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Disease-resilient and sustainable cassava production systems in the Mekong region

Multi-location Trials in Cambodia

Australian Government
Australian Centre for International Agricultural Research

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Introduction

- Cassava production in Cambodia have occupied 807,960 ha and ranked second largest crop production after rice.
- In 2024, Cambodia produced 15,683,949 tonnes with average yield of 20.7 t/ha (GDA 2024).
- Cassava production in Cambodia is affected by cassava mosaic disease (CMD) and cassava witches' broom disease(CWBD) present the most serious threats to country production.
- Mainly, farmers use varieties from neiboring country

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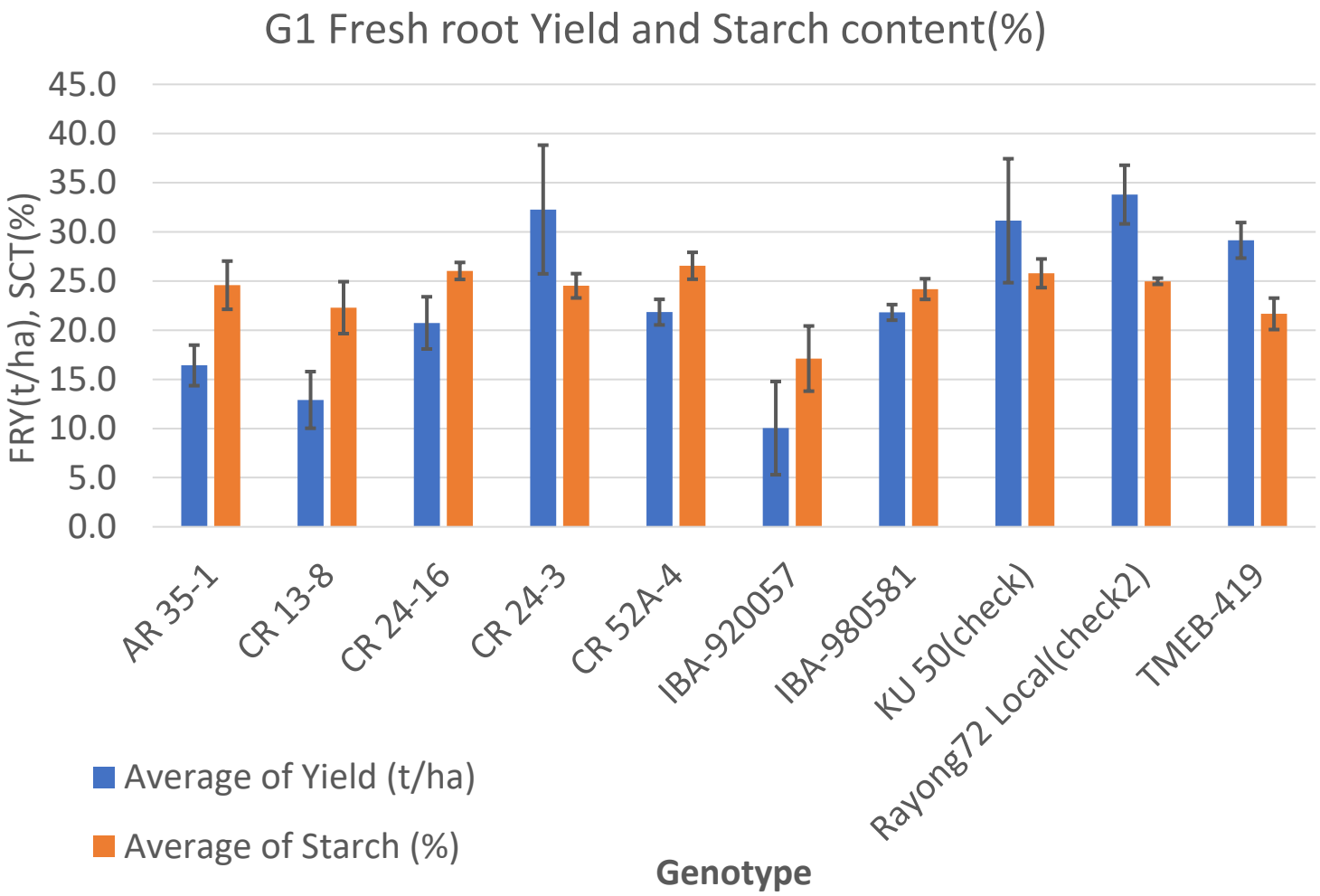
Multi-location trials in Cambodia, 2023-2024

