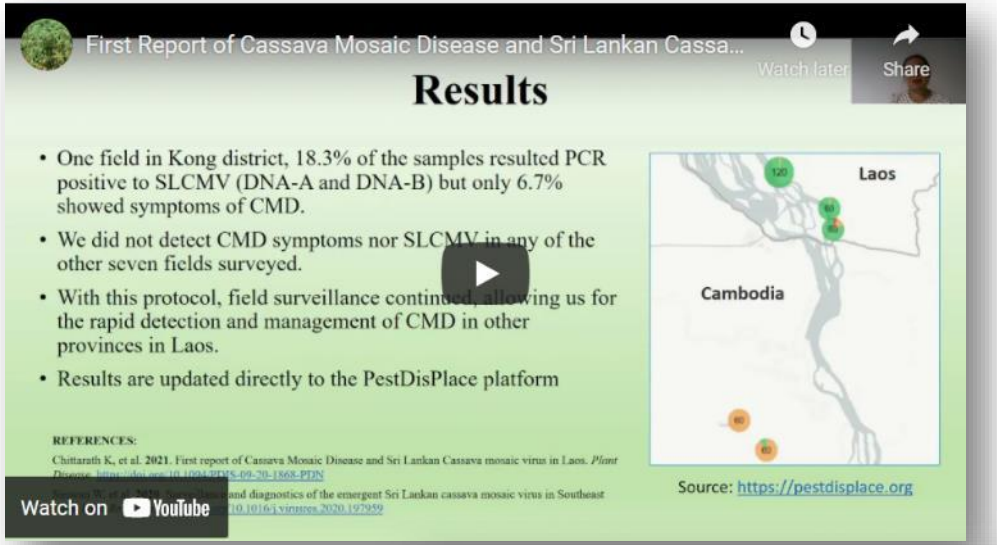
ພະຍາດໃບດ່າງມັນຕົ້ນ ຫຼື Cassava mosaic disease (CMD in Lao PDR)

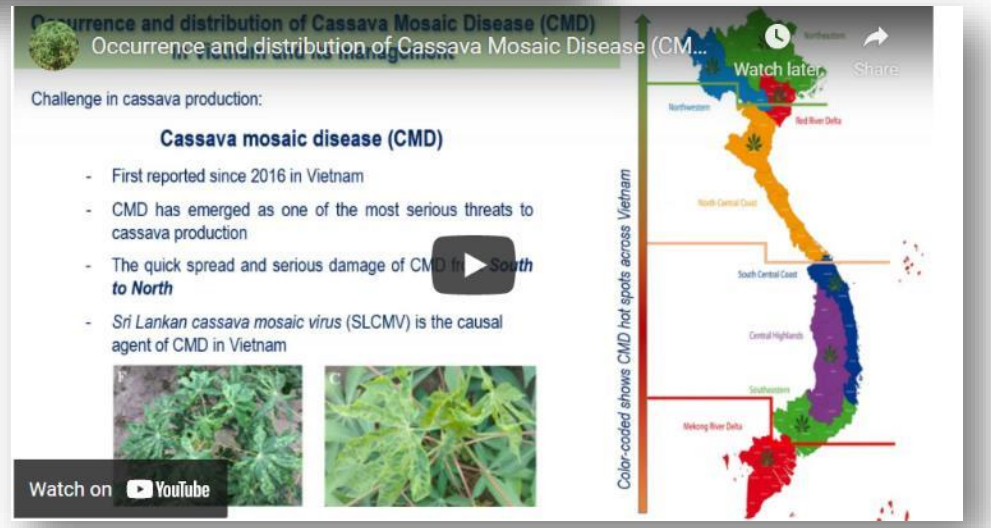
ບໍລິການ-ສົ່ງເສີມກະສິກຳຮອບດ້ານ ขสกธ
LURAS Lao Upland Rural Advisory Service

CAVAC Innovation in Agriculture

Alliance Bioversity International CIAT

Three presentations at the Australasian Plant Pathology Society Online Conference 2021





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Enhance the capacity and collaboration between breeding programs

