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Cassava market update: implications for managing pest and disease

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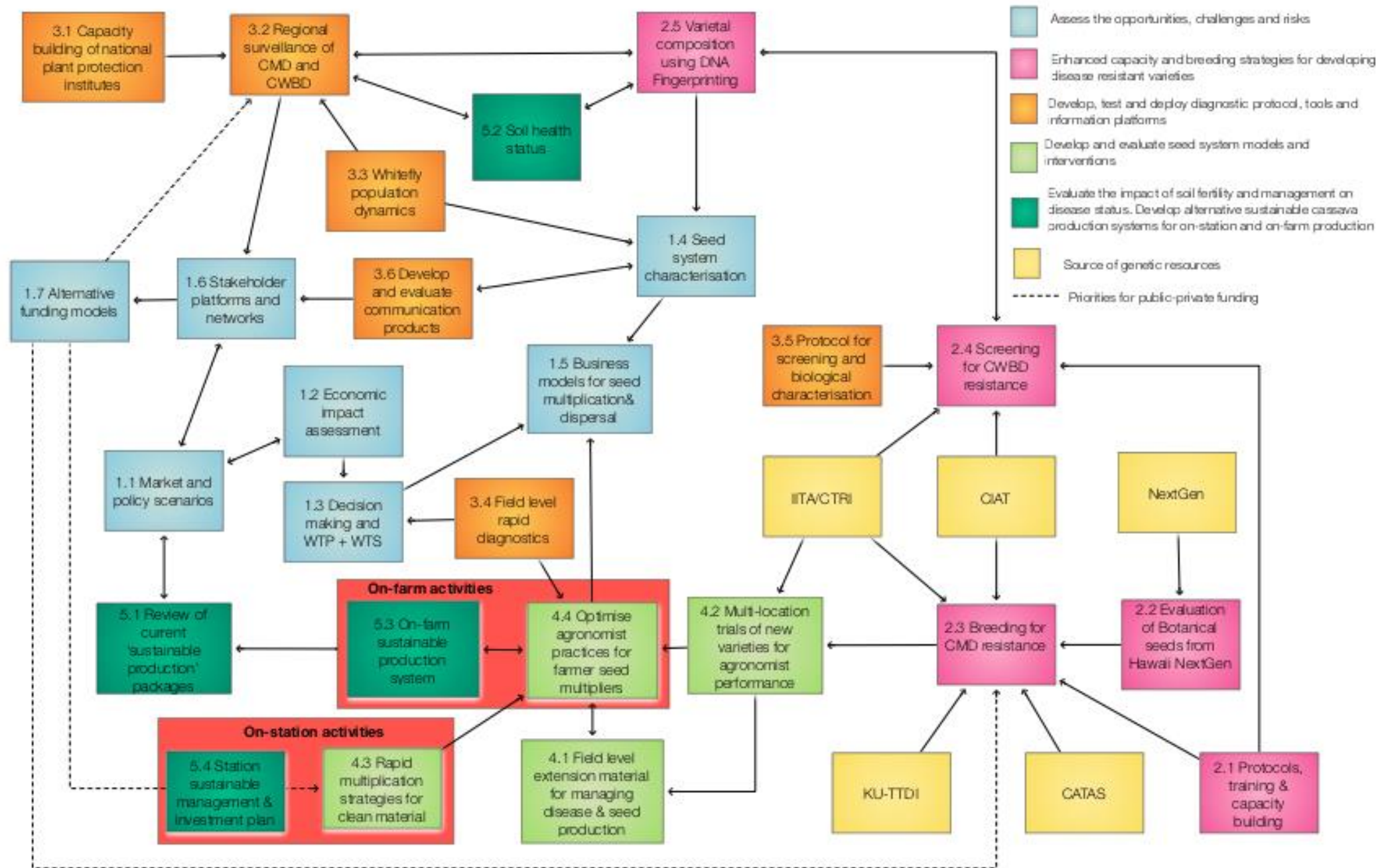
Project Mid-term Review

