

# Objective 3:

## Surveillance & Diagnostics

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Australian Centre  
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RESEARCH  
PROGRAM ON  
Roots, Tubers  
and Bananas

# Targets: CMD, CWBD and whitefly

Leaf mosaic and deformation



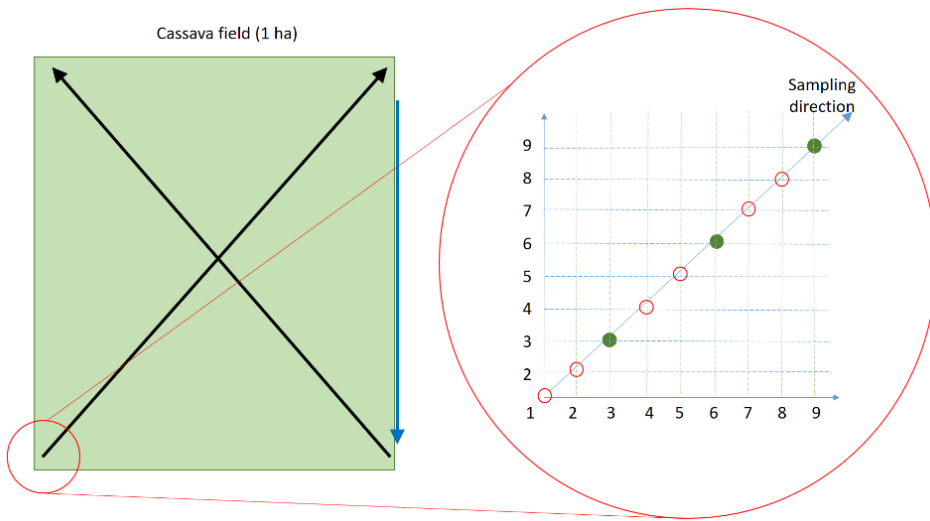
Leaf yellowing, short petioles



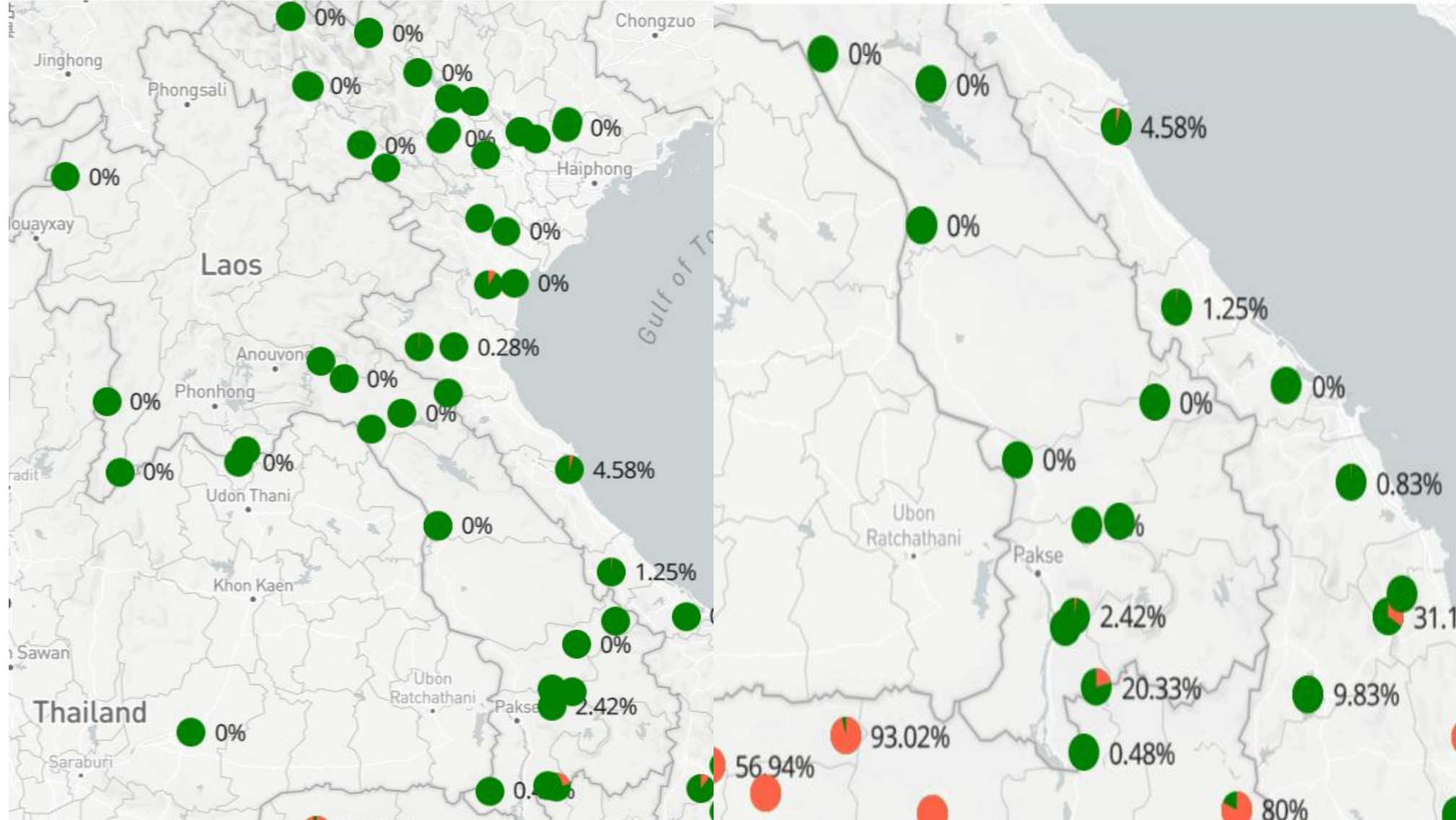
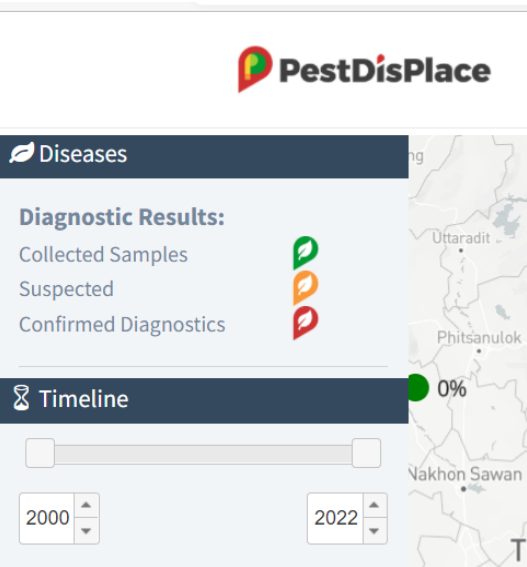
# Surveillance in 2020 and 2021



- 2020 Plant Protection Center team conducted field surveys with 10 provinces in LaungNamtha, Xaiyaboury, Vientiane Province, Borlikhamxay, Xiengkhoung, Xaysomboun, Khammoun, Salavan, Champasack and Attapeu provinces including 70 fields. In 2021 conducted field surveys with 7 provinces in Vientiane capital, Vientiane Province, Borlikhamxay, Xaysomboun, Khammoun, Salavan and Champasack Province including 31 fields.
- The samples were collected from every third plant in an X pattern and photographs from each sampled, 60 plants per field were taken and for whitefly photographs 30 plants per field and tanken 3-5 whitefly per cassava tree.