Transfer of genetic resources between continents and countries

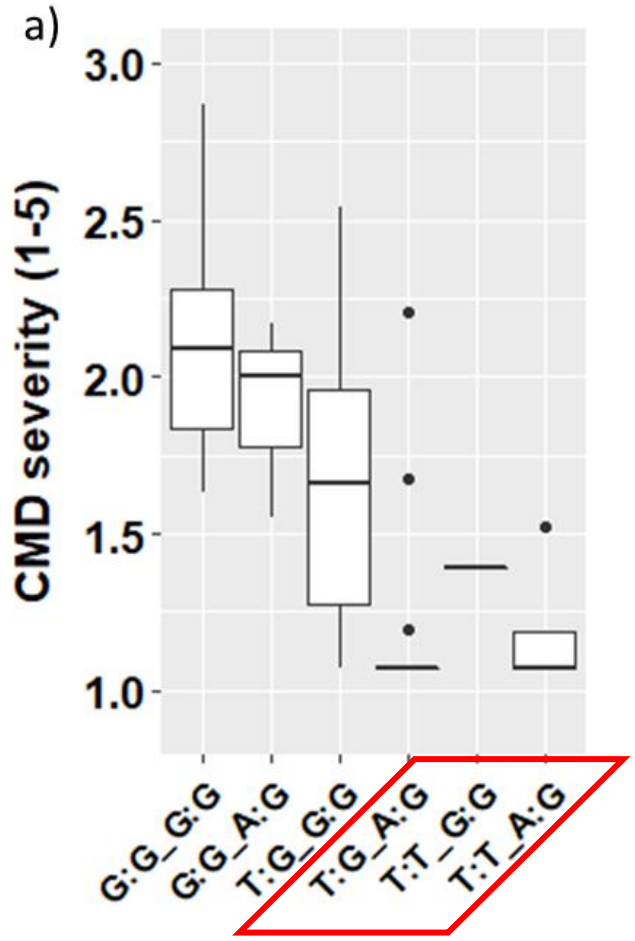
Introduction of new breeding techniques

Sonla – NOMAFSI Station

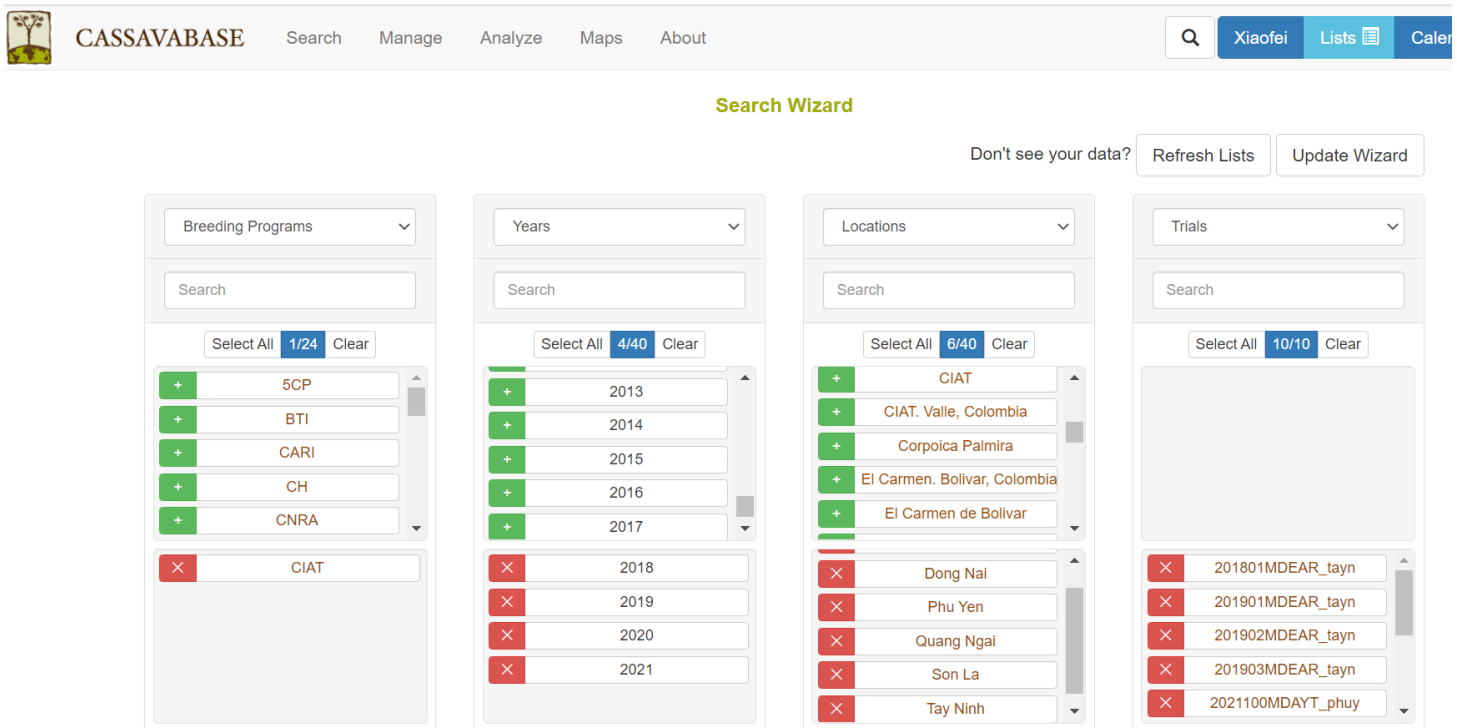
Lam Dong

Introduction of new breeding techniques

Implement **Marker-Assisted Selection**



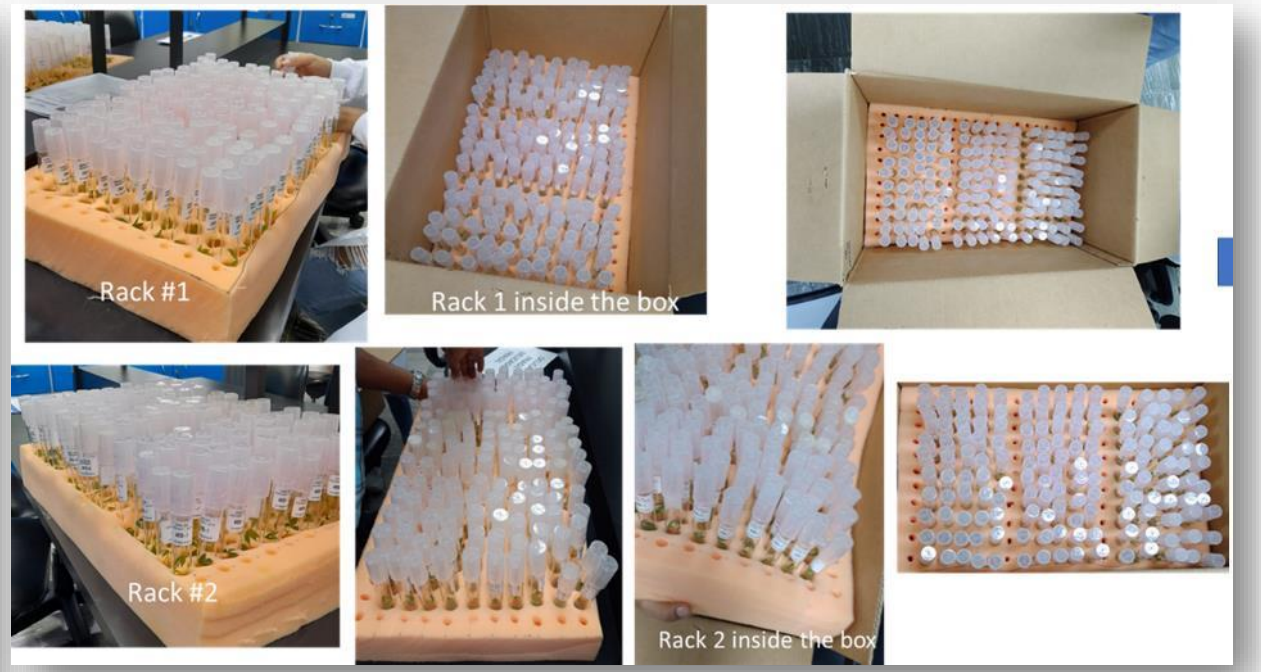
Manage data using **database**



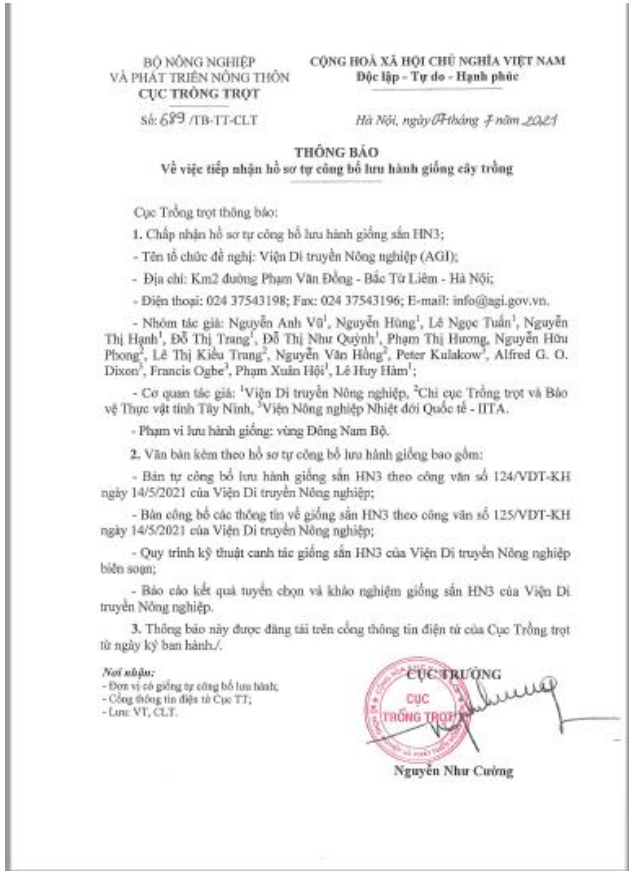
Multi-location evaluation in Vietnam informing introductions to Thailand, Cambodia, Laos

Vietnam

Colombia to Cambodia & Laos



CMD resistant varieties (6) releases in Vietnam



BỘ NÔNG NGHIỆP
VÀ PHÁT TRIỂN NÔNG THÔN
CỤC TRỒNG TRỌT

Số: 689 /TB-TT-CLT

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 07 tháng 5 năm 2021

THÔNG BÁO
Về việc tiếp nhận hồ sơ tự công bố lưu hành giống cây trồng

Cục Trồng trọt thông báo:

