



Establishing sustainable solutions to cassava disease in mainland Southeast Asia

Objective 3: Develop and deploy diagnostic protocol, tools and information platforms fit for purpose in monitoring, surveillance, and certification applications

PPRI, 10/15/2020

September Activities Summary

Act. Design and Implement regional surveillance for CMD and CWBD in Vietnam, Cambodia, Lao PDR, Myanmar and Thailand with results shared in a common platform.

- Regional training courses for field sampling (identification of sampling zones, field-sampling procedures, etc.)
- Regional training courses for laboratory (nucleic acid extraction, DNA amplification and analysis, etc.)

September Activities Summary

- ✓ Start the surveys in the Northern Midlands and Mountainous provinces of Vietnam.
- ✓ Implement the surveillances for CMD, CWBD and whiteflies at 19 villages of 16 districts in 12 provinces. Total number of surveyed field sampling is 65.
- ✓ The storage of leaf samples is carried out in the lab by drying at 60°C/3 hours and then place in Ziplock bag containing fresh Silicagel.
- ✓ Whiteflies were collected at the sampled fields and stored in eppendorf tubes 1.5ml containing Ethanol 70%. Total number of tubes collected are 18.

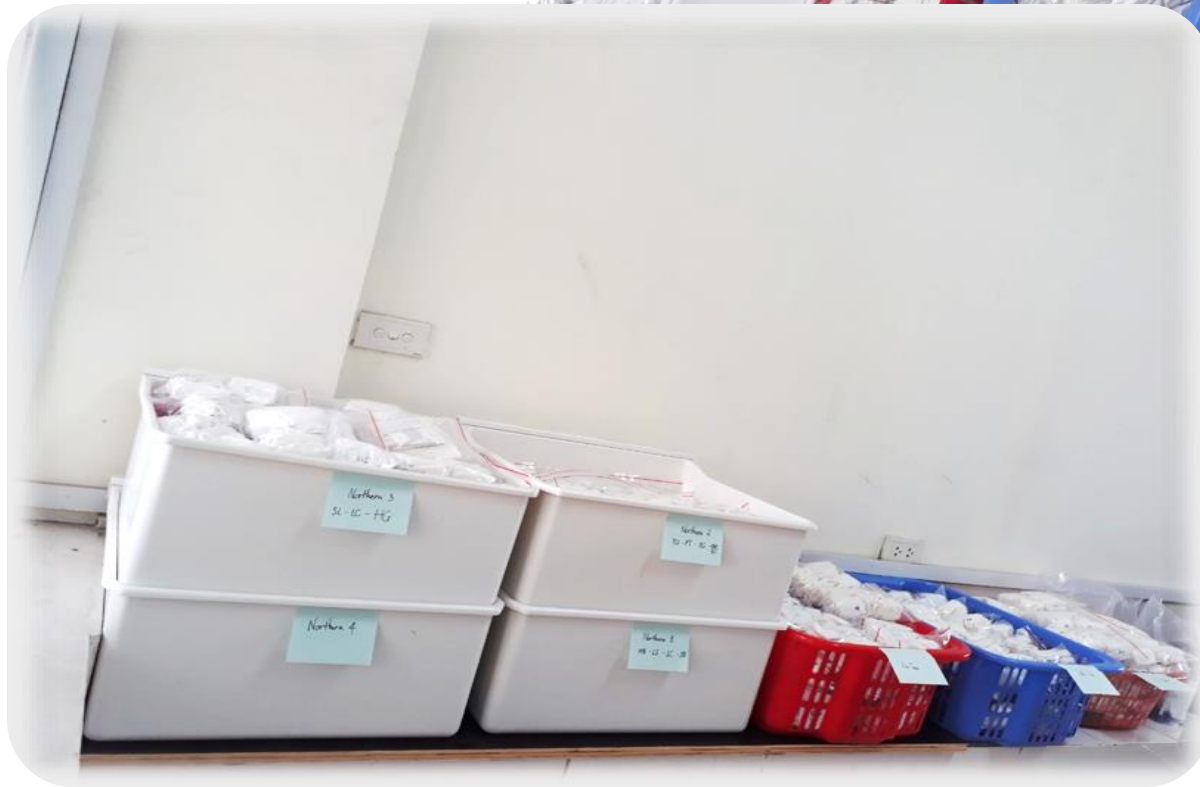
Oct. – Dec. Activities Summary

1. Implement regional surveillances for CMD and CWBD in Central and Southern Vietnam with results shared in a common platform
2. Sampling material preparation and sample treatment
3. In laboratory:
 - ✓ Nucleic acid extraction,
 - ✓ Detection of CMD virus on some requested fields by PCR
4. Sharing samples with CIAT

Sampling material preparation and sample treatment



**Sample
storage
condition**



List of sampling location