21th February 2022

Objective 1.1 & 1.2

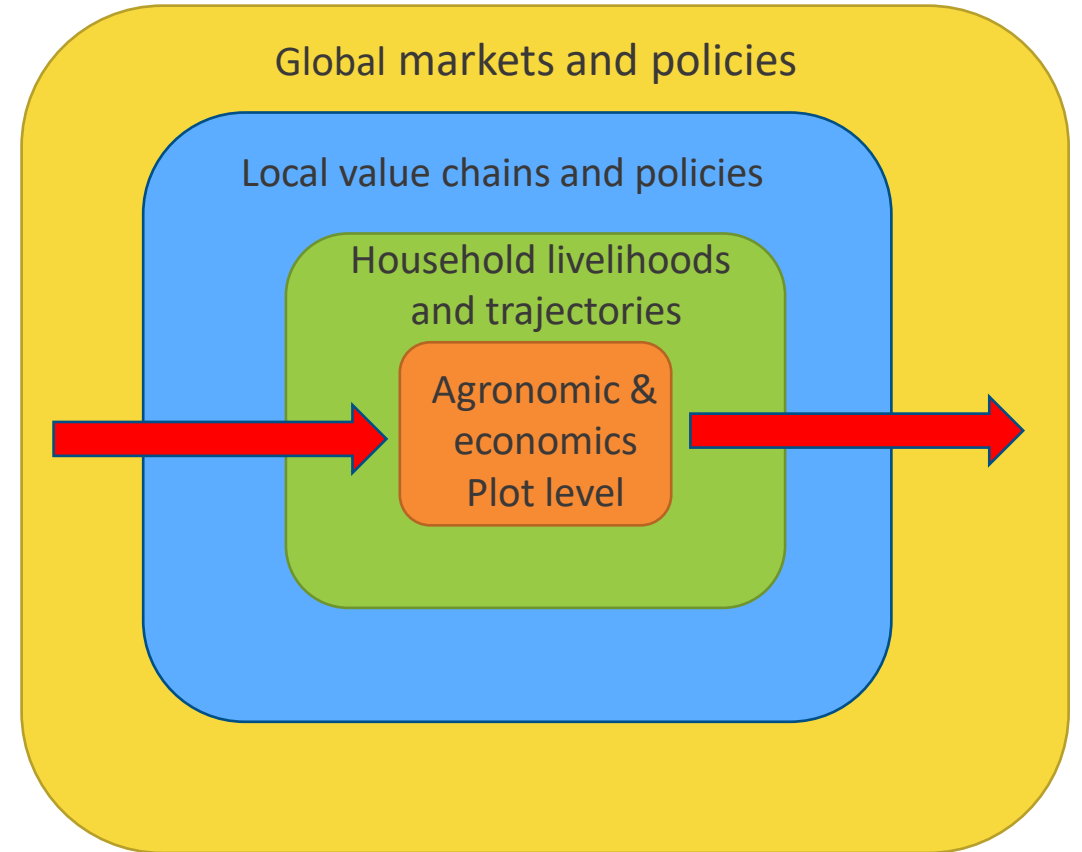
1.1 - Understand the macro-level drivers for the development of the cassava industry, including changing market conditions and policy arrangements for cassava (starch, feed, chips) and substitutes (e.g., maize, potato, and sugar). Develop plausible market scenarios to analyse the impact of these changes on project interventions and sustainability of business models;

1.2 - Assessment of the economic impact of cassava diseases on cassava producers and industry stakeholders. Outline the potential incentives and constraints for value-chain stakeholder activity to engage in solutions in different production and market contexts;



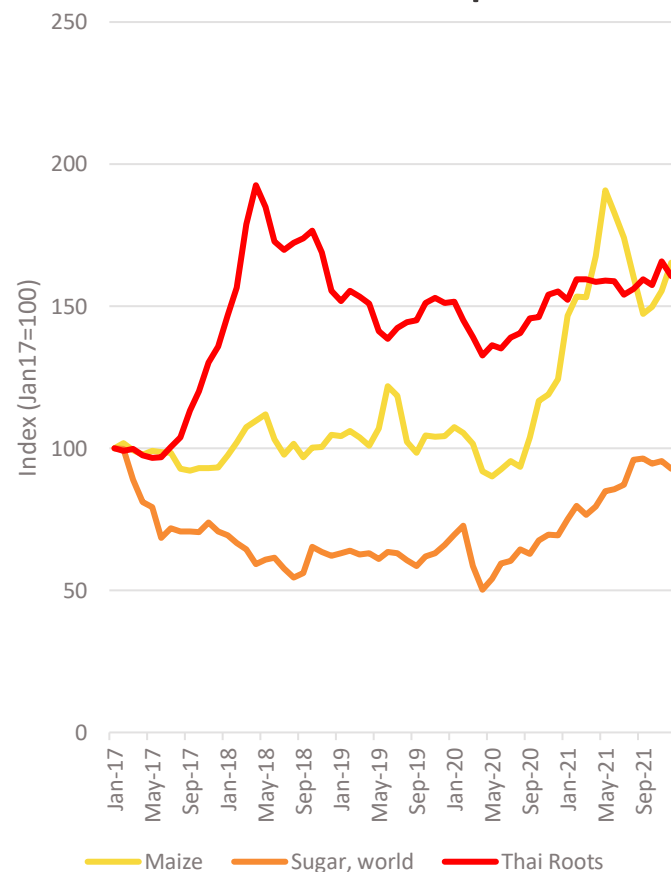
Framework based on ACIAR CASSAVA VALUE CHAIN AND LIVELIHOOD PROGRAM (2016-2020)