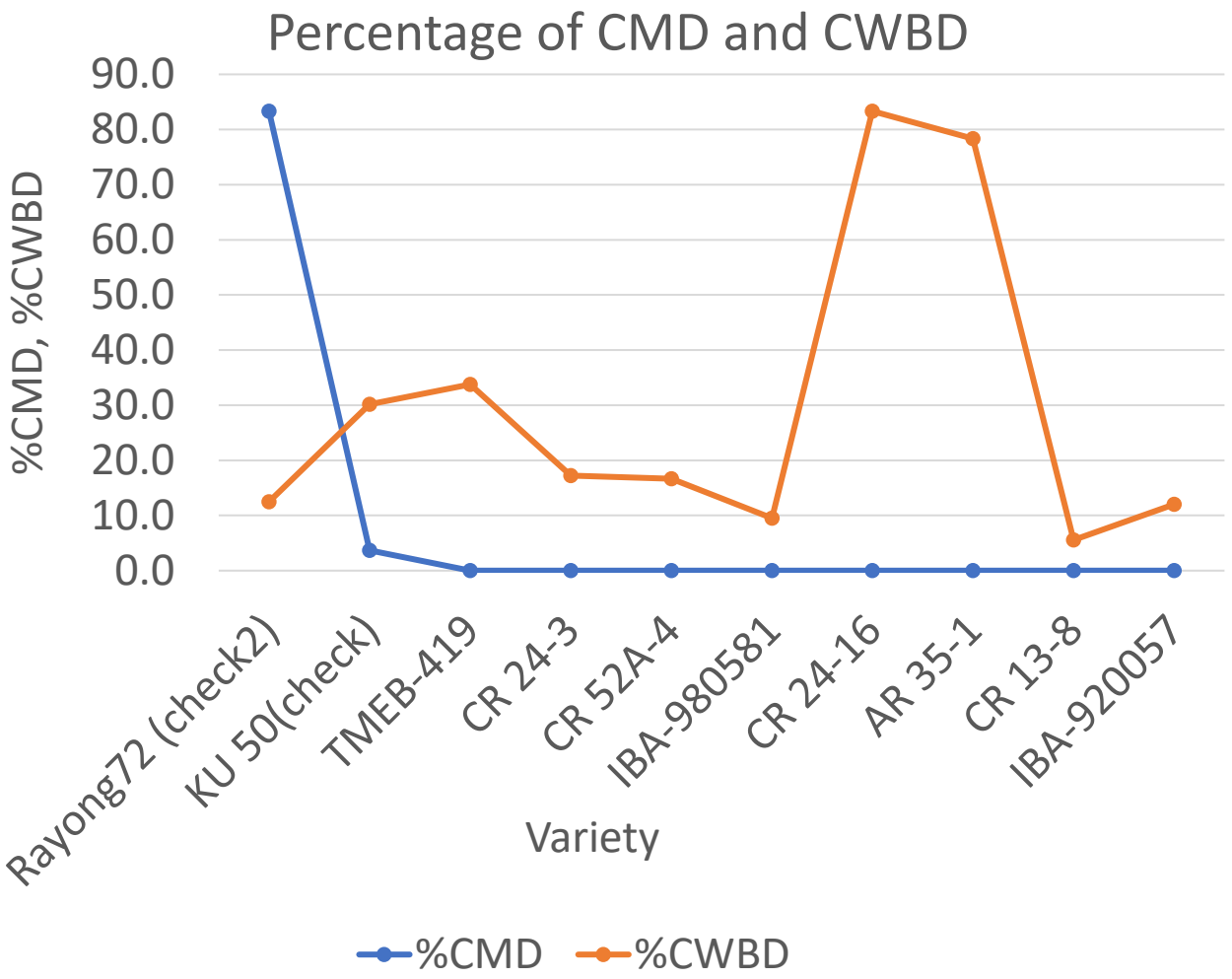
Kampong Cham	Banteay Meanchey	Oddor Meanchey	Stung Treng	Battambang
KU 50(check)	KU 50(check)	KU 50(check)	KU 50(check)	KU 50(check)
Rayong72 Local(check2)	Rayong72 Local(check2)	Rayong 5(check2)	KM140 Local(check3)	Local (check 1)
TMEB-419	TMEB-419	KM325(check1)	KM325 Local(check2)	Local (check 2)
IBA-980581	IBA-980581	TMEB-419	TMEB-419	TMEB-419
IBA-920057	IBA-920057	IBA-980581	IBA-920057	IBA-980581
AR 35-1	AR 35-1	IBA-920057	IBA-980581	IBA-920057
CR 13-8	CR 13-8	AR 35-1	CR 52A-4	
CR 24-16	CR 24-16	CR 52A-4	CR 24-3	
CR 24-3	CR 24-3	CR 13-8		
CR 52A-4	CR 52A-4	CR 24-3		

Figure 1: Result of G1 Cassava Mosaic Disease Resistant Clones experiment in Kampong Cham(2023-2024)



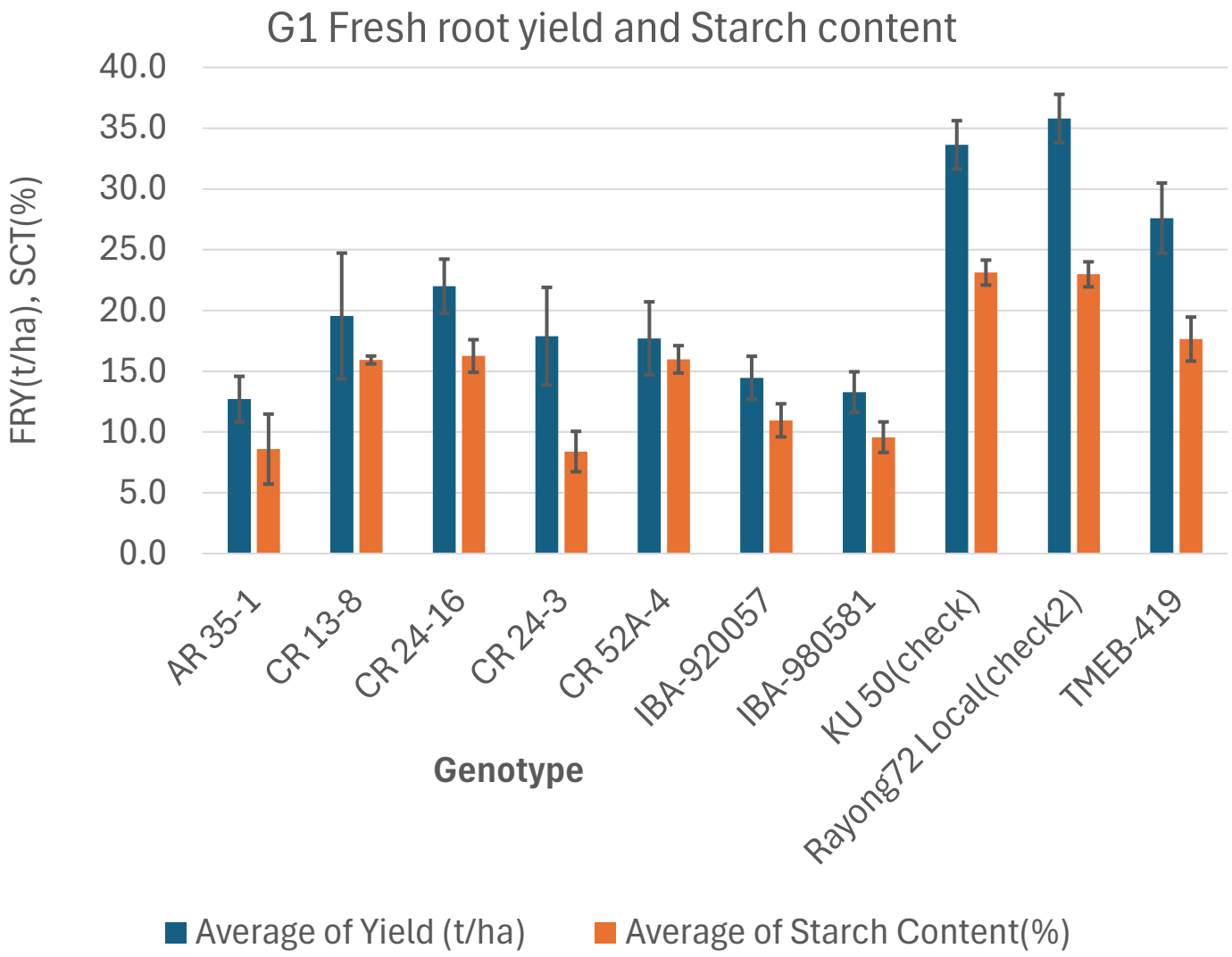
- Rayong 72 was the highest yield 33.8t/ha with the highest starch content 25%, follow by KU50(31.1t/ha) with starch content 25.8%
- Among the new lines, TMEB 419 was the highest yield 29.1 t/ha with starch content 21.7%