I. The Northern Vietnam (18 locations)

Finished 70 fields/18 locations of 12 provinces

No.	Communes	Districts	Provinces
1	✓ Muong Bon	Mai Son	Son La
2	✓ Gia Phu	Phu Yen	
3	✓ Chieng La	Thuan Chau	
4	✓ Chieng Khoi	Yen Chau	
5	✓ Tan Linh	Luc Yen	Yen Bai
6	✓ Phuc Loi	Luc Yen	
7	✓ Vinh Kien	Yen Binh	
8	✓ Xuat Hoa	Lac Son	Hoa Binh
9	✓ Yen Tri	Yen Thuy	
10	✓ Thai Nien	Bao Thang	Lao Cai
11	✓ Trung Son	Yen Lap	Phu Tho
12	✓ Muong Dun	Tua Chua	Dien Bien
13	✓ Luong Phong	Hiep Hoa	Bac Giang
14	✓ Cai Kinh	Huu Lung	Lang Son
15	✓ Po Lo	Hoang Su Phi	Ha Giang
16	✓ Malypho	Phong Tho	Lai Chau
17	✓ Thuong Am	Son Duong	Tuyen Quang
18	✓ Dac Son	Pho Yen	Thai Nguyen



List of sampling location

II. The Central of Vietnam (47 locations)

- 116 fields/29 locations of 7 provinces
- 18 locations remains

No.	Communes	Districts	Provinces
19	Que Long	Que Son	Quang Nam
20	Hiep Thuan	Hiep Duc	
21	Loc Tri	Phu Loc	
22	Trieu Long	Trieu Phong	Quang Tri
23	Mo O	Da Krong	
24	Quang Phuong	Quang Trach	Quang Binh
25	✓ Thanh Son	Anh Son	Nghe An
26	✓ Dong Van	Tan Ky	
27	✓ Tam Quang	Tuong Duong	
28	✓ Can Khe	Nhu Thanh	Thanh Hoa
29	✓ Tho Son	Trieu Son	



List of sampling location

II. The Central of Vietnam (47 locations)

No.	Communes	Districts	Provinces
30	✓ Ia Kdam	Ia Pa	Gia Lai
31	✓ Ia Bang	Chu Prong	
32	✓ Ia Puch	Chu Prong	
33	✓ Phu Tuc town	Krong Pa	
34	✓ Chu Krey	Kong Chro	
35	✓ Ha Tay	Chu Pah	
36	✓ Song Bo	Auyn Pa	
37	✓ Trang	Dak Doa	
38	✓ Dak Krong	Dak Doa	
39	✓ Dak Koi	Kon Ray	Kon Tum
40	Ia Toi	Ia H'Drai	
41	✓ Sa Binh	Sa Thay	
42	✓ Dak Ang	Ngoc Hoi	
43	✓ Plei Can town	Ngoc Hoi	
44	✓ Ngoc Tu	Dak To	Dak Lak
45	✓ Ea Bung	Ea Sup	
46	✓ Yang Reh	Krong Bong	
47	✓ Xuan Phu	Ea Kar	
48	✓ Ea Drang town	Ea H'leo	Dak Nong
49	✓ Dak N'Drot	Dak Mil	
50	✓ Tan Thanh	Krong No	
51	✓ Quang Son	Dak Glong	