1. Chấp nhận hồ sơ tự công bố lưu hành giống sắn HN3;

- Tên tổ chức đề nghị: Viện Di truyền Nông nghiệp (AGI);
- Địa chỉ: Km2 đường Phạm Văn Đồng - Bắc Từ Liêm - Hà Nội;
- Điện thoại: 024 37543198; Fax: 024 37543196; E-mail: info@agi.gov.vn.
- Nhóm tác giả: Nguyễn Anh Vũ[1], Nguyễn Hùng[1], Lê Ngọc Tuấn[1], Nguyễn Thị Hạnh[1], Đỗ Thị Trang[1], Đỗ Thị Như Quỳnh[1], Phạm Thị Hương, Nguyễn Hữu Phong[2], Lê Thị Kiều Trang[2], Nguyễn Văn Hồng[2], Peter Kulakow[3], Alfred G. O. Dixon[3], Francis Ogbe[3], Phạm Xuân Hội[1], Lê Huy Hàm[1];
- Cơ quan tác giả: [1]Viện Di truyền Nông nghiệp, [2]Chi cục Trồng trọt và Bảo vệ Thực vật tỉnh Tây Ninh, [3]Viện Nông nghiệp Nhiệt đới Quốc tế - IITA.
- Phạm vi lưu hành giống: vùng Đông Nam Bộ.

2. Văn bản kèm theo hồ sơ tự công bố lưu hành giống bao gồm:

- Bản tự công bố lưu hành giống sắn HN3 theo công văn số 124/VDT-KH ngày 14/5/2021 của Viện Di truyền Nông nghiệp;
- Bản công bố các thông tin về giống sắn HN3 theo công văn số 125/VDT-KH ngày 14/5/2021 của Viện Di truyền Nông nghiệp;
- Quy trình kỹ thuật canh tác giống sắn HN3 của Viện Di truyền Nông nghiệp biên soạn;
- Báo cáo kết quả tuyển chọn và khảo nghiệm giống sắn HN3 của Viện Di truyền Nông nghiệp.

3. Thông báo này được đăng tải trên cổng thông tin điện tử của Cục Trồng trọt từ ngày ký ban hành./.

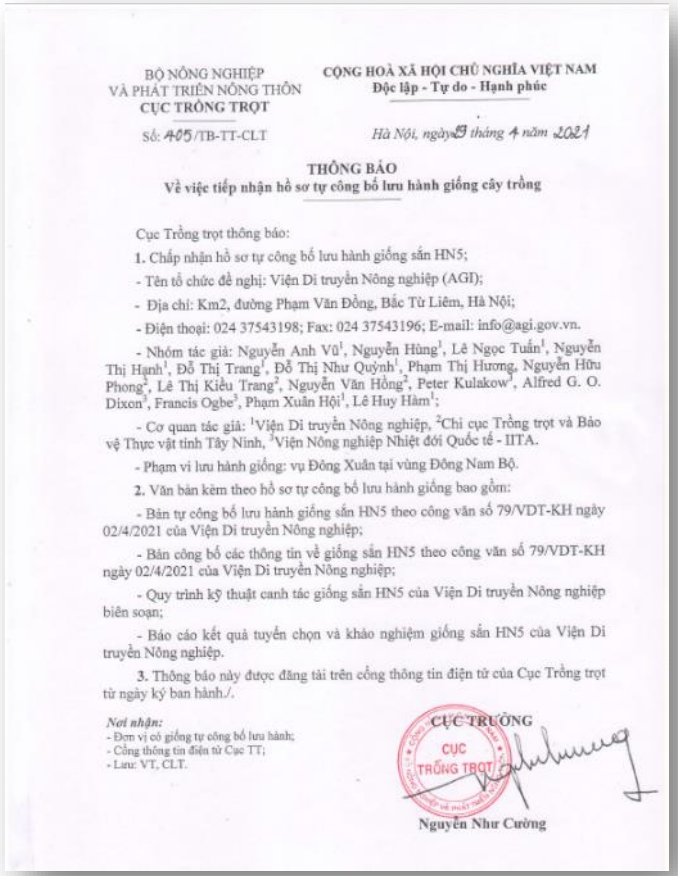
Nơi nhận:
- Đơn vị có giống tự công bố lưu hành;
- Cổng thông tin điện tử Cục TT;
- Lưu: VT, CLT.