Percentage of CMD and CWBD symptom of cassava variety evaluation in Kampong Cham(2023-2024)



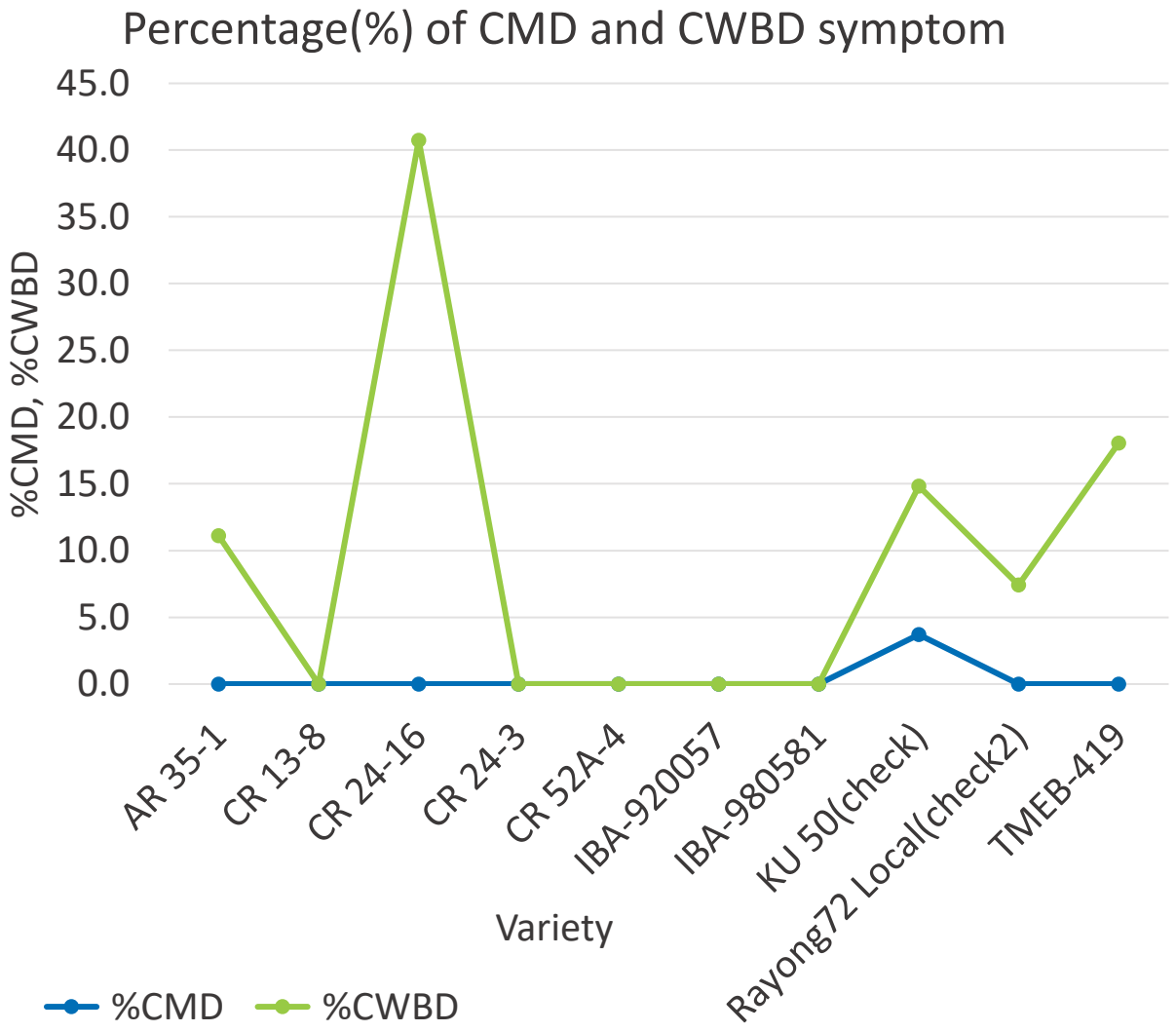
- All new lines were no any CMD symptom, while popular variety Rayong 72 got very high infection.
- All varieties and lines got CWBD infection
- CR 24-16 & AR 35-1 were the most susceptible to CWBD(80%)

Figure 2: Result of G1 Cassava Mosaic Disease Resistant Clones experiment in Banteay Meanchey(2023-2024)



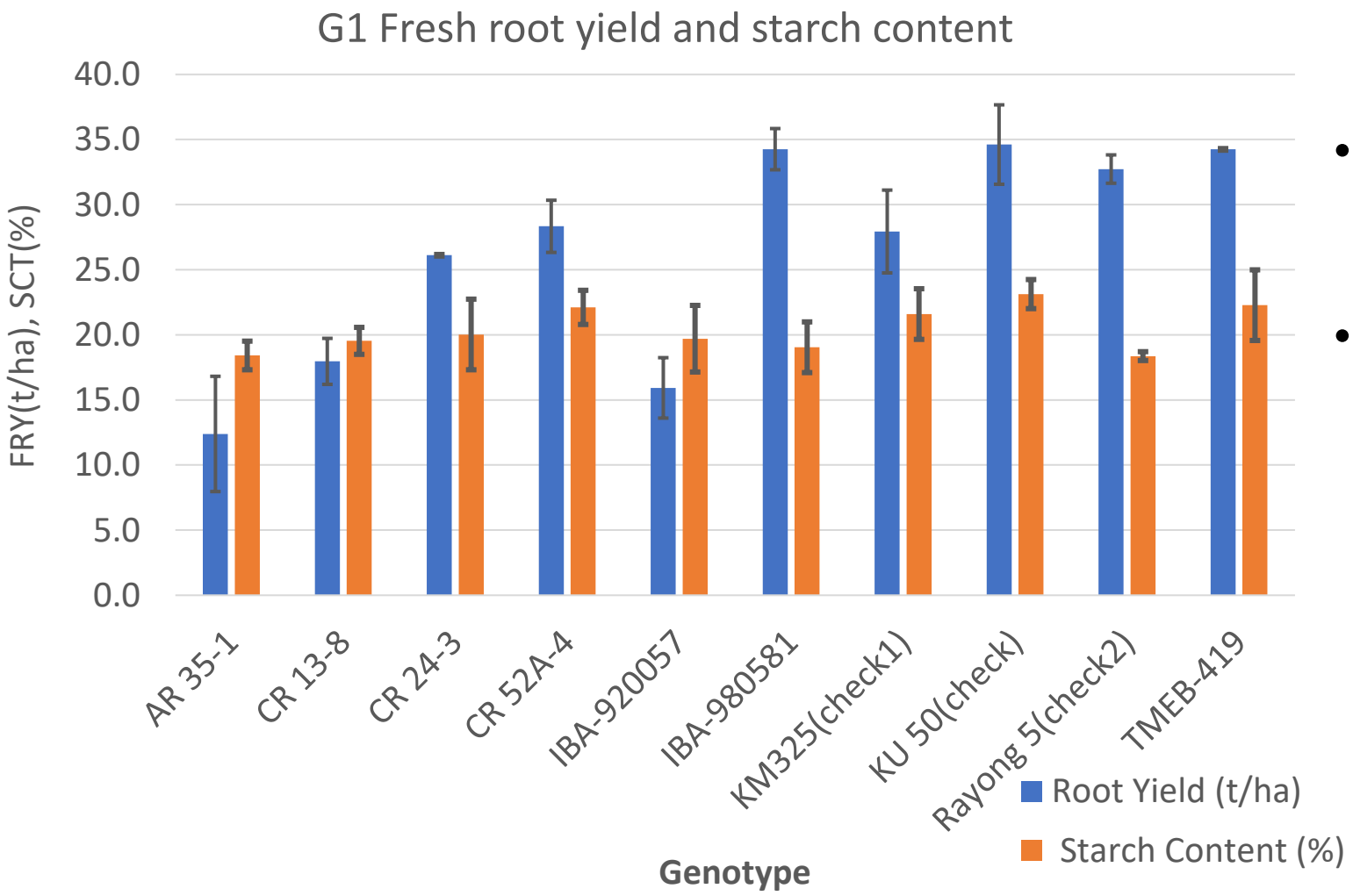
- Rayong 72 was the highest yield 35.8t/ha with the highest starch content 22.4%, follow by KU50 33.6t/ha with starch content 21.9%
- Among the new lines, TMEB 419 was the highest yield 27.6 t/ha with starch content 18.6%
- AR 35-1 was the lowest yield 12.7t/ha