List of sampling location

II. The Central of Vietnam (47 locations)

- 116 fields/29 locations of 7 provinces
- 18 locations remains

No.	Communes	Districts	Provinces
52	Nghi Duc	Tanh Linh	Binh Thuan
53	Ham Cuong	Ham Thuan Nam	
54	Tan Nghia town	Ham Tan	
55	Binh Tan	Bac Binh	
56	Me Pu	Duc Linh	Phu Yen
57	Xuan Quang 2	Dong Xuan	
58	Suoi Trai	Son Hoa	
59	Son Giang	Song Hinh	Quang Ngai
60	✓ Ba Trang	Ba To	
61	✓ Binh Hoa	Binh Son	
62	✓ Sơn Giang	Son Ha	Binh Dinh
63	Canh Hiep	Van Canh	
64	My Hiep	Phu My	Khanh Hoa
65	Cam Hiep Nam	Cam Lam	



List of sampling location

III. The Southern Vietnam (14 locations)

Finished 56 fields/14 locations of 5 provinces

No.	Communes	Districts	Provinces
66	✓ Suoi Ngo	Tan Chau	Tay Ninh
67	✓ Suoi Da	Duong Minh Chau	
68	✓ Ninh Dien	Chau Thanh	
69	✓ Hoa Hoi	Chau Thanh	
70	✓ Tan Thanh	Tan Chau	
71	✓ Thanh Binh	Tan Bien	
72	✓ Tan Lap	Tan Bien	Binh Phuoc
73	✓ Tan Tien	Bu Dop	
74	✓ Minh Thanh	Chon Thanh	
75	✓ Duc Hanh	Bu Gia Map	Dong Nai
76	✓ Xuan Bac	Xuan Loc	
77	✓ Tan Hiep	Long Thanh	Ba Ria Vung Tau
78	✓ Bong Trang	Xuyen Moc	
79	✓ An Long	Phu Giao	Binh Duong



