

Figure S1 (Season 2019-2020) Fresh root yield (kg/plant) of cassava infected with cassava mosaic disease (CMD) at after 60 (A), 150 (B) and 270 (C) days of planting (DAP) and asymptomatic plants (D) at harvest of popular cassava varieties in Southeast Asia using disease-free stakes (clean), positive selected stakes from diseased fields (positive selection) and stakes selected from symptomatic plants (symptomatic). Bars are standard errors of the mean (n=3 to 4). Clean TME3 and HB80 were planted as scarcity of clean planting material of SC8 and KM98-1.

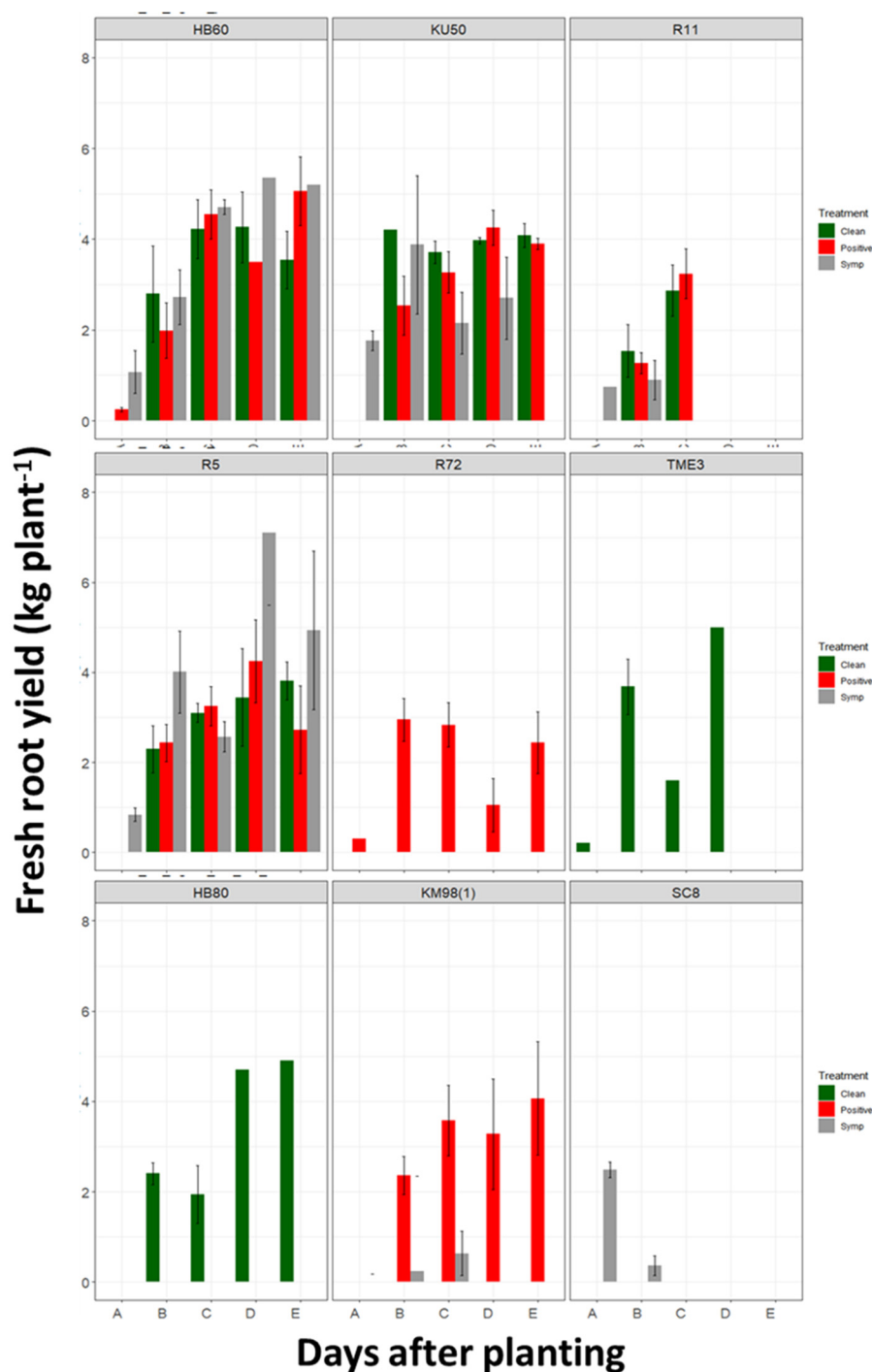


Figure S2. (season 2020-2021) Fresh tuber yield (kg/plant) of cassava infected with cassava mosaic disease (CMD) at after 26 (A), 64 (B), 156(C) and 278 (D) days of planting (DAP) and asymptomatic (E) plants at harvest of popular cassava varieties in Southeast Asia using disease-free stakes (clean), positive selected stakes from diseased fields (positive selection) and stakes selected from symptomatic plants (symptomatic). Bars are standard errors of the mean (n=3 to 4). Clean TME3, positive selected R72 and clean HB80 were planted as scarcity of clean planting material of SC8 and KM98-1.