Percentage of CMD and CWBD symptom of cassava variety evaluation in Banteay Meanchey (2023-2024)



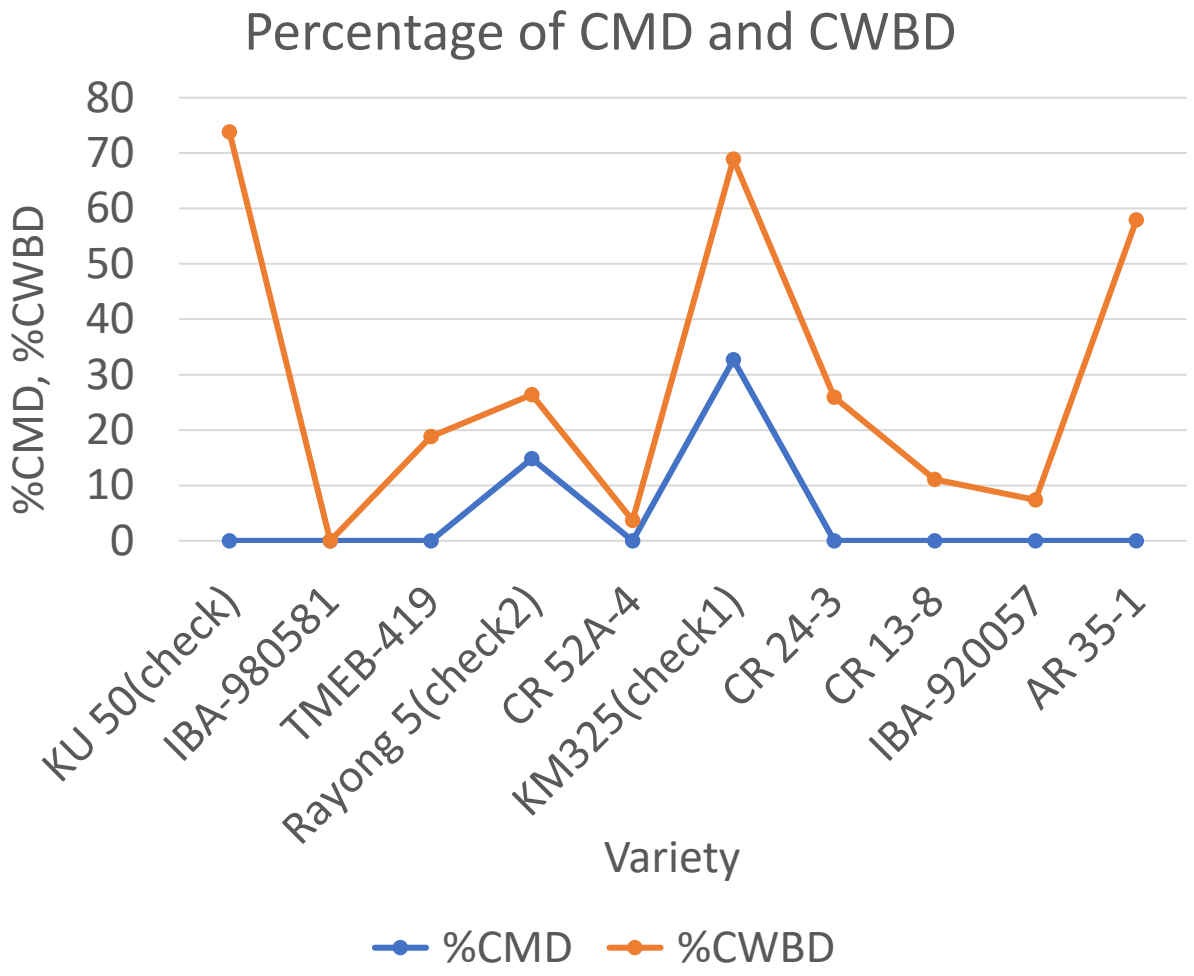
- All new lines were no any CMD symptom
- CR 24-16, IBA 980581 & TMEB 419 were the most susceptible to CWBD

Figure 3: Result of G1 Cassava Mosaic Disease Resistant Clones experiment in Oddar Meanchey(2023-2024)