Photos of surveys



Detection of CMD by PCR

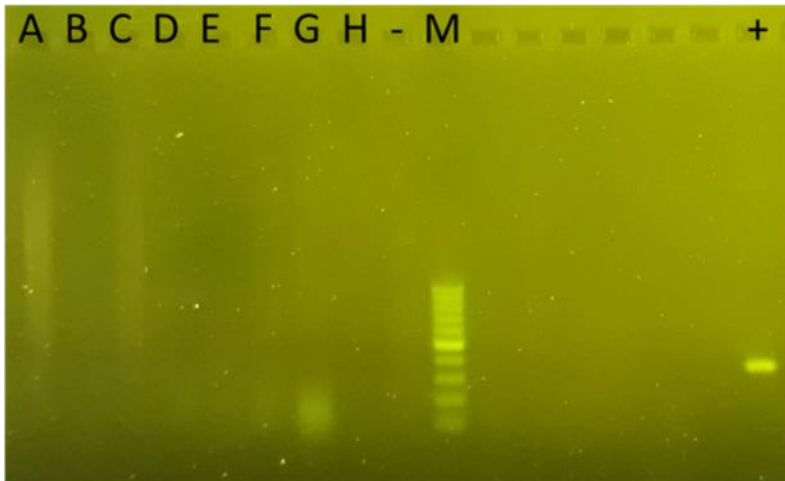


Detection of CMD by PCR

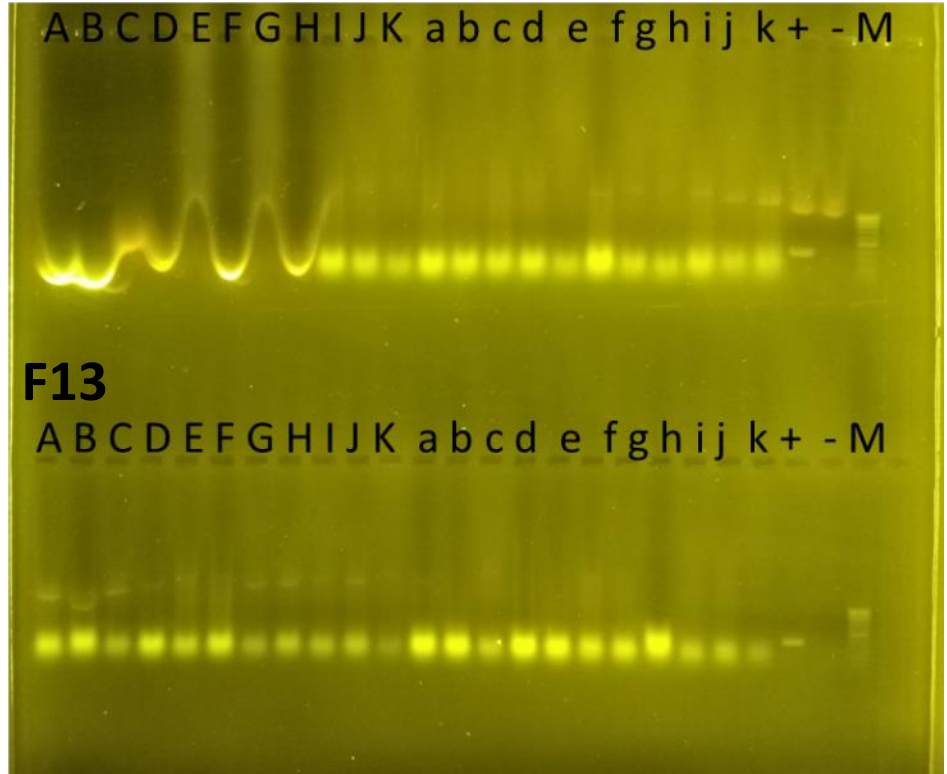
Field ID	Province	District	Commune	Village	Method of testing	Result
F12	Hoa Binh	Lac Son	Thuong Coc		PCR	Neg
F14	Hoa Binh	Lac Son	Thuong Coc		PCR	Neg
F44	Lao Cai	Bao Thang	Thai Nien	Do Trong	PCR	Neg
F45	Lao Cai	Bao Thang	Thai Nien	Do Trong	PCR	Neg
F46	Lao Cai	Bao Thang	Thai Nien	Do Trong	PCR	Neg
F47	Lao Cai	Bao Thang	Thai Nien	Do Trong	PCR	Neg