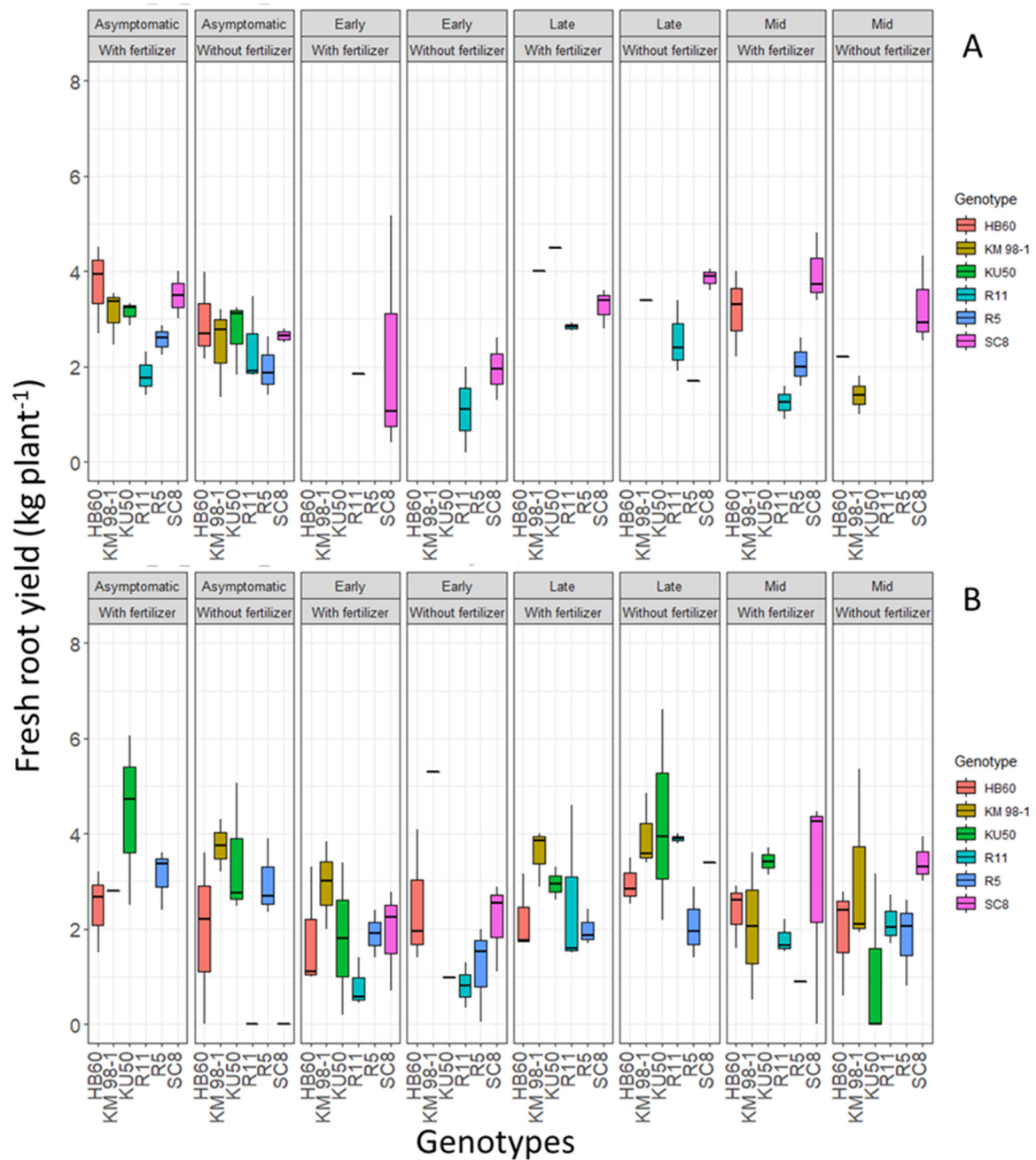


Figure S3. (season 2018-2019) Fresh root yield (kg plant⁻¹) of six cassava varieties displaying CMD symptoms early, mid, or late (60, 150, or 270 days after planting, respectively) during the 2018-2019 season at site 1 (A) and site 2 (B), without fertilizer application and with fertilizer (80-20-80) application.