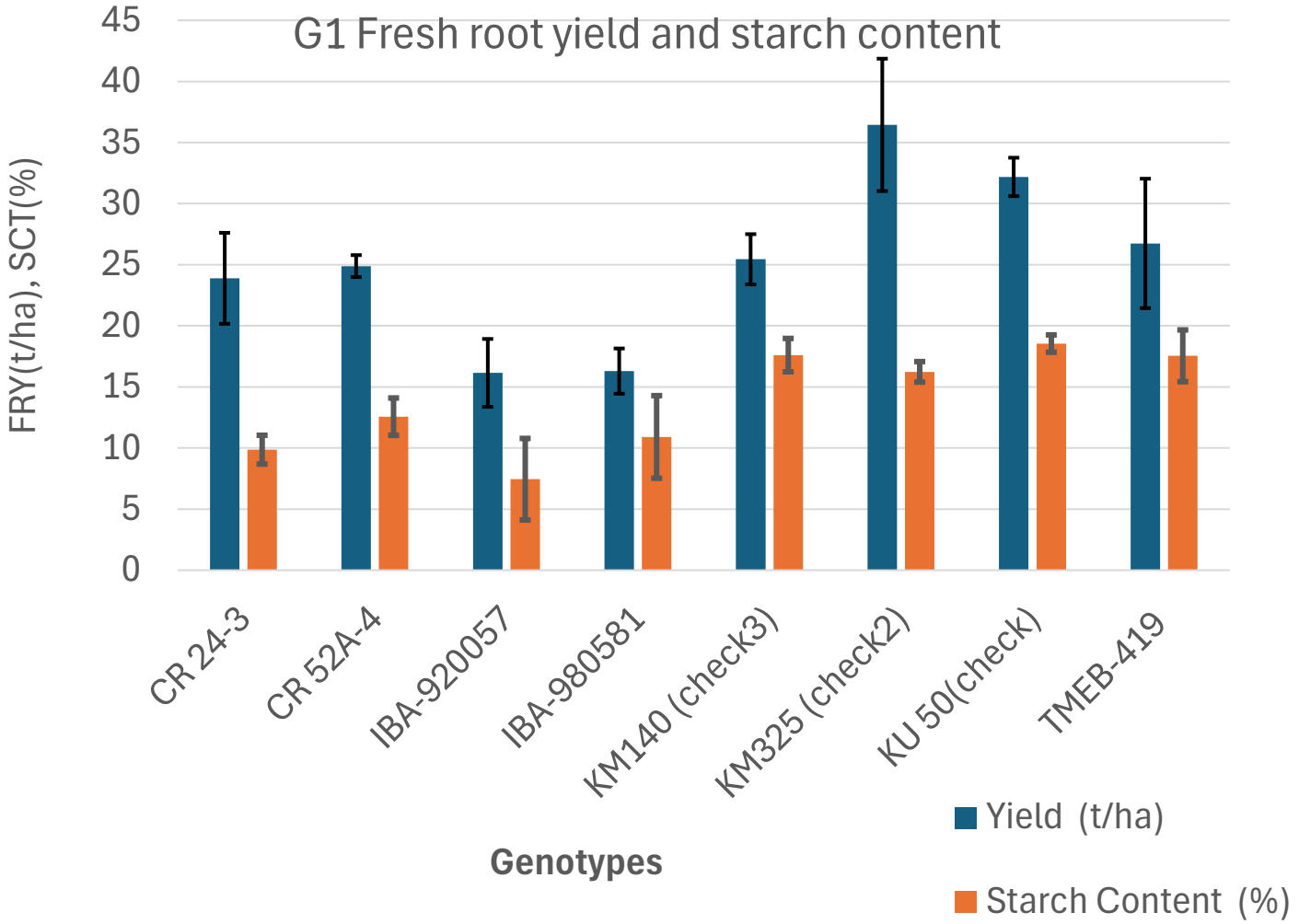
- KU50(check) was the highest yield(34.6t/ha) with the highest starch content 23.1%
- Among the new lines, TMEB 419 was the highest yield 34.4 t/ha with starch content 21.3%

Percentage of CMD and CWBD symptom of cassava variety evaluation in Oddar Meanchey(2023-2024)



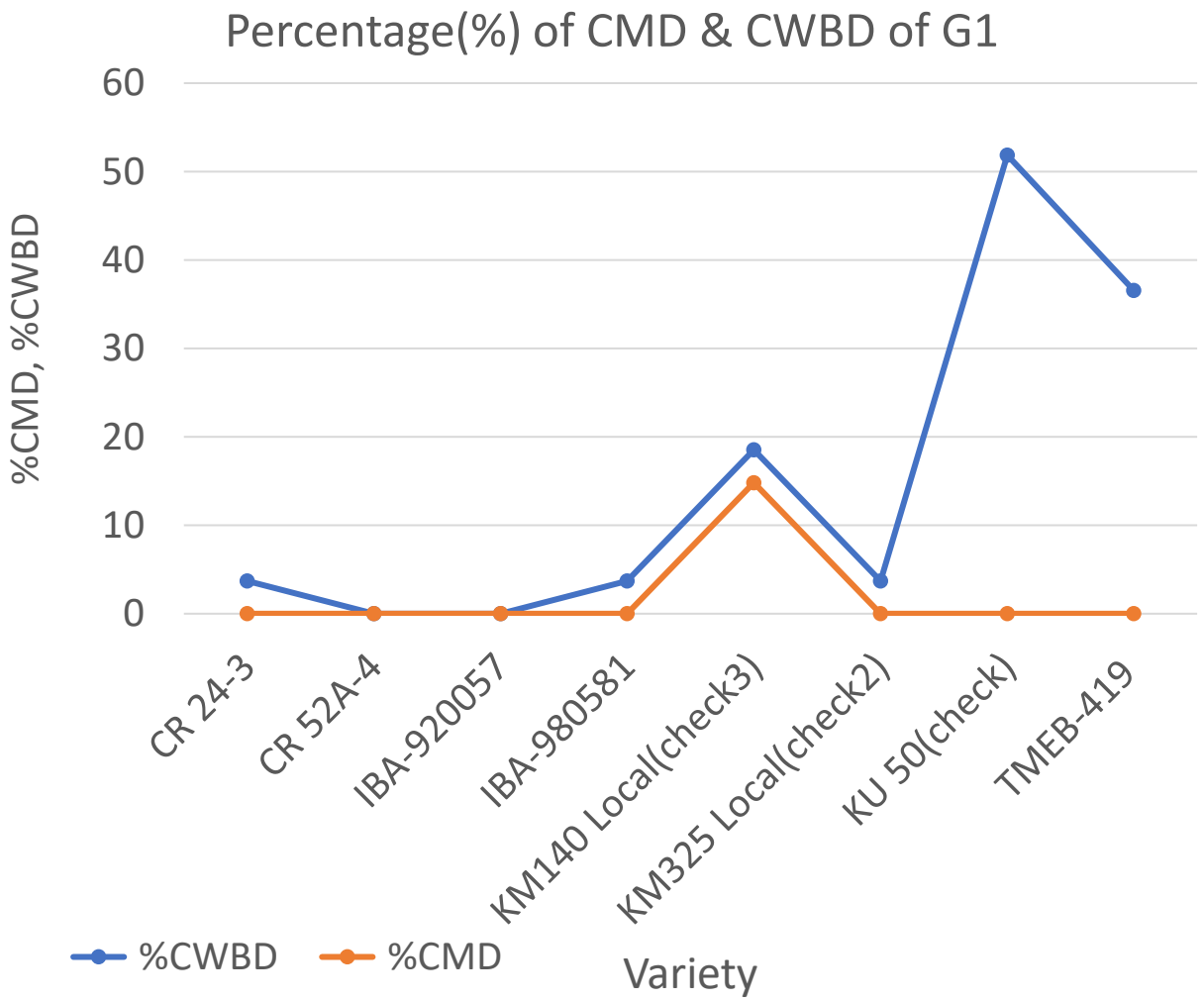
- All new lines, there were no any CMD symptom, while KM 325 & Rayong5 got infection.
- Popular varieties KU50, KM 325 & Rayong5 AR 35-1, CR 24-3, CR 13-8 & TMEB 419 got CWBD infection
- KU50, KM 325 & AR 35-1 were the most susceptible to CWBD