Detection of CMD by PCR

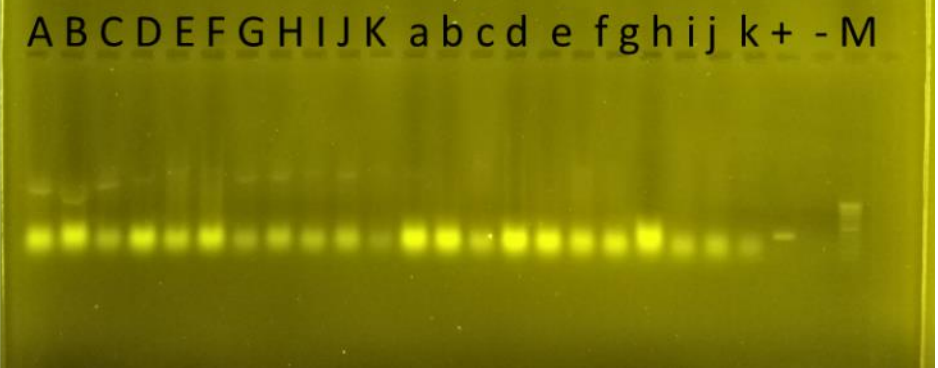
F12



F12



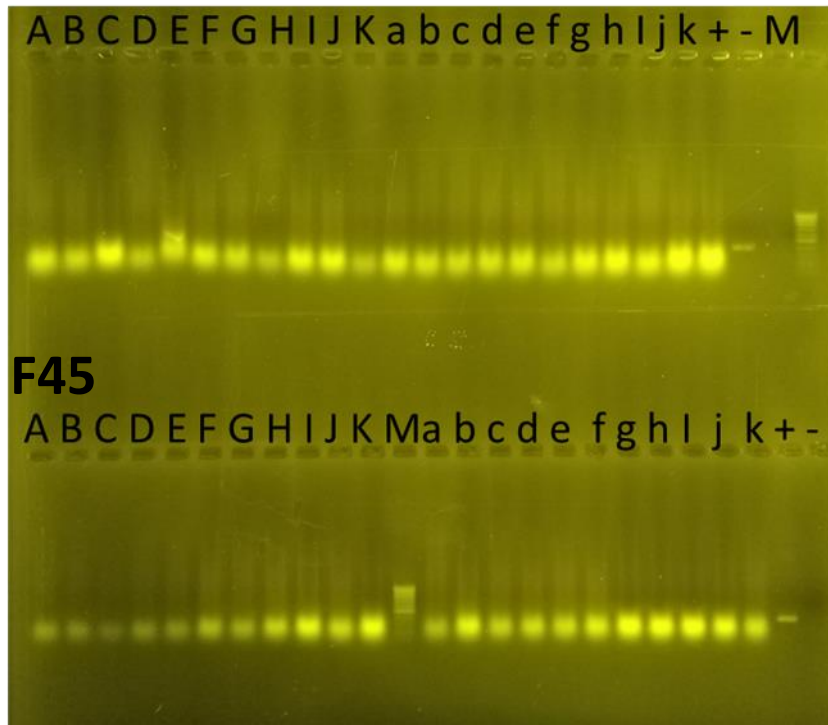
F13



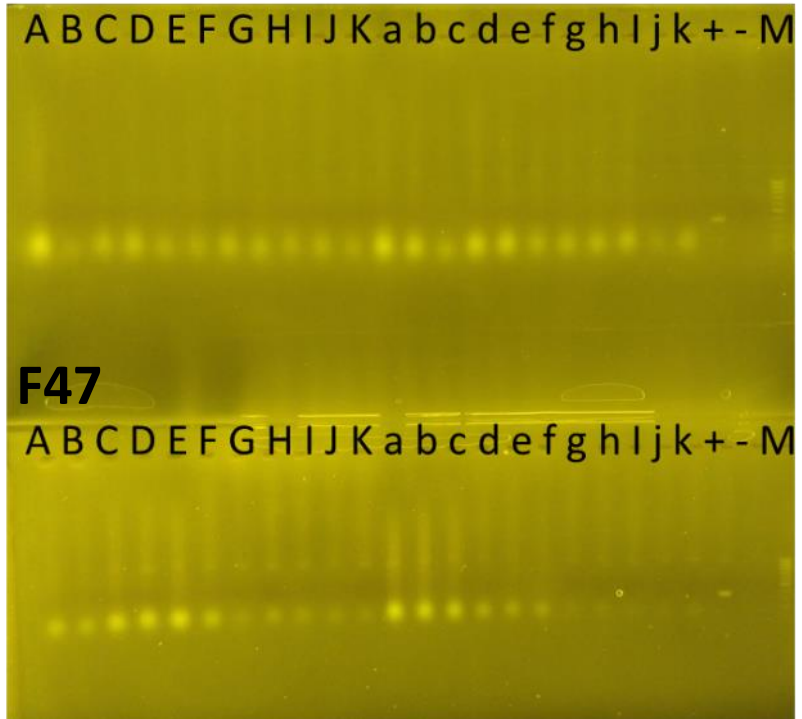
Results of PCR testing samples F12, F13
for detecting CMD