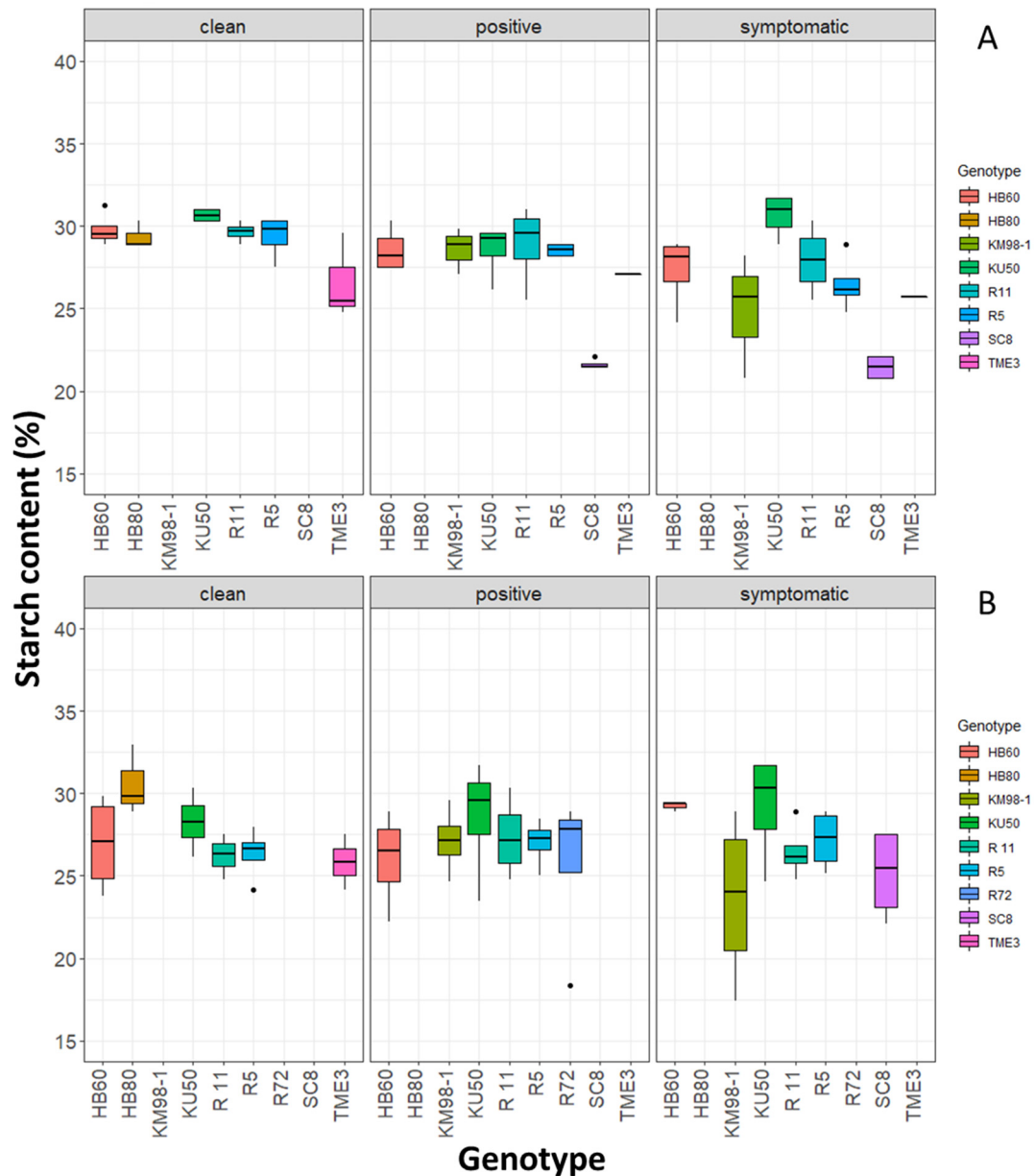


Figure S4. Starch content (%) cassava varieties in Southeast Asia using disease-free stakes (clean), positive selected stakes from diseased fields (positive selection) and stakes selected from symptomatic plants (symptomatic) of during 2019-2020 season (A) and 2020-2021 season (B). Twelve plants were harvested from each plot. TME3 and Huaybong80 (HB80) were planted as clean planting material due to the scarcity of clean planting material of SC8 and KM98-1, respectively, and Rayong72 (R72) was planted as positive selected plant in place of SC8 during 2020-2021 season. There was no significant difference between positive