CỤC TRƯỞNG

CỤC TRỒNG TRỌT

Nguyễn Như Cường

Hanoi 3



BỘ NÔNG NGHIỆP
VÀ PHÁT TRIỂN NÔNG THÔN
CỤC TRỒNG TRỌT

Số: 405 /TB-TT-CLT

CỘNG HOÀ XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

Hà Nội, ngày 13 tháng 4 năm 2021

THÔNG BÁO
Về việc tiếp nhận hồ sơ tự công bố lưu hành giống cây trồng

Cục Trồng trọt thông báo:

1. Chấp nhận hồ sơ tự công bố lưu hành giống sắn HN5;

- Tên tổ chức đề nghị: Viện Di truyền Nông nghiệp (AGI);
- Địa chỉ: Km2, đường Phạm Văn Đồng, Bắc Từ Liêm, Hà Nội;
- Điện thoại: 024 37543198; Fax: 024 37543196; E-mail: info@agi.gov.vn.
- Nhóm tác giả: Nguyễn Anh Vũ[1], Nguyễn Hùng[1], Lê Ngọc Tuấn[1], Nguyễn Thị Hạnh[1], Đỗ Thị Trang[1], Đỗ Thị Như Quỳnh[1], Phạm Thị Hương, Nguyễn Hữu Phong[2], Lê Thị Kiều Trang[2], Nguyễn Văn Hồng[2], Peter Kulakow[3], Alfred G. O. Dixon[3], Francis Ogbe[3], Phạm Xuân Hội[1], Lê Huy Hàm[1];
- Cơ quan tác giả: [1]Viện Di truyền Nông nghiệp, [2]Chi cục Trồng trọt và Bảo vệ Thực vật tỉnh Tây Ninh, [3]Viện Nông nghiệp Nhiệt đới Quốc tế - IITA.
- Phạm vi lưu hành giống: vụ Đông Xuân tại vùng Đông Nam Bộ.

2. Văn bản kèm theo hồ sơ tự công bố lưu hành giống bao gồm:

- Bản tự công bố lưu hành giống sắn HN5 theo công văn số 79/VDT-KH ngày 02/4/2021 của Viện Di truyền Nông nghiệp;
- Bản công bố các thông tin về giống sắn HN5 theo công văn số 79/VDT-KH ngày 02/4/2021 của Viện Di truyền Nông nghiệp;
- Quy trình kỹ thuật canh tác giống sắn HN5 của Viện Di truyền Nông nghiệp biên soạn;
- Báo cáo kết quả tuyển chọn và khảo nghiệm giống sắn HN5 của Viện Di truyền Nông nghiệp.

3. Thông báo này được đăng tải trên cổng thông tin điện tử của Cục Trồng trọt từ ngày ký ban hành./.

Nơi nhận:
- Đơn vị có giống tự công bố lưu hành;
- Cổng thông tin điện tử Cục TT;
- Lưu: VT, CLT.

