

Establishing sustainable solutions to cassava diseases in mainland Southeast Asia

Final Review Hung Loc Agricultural Research Center (HLARC)

Objective 4: Develop and evaluate economically sustainable cassava seed system models for the rapid dissemination of new varieties and clean planting material to farmers in different value chains and production contexts

Alliance



Objective 4 in HLARC

- ✓ **Activity 1: The effects of water availability on cassava yield and starch accumulation.**
- ✓ **Activity 2: Effects Planting Density on cassava yield and starch accumulation**
- ✓ **Activity 3: Susceptibility of Cassava Varieties to Cassava Mosaic Disease Trial**
- ✓ **Activity 4: Rapid multiplication by tunnel system**

OBJECTIVES

- Multiply new cassava varieties quickly in the early stages when materials are limited.
- Maintain active sources of materials in research



**Four tunnels have been built at HLARC.
They were be operational by the end of
2021**



Trial phase showed that cassava cannot germinate in the tunnel if temperature is too high

Figure 1: TMEB419 planting in the tunnel after 13 days (germination rate: 22%)



Figure 2: Temperature and humidity of Tunnel 1 at 10:30

- Shade is used when sunlight is too strong.
- Misting system



Productivity of Tunnels (test run) at HLARC, Vietnam.

Varieties	No of mother plant	No of 2 node cutting	Germination	No of plantlets for 3 cycle	Rooting (%)	Transplant to field success	Multiplier for 3 cycle
CR24-16 (HN36)	2	60	70	355	96	340	170
VN19-1184	2	60	100	688	98	674	337
VN19-773	2	60	100	690	98	676	338
TMEB419 (HN1)	2	72	100	536	99	530	265

Tunnel multiplication and successful field transplant

Tunnel ID	Date of sowing in Tunnel 4 January 2022		Date of sowing in Tunnel 3 to 16 April 2022	
	No of two node Cuttings	No of Plantlets transplant to field	No of two node Cuttings	No of Plantlets transplant to field
Tunnel 1	608	5729	625	5043
Tunnel 2	615	5906	569	4568
*Tunnel 3	1056	6982		
*Tunnel 4	1125	7418		

*These two tunnels were planted only once later in the year (22 October 2022)

Successful multiplication using tunnel systems accelerate distribution of TMEB419 to farmers in Dong Nai as well as other provinces.

From January to December 2022, six tunnels produced about 35,000 plantlets, out of these, 2,000 plantlets was used for different experiments, 4,200 planted were planted on station for multiplication purpose and 29,400 plantlets were sold to farmers at 0.2 USD/plantlet (1USD =23,745 VND)



Future directions

- Maintain rapid tunnel propagation of new cassava lines to provide materials in the early stages.
- Transfer technology to partners if they need to multiply quickly