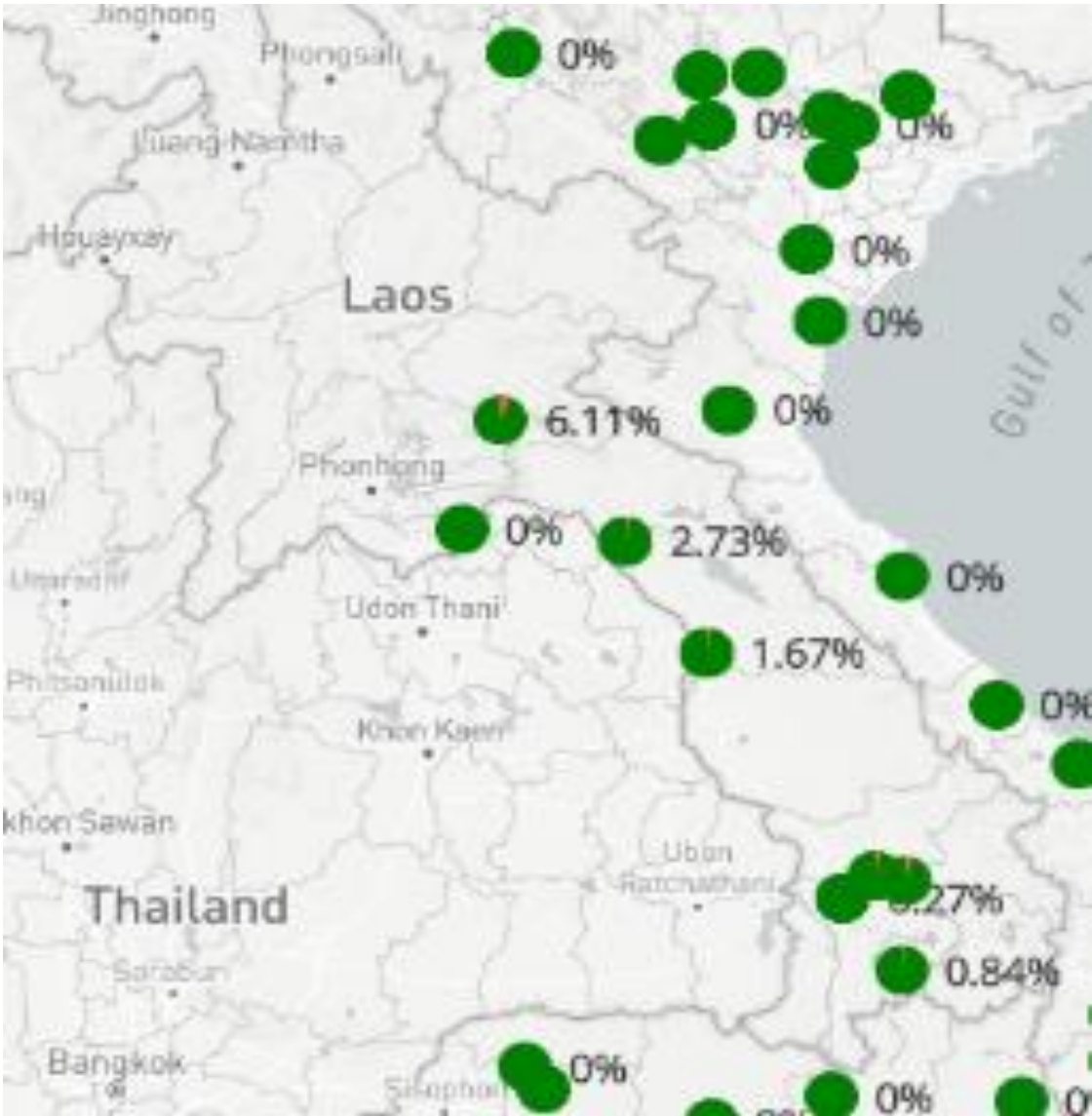


# Cassava mosaic virus incidence

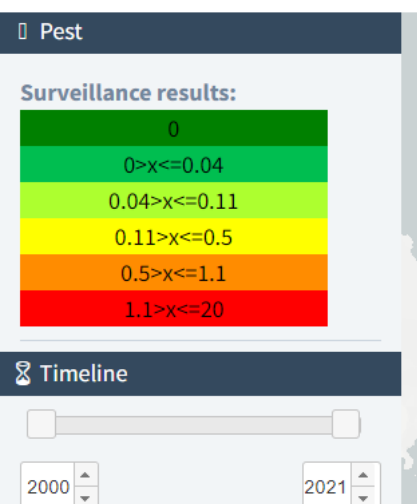


# Cassava witches' broom disease incidence

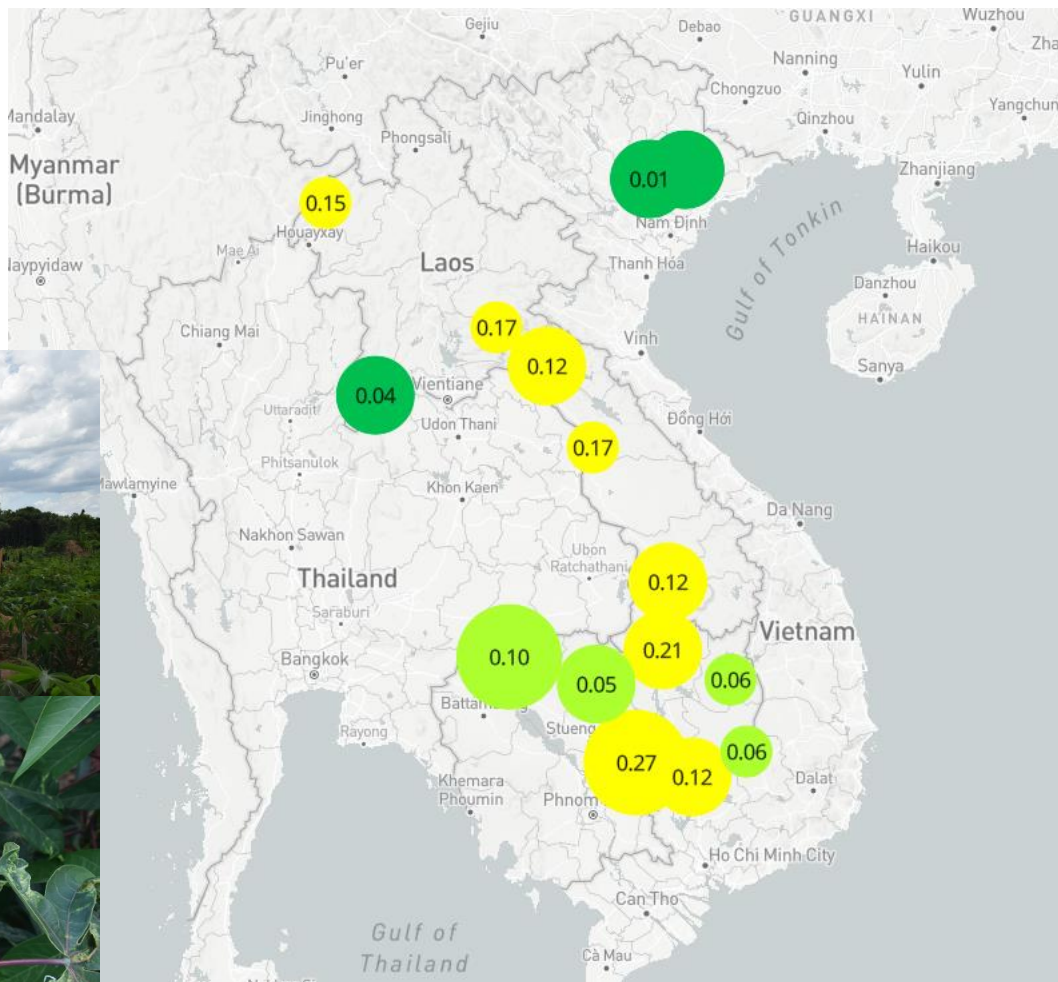
Country	Region	Province	Incidence	# of Fields
Laos	North Center	LaoungNamTha	0	2
		Saiyabouly	0	8
		Vientiane	0	3
		Xaysomboun	6.111	3
		Bolikhamsai	2.879	11
		Khammoun	1.667	1
	South	Champasack	0.625	24
		Salavan	5.952	7
		Sekong	3.448	1
		Attapue	0.833	6