CỤC TRƯỞNG

CỤC TRỒNG TRỌT

Nguyễn Như Cường

Hanoi 5

Seed system development

Enhanced capacity in tissue culture labs and strengthen network between labs

AGI lab → NAFRI lab

Alliance Bioversity International CIAT

Opening of ‘FutureStems’ & High-level engagement

Public and Private multiplication partnerships

National government

Provincial government

Universities

Private sector traders

Associations

CAVAC Innovation in Agriculture

Alliance

Bioversity International

CIAT

Introduction and testing of ‘FibreCell’ system in the cassava seed system

Mekong Timber Plantations

BCC Plant the Planet

FIBERCELL

USDA

DOA

WINROCK INTERNATIONAL

Lao Cassava Association

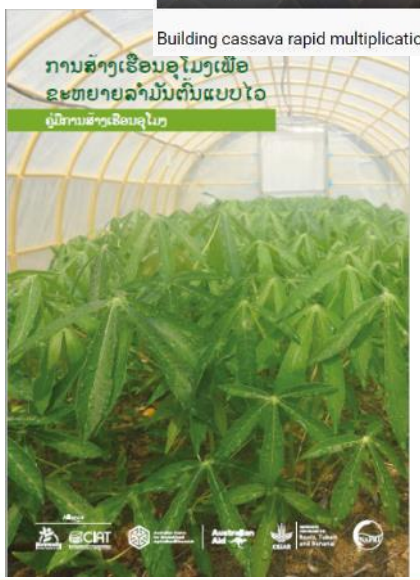
Alliance

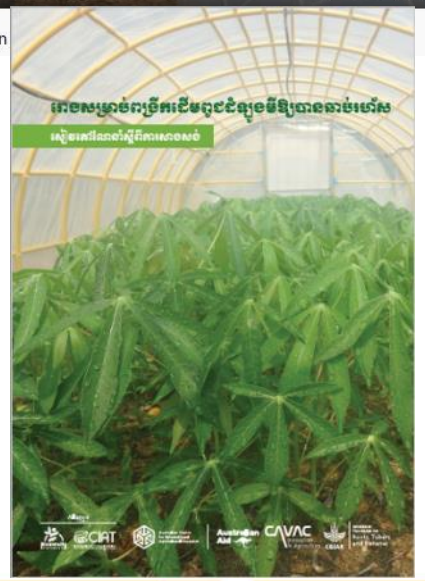
Bioversity International

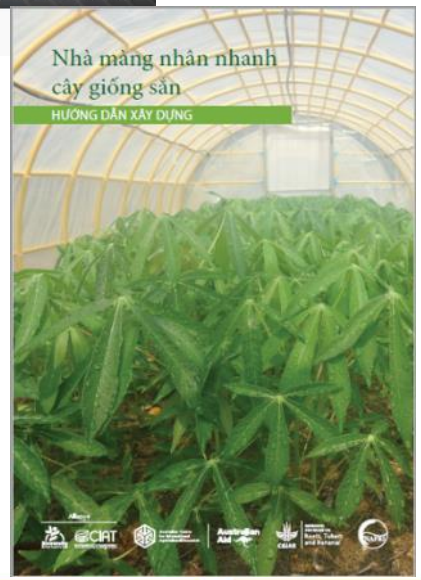
CIAT

Scaling rapid multiplication tunnels

Building cassava rapid multiplication





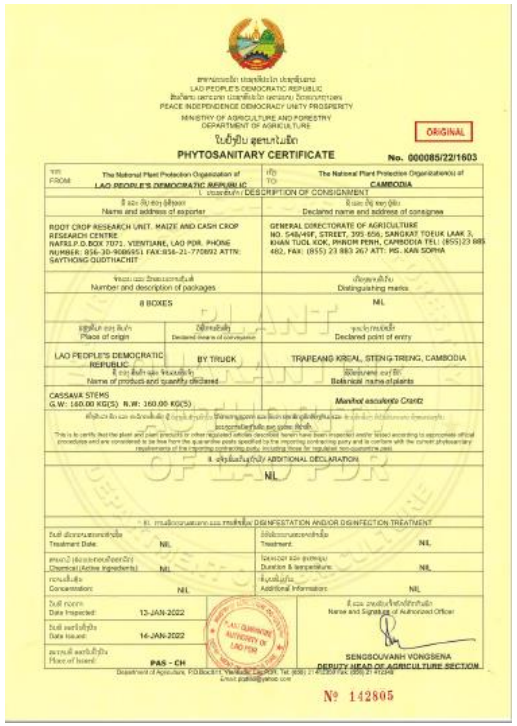


Alliance

Bioversity International

CIAT

Cross-border distribution of disease-free planting material from FutureStems for mother plants in Cambodian Tunnel systems



LAO PEOPLE'S DEMOCRATIC REPUBLIC
PEACE INDEPENDENCE DEMOCRACY UNITY PROSPERITY
MINISTRY OF AGRICULTURE AND FORESTRY
DEPARTMENT OF AGRICULTURE

ORIGINAL

PHYTOSANITARY CERTIFICATE No. 000085/22/1603

FROM: The National Plant Protection Organization of LAO PEOPLE'S DEMOCRATIC REPUBLIC	TO: The National Plant Protection Organization(s) of CAMBODIA
I. DESCRIPTION OF CONSIGNMENT	
Name and address of exporter	Declared name and address of consignee
ROOT CROP RESEARCH UNIT. MAIZE AND CASH CROP RESEARCH CENTRE NAFRI,P.O.BOX 7071, VIENTIANE, LAO PDR. PHONE NUMBER: 856-20-9086951 FAX:856-21-770892 ATTN: SAYTHONG OUDTHACHIT	GENERAL DIRECTORATE OF AGRICULTURE NO. 54B/49F, STREET, 395-656, SANGKAT TOEUK LAAK 3, KHAN TUOL KOK, PHNOM PENH, CAMBODIA TEL: (855)23 883 462, FAX: (855) 23 883 267 ATT: MS. KAN SOPHA
Number and description of packages	Distinguishing marks
8 BOXES	NIL
Place of origin / Declared means of conveyance	Declared point of entry
LAO PEOPLE'S DEMOCRATIC REPUBLIC / BY TRUCK	TRAPEANG KREAL, STENG TRENG, CAMBODIA
Name of products and quantity declared	Botanical name of plants
CASSAVA STEMS G.W: 160.00 KG(S) N.W: 160.00 KG(S)	*Manihot esculenta* Crantz

II. ADDITIONAL DECLARATION
NIL

III. DISINFESTATION AND/OR DISINFECTION TREATMENT

Treatment Date: NIL	Treatment: NIL
Chemical (Active ingredients): NIL	Duration & temperature: NIL
Concentration: NIL	Additional Information: NIL
Date Inspected: 13-JAN-2022	Name and Signature of Authorized Officer
Date Issued: 14-JAN-2022	SENGSOUVANH VONGSENA DEPUTY HEAD OF AGRICULTURE SECTION
Place of Issued: PAS - CH	

№ 142805

KINGDOM OF CAMBODIA
Nation Religion King

MINISTRY OF AGRICULTURE FORESTRY AND FISHERIES
GENERAL DIRECTORATE OF AGRICULTURE
PLANT PROTECTION SANITARY AND PHYTOSANITARY DEPARTMENT

IMPORT CERTIFICATE FOR PLANT QUARANTINE MATERIAL No.000061/21

Permission is hereby granted to Import Plant Quarantine Material in accordance with: the Sub-Degree on Phytosanitary Inspection , No. 15 Cir. Nor Kro dated 13 March 2003 and Law on the Management of Quality and Safety of Products and Services dated 21 June 2000.