Figure 4: Result of G1 Cassava Mosaic Disease Resistant Clones experiment in Stung Treng(2023-2024)



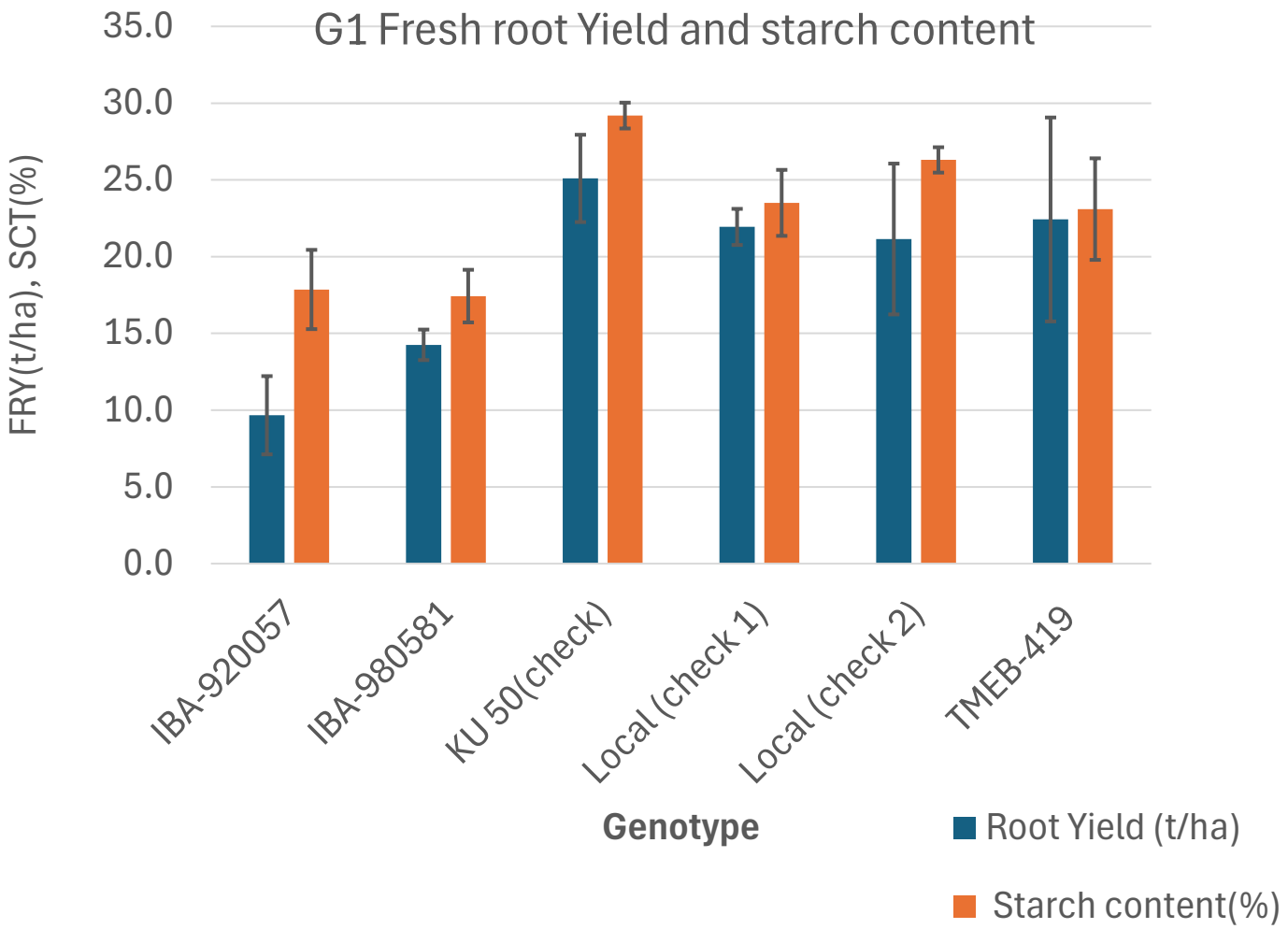
- KM 325(check) was the highest yield 34.6t/ha with starch content 15.9%, follow by KU 50 32.2 t/ha with starch content 18.4%
- Among the new lines, TMEB 419 was the highest yield 26.7 t/ha with starch content 17.7%

Percentage of CMD and CWBD symptom of cassava variety evaluation in Stung Treng(2023-2024)