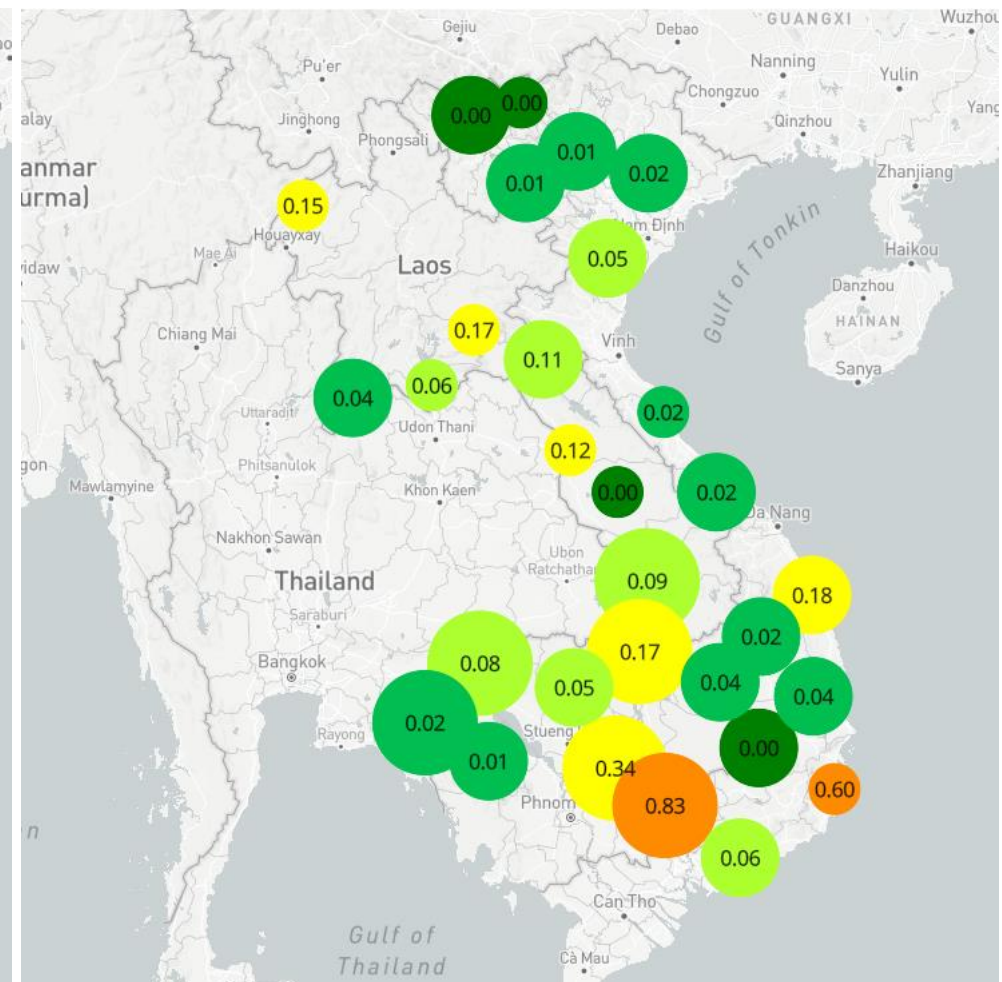
# Whitefly relative abundance (Adults/second leaf/plant)