Detection of CMD by PCR

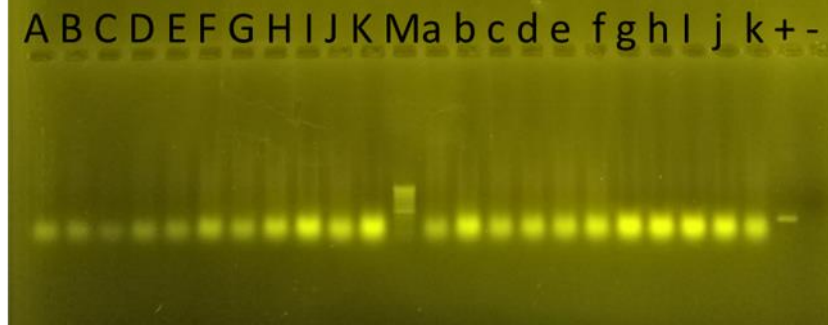
F44



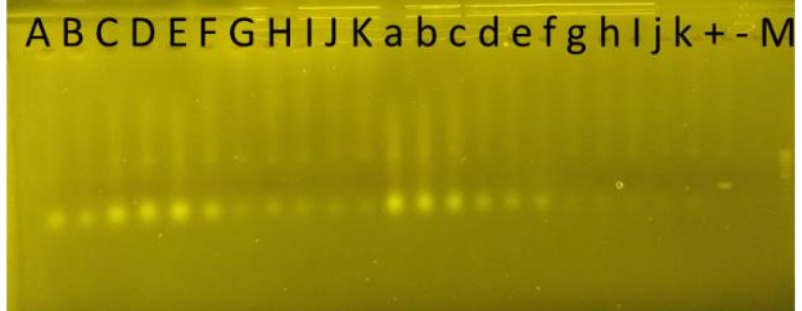
F46



F45

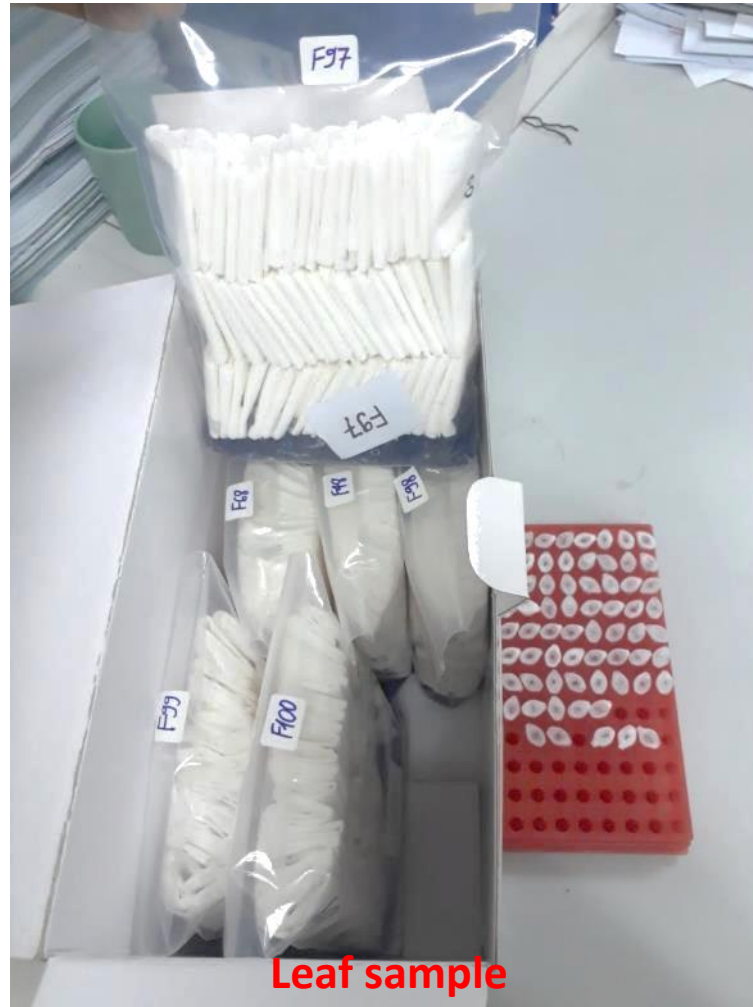


F47



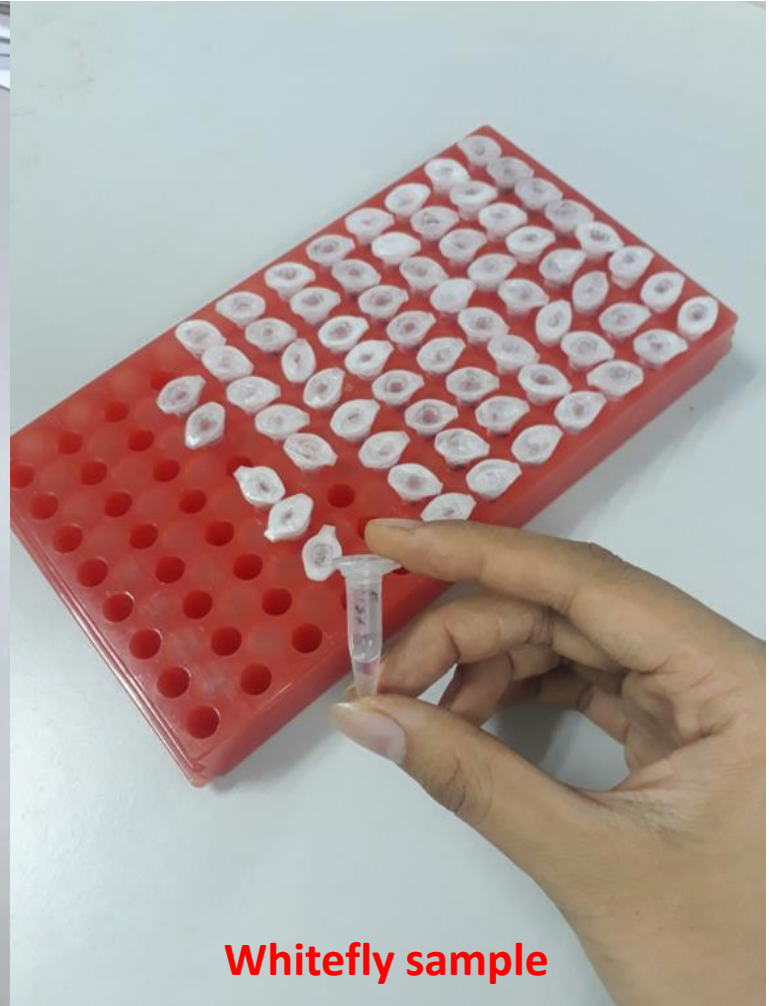
Results of PCR testing samples F44, F45, F46, F47
for detecting CMD

Sharing samples with CIAT



Leaf sample

F48, F49, F97, F98, F99, F100



Whitefly sample

65 WF samples of 65 fields

List of sampling location

- ✓ Carried out: 242 fields/61 locations of 24 provinces
- ✓ 18 locations remains are going to be finished in December
(They all are located in the Central)



Vietnam



Difficult TERRAIN







FLOODWATER





LANDSLIDES



A magnifying glass with a black handle and a silver-colored frame is positioned over the word "Solution". The lens of the magnifying glass is centered over the first part of the word, specifically the "Sol" portion. The word "Solution" is written in a blue, serif font. The background is a plain, light gray surface.

Solution

Activity Plan in 2021

1. Design and Implement regional surveillance for CMD and CWBD in Vietnam with results shared in a common platform.
2. Evaluate new technologies for rapid field diagnostics for CMD and CWBD with particular applications in seed systems.
 - Design and test LAMP primers for SLCMV and CWB
 - Combine optimized primers, DNA extraction method with the portable assay device to create an entire diagnostic system
 - Test complete diagnostic system in cassava growing regions in which the diseases are known to exist. Correlate results with PCR based assays and/or any visual observations of disease."
3. Develop and evaluate the effectiveness of communication products and awareness raising strategies utilising different public and private sector stakeholders.

*Thank you
for Listening!*