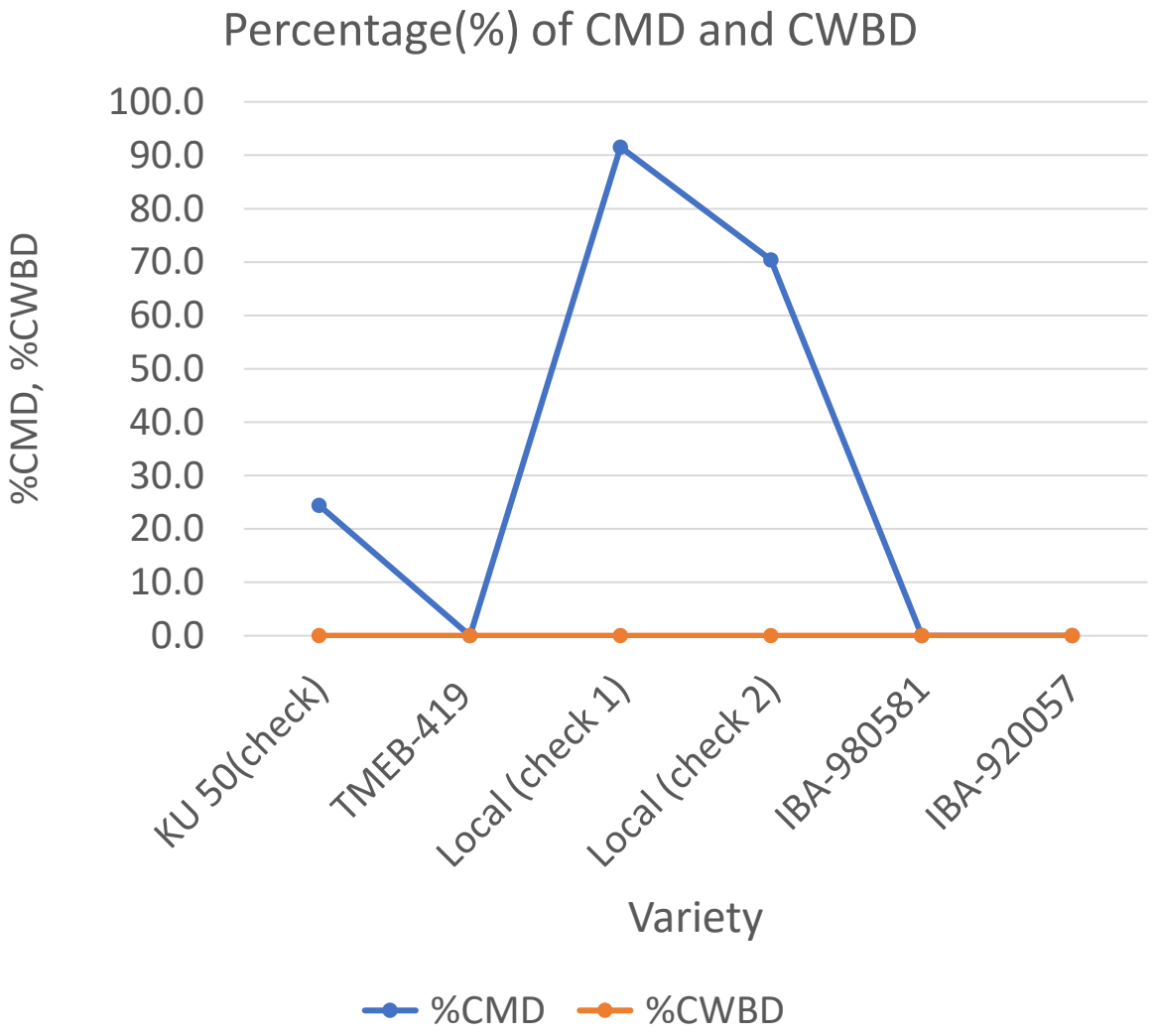
- All new lines, there were no any CMD symptom, while KM 140 got infection.
- KU50(check), TMEB 419 & KM 140(check) were the most susceptible to CWBD

Figure 5: Result of G1 Cassava Mosaic Disease Resistant Clones experiment in Battambang province(2023-2024)



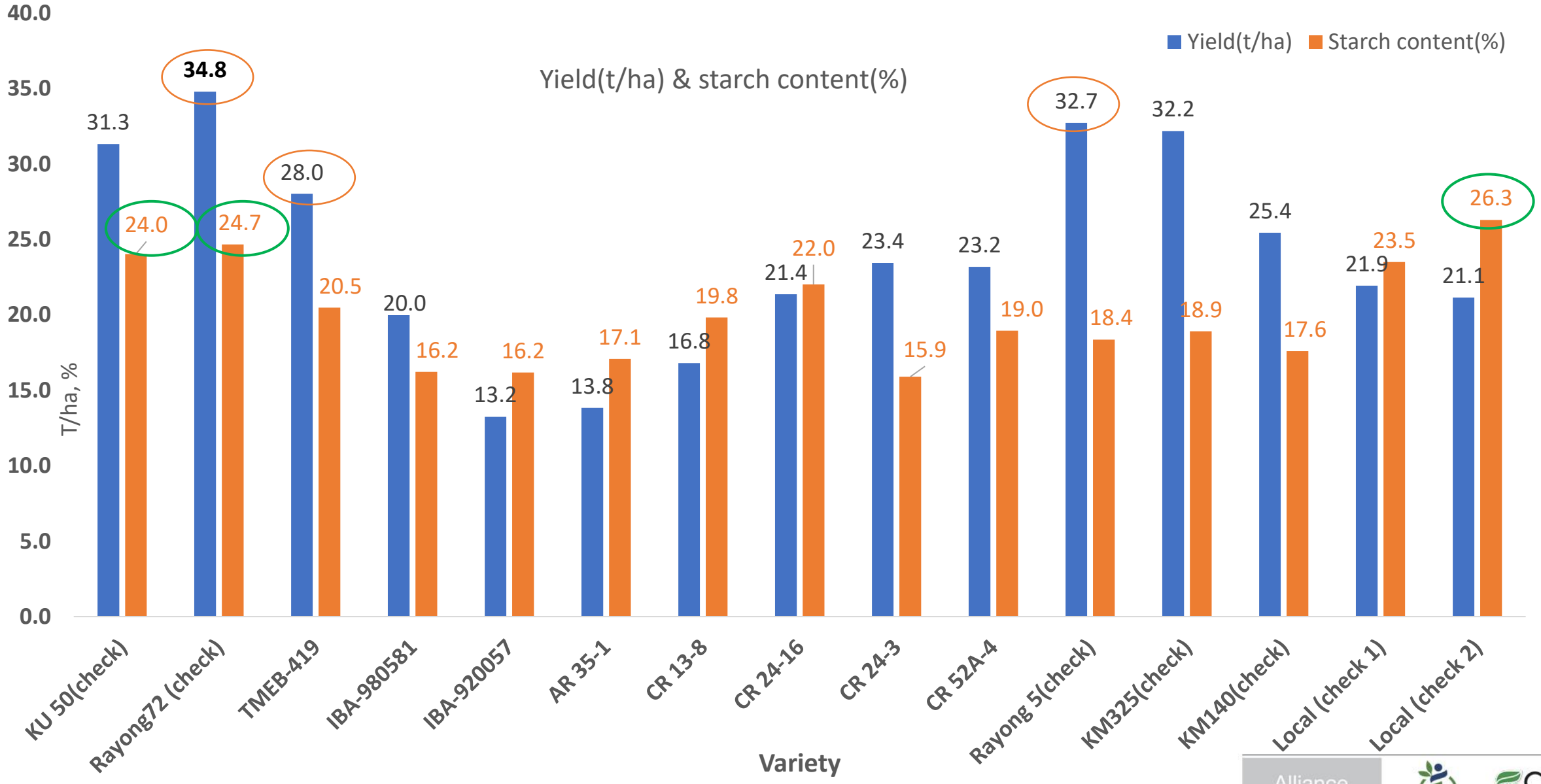
- KU 50(check) was the highest yield 25.1t/ha with starch content 29.2%, follow by TMEB 419 22.4 t/ha with starch content 23.1%
- Among the new lines, TMEB 419 was the highest yield