selected and symptomatic stakes, however, it was significant different from clean plants for 2019-2020 seasons; and there was no significant difference between treatment in 2020-2021 season.

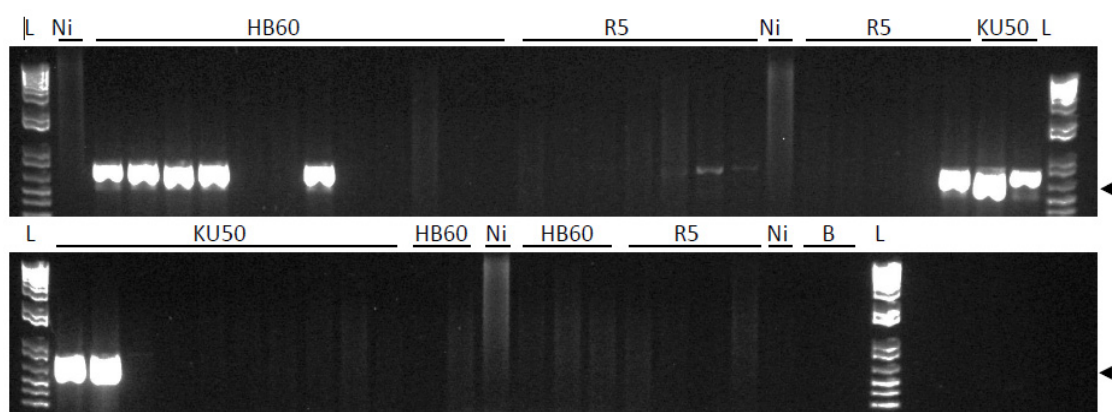


Figure S5. PCR detection of SLCMV, experiment 2, season 2020–

2021 (asymptomatic plants). Top: young stem leaves from each plant were collected and analyzed using SLCMV coat protein gene specific primers, as described in Materials and Methods. HB60, R5, KU50: genotype evaluated as described in the main text. Ni: not infected control plant, B: Blank controls, L: 1Kb Plus DNA Ladder (Invitrogen), black arrowheads indicated 650bp.