2020



2021



# Evaluations and grafting with CWBD infected material for assessment of reaction to these diseases



- The experiment conducted 12 May 2020 in PPC including 7 treatments 15 replication, the experiment worked with KU50 and Rayong11
- Experiment conducted 1 June 2021 in PPC including 5 treatments 5 replication for grafting with CWBD (KU50, Hanoi2, Hanoi3, Hanoi4, Hanoi5 and Hanoi6+H5)

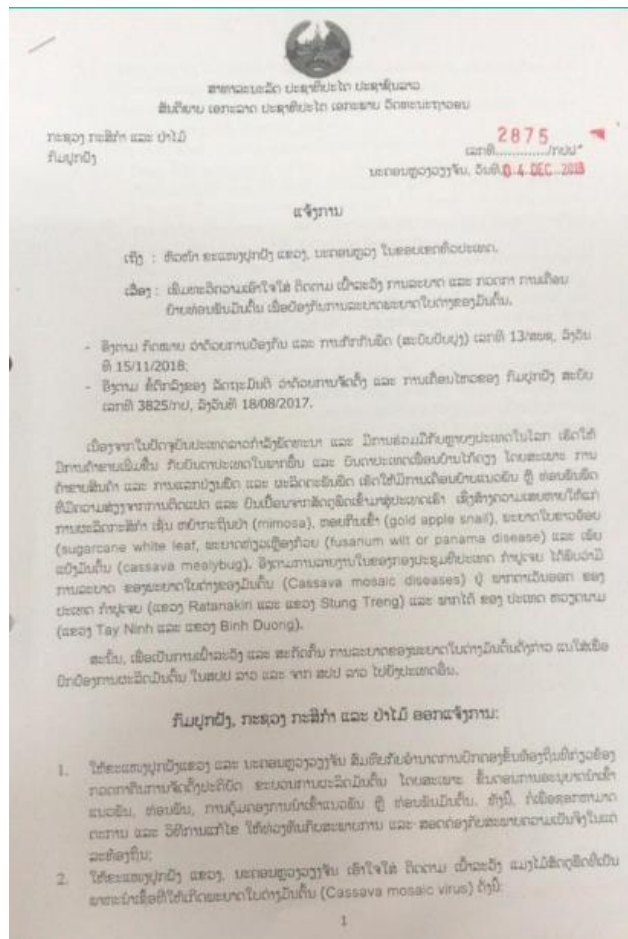
# Awareness raising leads to early detection and rapid response

- Workshops, field days and extension material has help identify several other outbreaks of CMD in Laos, mostly caused by import of infected stem cuttings from neighboring countries.



# Awareness raising leads to early detection and rapid response

- Discussion in DOA to stop of stem movement and development of regulation



# Application new technology to detection CMD in stem for eradication of CMD in the fields

- Training on testing diagnostic droid to detection CMD in PPC
- 60 samples from field 37 were detected by droid and compare those with PCR
- More than 200 samples were detected CMD by droid
- 3 stem importing companies were used droid to detection CMD



# Eradication (Farmer and company farms)

Discussion with PAFO and DAFO



Discussion with company




# Eradication (Farmer and company farms)









# Mentoring: Australasian Plant Pathology Society Online Conference - 2021

**First Report of Cassava Mosaic Disease and Sri Lankan Cassava Mosaic Virus in Laos**



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**Evaluating LAMP-based field diagnostics for the management of cassava mosaic disease in Lao PDR**



Presented by Ms. Pinkham Vongphachanh  
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1. Publication of **First Report of Cassava Mosaic Disease and Sri Lankan Cassava Mosaic Virus in Laos**
  2. Attending presentation two topic APPS conference in 2021.
- **First Report of Cassava Mosaic Disease and Sri Lankan Cassava Mosaic Virus in Laos**
  - To commence this session, we will hear a presentation on **Evaluating LAMP-based field diagnostics for the management of cassava mosaic disease in Lao PDR.**

# Challenges

- **In 2021 some province were lock down caused by Covid19 so it is not essay to visited all of fields from 2020**
- **Planting material of infected CWBD when we grow for grafting that are some no symptom.**



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# Thank you !