Name and Address of Importer	Name and Address of Exporter
GENERAL DIRECTORATE OF AGRICULTURE NO. 54B/49F, STREET, 395-656, SANGKAT TOEUK LAAK 3, KHAN TUOL KOK, PHNOM PENH, CAMBODIA TEL: (855) 23 883 462, FAX: (855) 23 883 267 ATT: MS. KAN SOPHA	ROOT CROP RESEARCH UNIT. MAIZE AND CASH CROP RESEARCH CENTRE NAFRI, P.O.BOX 7071, VIENTIANE, LAO PDR. PHONE NUMBER: 0856-20-9086951 FAX: 856-21-770892 ATTN: SAYTHONG OUDTHACHIT
Country of origin: LAOS	Entry point: STENG TRENG, CAMBODIA
Botanical name: *Manihot esculenta Crantz*	Common name / Variety / Quantity (Wt/No.): CASSAVA STEMS = 8 BOXES NET WEIGHT (160.0 KGS)

General Entry Conditions:
The Consignment of plants/seeds should be:
(I) Free from soil and weed seeds
(II) Accompanied by an official Phytosanitary Certificate by the authorized officer at the country of origin.
(III) Free from Cambodian Plant Quarantine Pest List.

Special Entry Conditions:
-Apply for Phytosanitary inspection at checkpoint upon arrival.
-The seeds import as permitted by this Certificate are not allowed to move or distribute to other area without permission from GDA/ MAFF within the PEQ period.

PEQ Requirements
For a period of ..... 09 ..... Days

Date of Issue : DEC 30, 2021 | Place of Issue : PHNOM PENH | Validity date : MAR 02, 2022