Table S1: Analyses of variance of disease development (i.e. symptoms) after 60, 150 and 270 days after sowing (DAP), area under disease progress curve (AUDPC) and yield of cassava varieties with and without fertilizer at two different sites during 2018-19 season.

Source of variation	df	Mean squares							
		Symptom incidence (%)							
		60 DAP		150 DAP		270 DAP	AUDPC (x10 ³)		
Replication	2	166		6		501		4237	
Site (S)	1	7369	**	25725	**	53827	***	1198836	**
Error (a)	2	46		30		49		1660	
Fertilizer (F)	1	406		468		0		10171	
S x F	1	109		314		220		5197	
Error (b)	4	99		475		78		8298	
Variety (V)	5	968	***	8055	***	7637	***	255679	***
V x S	5	96		1163	***	2083	***	19993	***
V x F	5	145		96		36		2458	
V x S x F	5	213		401	**	277		11504	***
Error (c)	40	126		82		115		1861	

Significance codes: *** <0.001, ** <0.01, * <0.05,

Table S2: Analyses of variance of disease development (i.e. symptoms) after 60, 150, and 270 days after sowing (DAP), and area under disease progress curve (AUDPC) during the 2019-20 and 2020-21 season.

Year	Source of variation	df	Mean squares							AUDPC (10 ³)
			Symptom incidence (%)							
			30 DAP	60 DAP	150 DAP	270 DAP				
2019-20	Replication	3		51	161	140			2373	
					1596	1611			55803	
	Variety (V)	3		3954 ***	7 ***	2 ***			2	***
	Error (a)	9		253	168	128			6252	
	Seed (S)	2		5331 ***	1957 **	502			80657	***
	V x S	6		1680 ***	1115 **	1319 **			51930	***
	Error (b)	24		109	222	242			6638	
2020-21	Replication	3	83	555	829	462			29321	
									19693	
	Variety (V)	3	1377 **	5092 ***	4482 **	1807 *			5	**
	Error (a)	9	130	349	487	372			19139	
			1737	1168					32293	
	Seed (S)	2	8 ***	8 ***	4303 ***	2147 ***			1	***
	V x S	6	1428 ***	909	936 ***	690 **			35187	***
	Error (b)	24	116	367	131	147			4554	

Significance codes: *** <0.001, ** <0.01, * <0.05,

Table S3. Starch content (%) of six varieties grown in two sites with and without fertilizer where plants demonstrated symptoms at different time during growth period (i.e. 60, 150 and 270 days after planting) and did not show any symptoms till the harvest (i.e. asymptomatic)

Site 1		Without Fertilizer				With Fertilizer			
Variety	60 DAP	150 DAP	270 DAP	Asymptomatic	60 DAP	150 DAP	270 DAP	Asymptomatic	
KU50			28.9	25.2 ± 0.5				30.8 ± 1.3	
Rayong5				29.4 ± 2.1				30.3 ± 0.8	
Huaybong60				28.1 ± 6.3				29.9 ± 1.9	
KM98-1 (6)				26.6 ± 1.6				28.0 ± 2.0	
Rayong 11			30.8 ± 0.5	30.8 ± 1.3			31.7	28.0 ± 1.2	
SC8			27.5 ± 0.8			25.5 ± 0.7	27.5		
Site 2		Without Fertilizer				With Fertilizer			
Variety	60 DAP	150 DAP	270 DAP	Asymptomatic	60 DAP	150 DAP	270 DAP	Asymptomatic	
KU50		26.1	26.6± 0.5	26.6±0.5	28.9	24.1±0.9	26.1	26.6±1.2	
Rayong5				27.5	28.9		28.9±1.4	27.5	
Huaybong60	26.1	26.8± 0.7	28.0±1.2	27.5	23.5	26.2±1.4	27.5±0.8	28.9	
KM98-1 (6)	20.8	26.1	26.1	26.8±0.7	22.8±2.0	23.5	23.1±2.4		
Rayong 11		27.5±0.8				27.5±0.8			
SC8	23.5	22.6±1.2	20.8		22.1	23.5±1.5			