Percentage of CMD and CWBD symptom of cassava variety evaluation in Battambang(2023-2024)

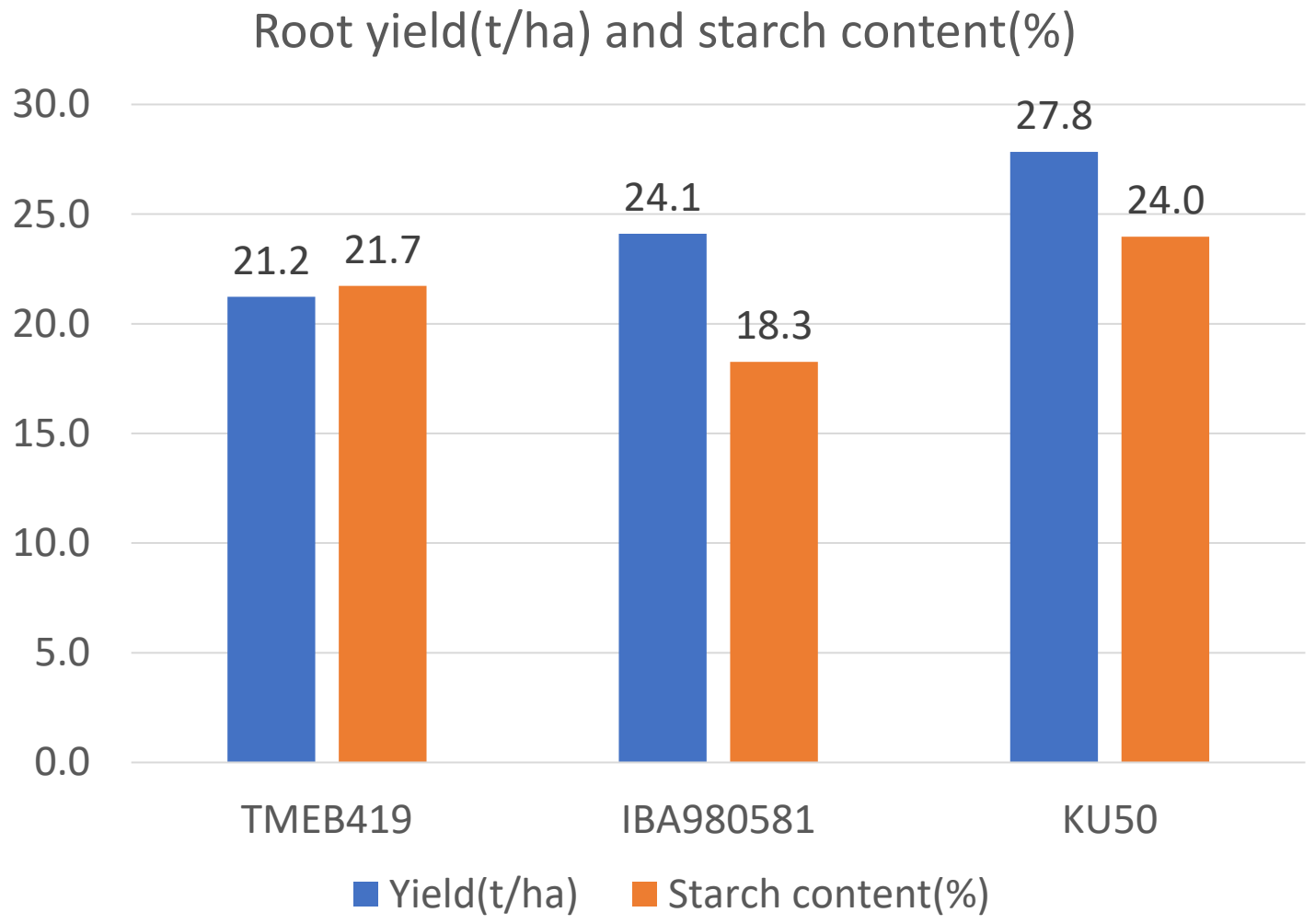


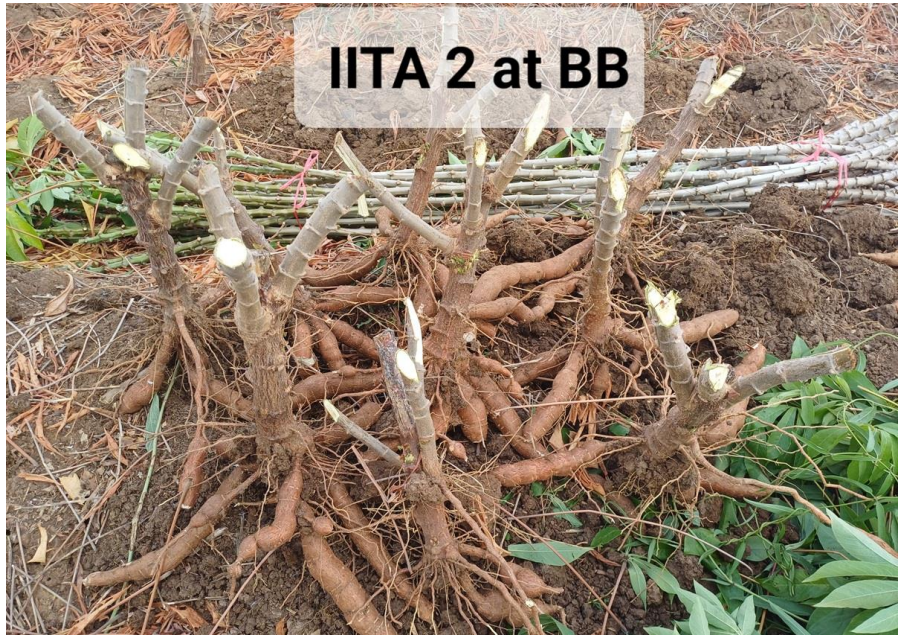
- All new lines, there were no any CMD symptom, while the popular varieties(check 1 & check 2) got most infection up to >90%.
- Non of evaluated lines and popular varieties got CWBD for this location

Average Fresh root yield and starch content across 5 locations



Average fresh rot yield and starch content across 2 location, 2024-2025(Farmers' fields)





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Thanks!