BRUN SOKHOM
DEPUTY DIRECTOR GENERAL

KER MONTHNUTH, Ph.D.
DIRECTOR

Alliance
Bioversity International
CIAT

Sale of disease-free stems and plantlets to farmers and private sector

Achieving impact through Partnerships

Alliance

Bioversity International

CIAT



RESEARCH PROGRAM ON Roots, Tubers and Bananas



Australian Government
Australian Centre for International Agricultural Research



NEXTGEN CASSAVA


UF IFAS
UNIVERSITY of FLORIDA

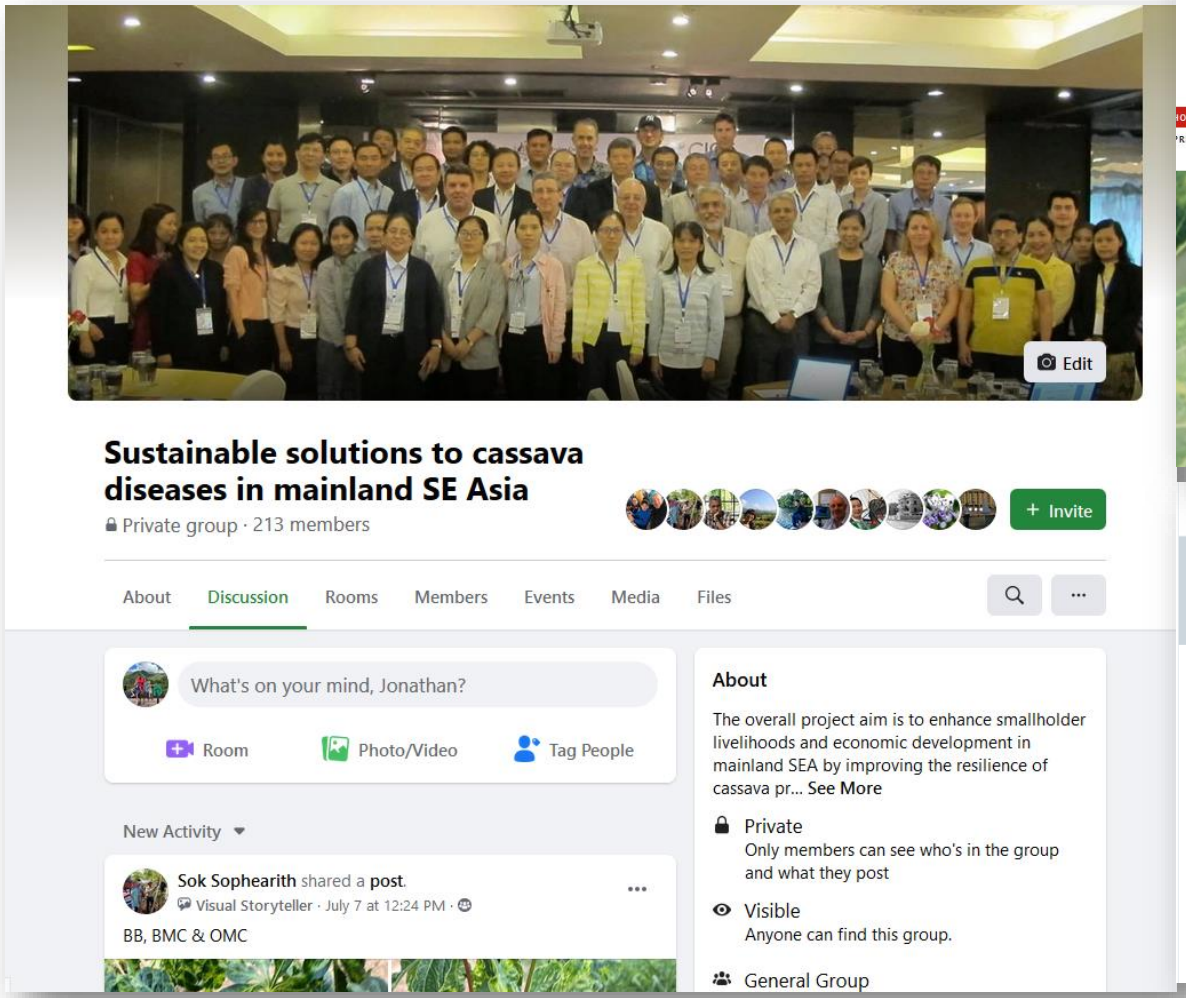

WAGENINGEN
UNIVERSITY & RESEARCH

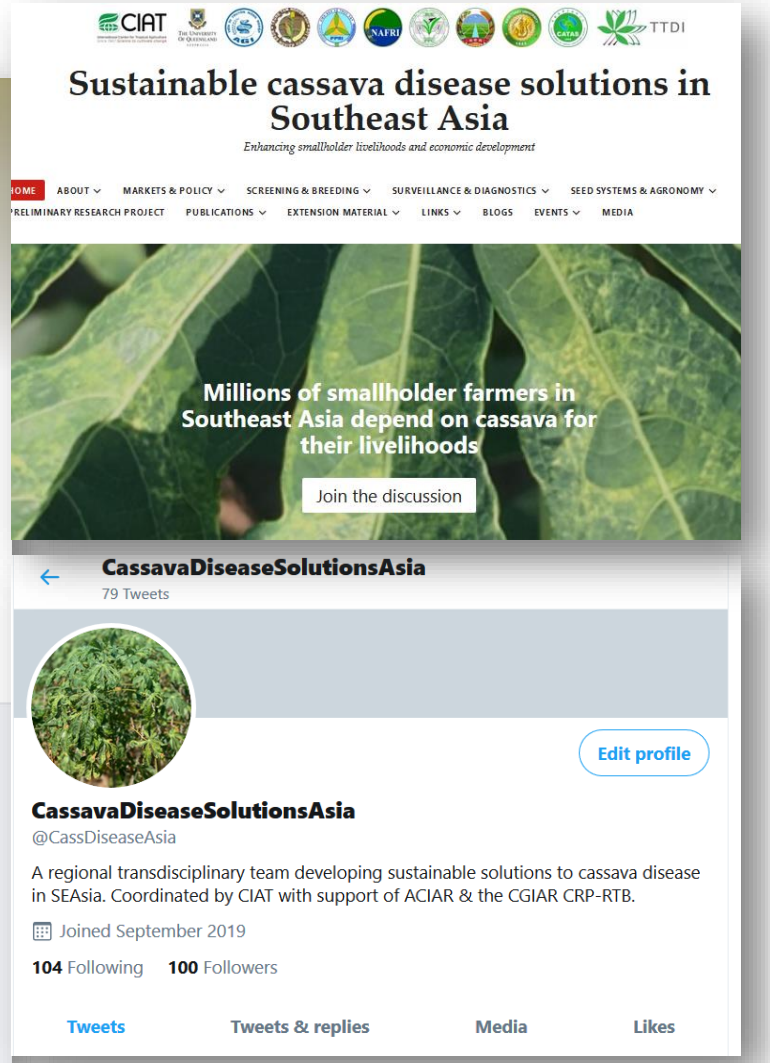



Mekong Timber Plantations Ltd


Stay connected and share activities and results

https://cassavadiseasesolutionsasia.net/ -





Alliance

Alliance

Bioversity International

CIAT
International Center for Tropical Agriculture
Since 1967 Science to cultivate change

Thank you!

j.newby@cgiar.org

https://cassavadiseasesolutionsasia.net/ -

CGIAR

Bioversity International and the International Center for Tropical Agriculture (CIAT) are CGIAR Research Centers.
CGIAR is a global research partnership for a food-secure future.