1. Global markets and external policies
2. Local value chains and domestic policies
3. Household livelihoods and trajectories
4. Field level agronomic and economic results
5. Implications for household livelihoods
6. Implications for local value chain actors and development of business models

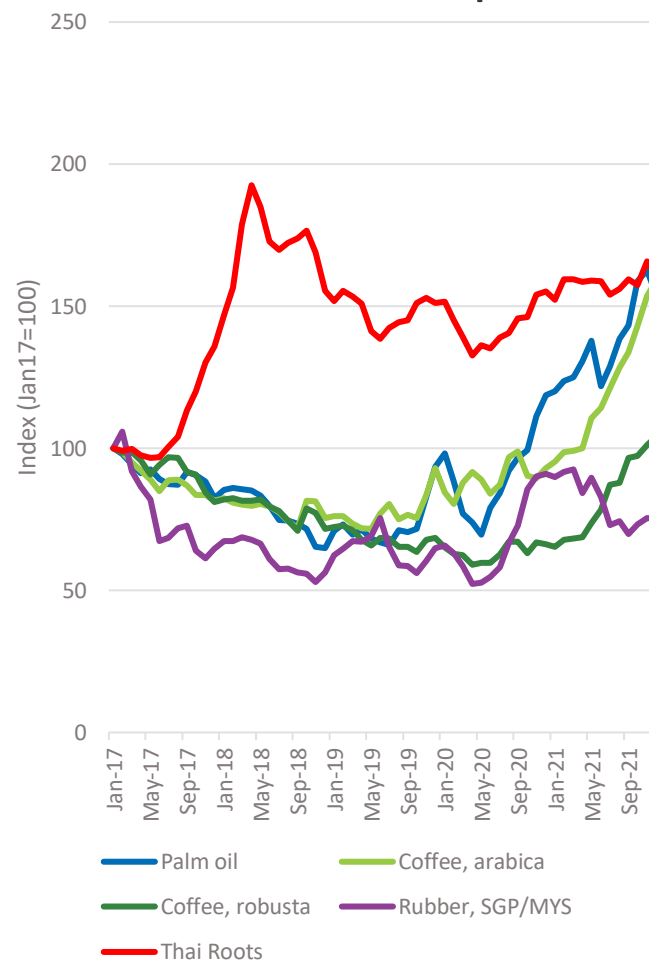


Relative prices impact supply and demand

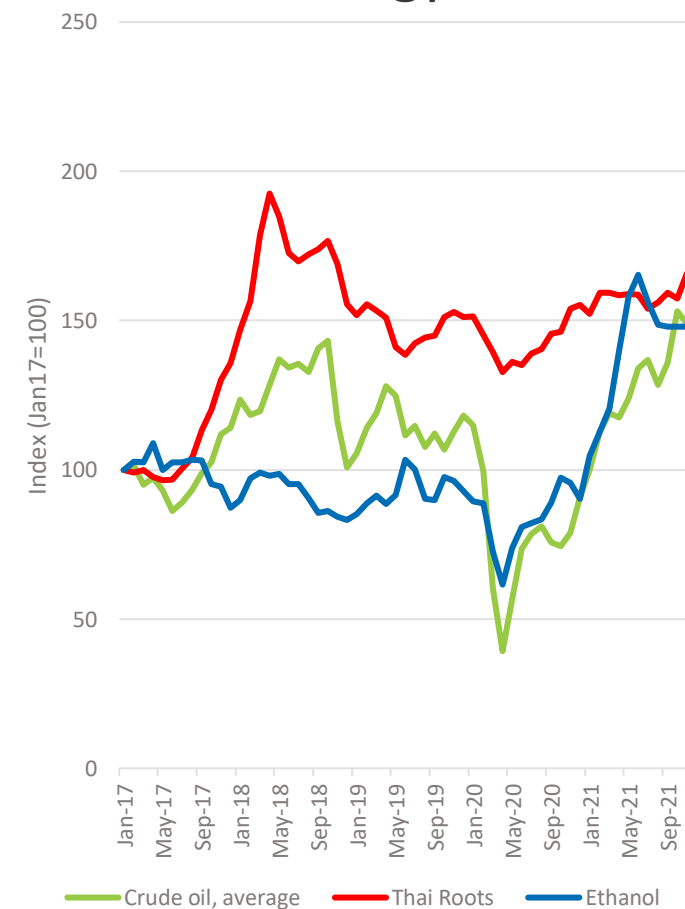
Annual crops



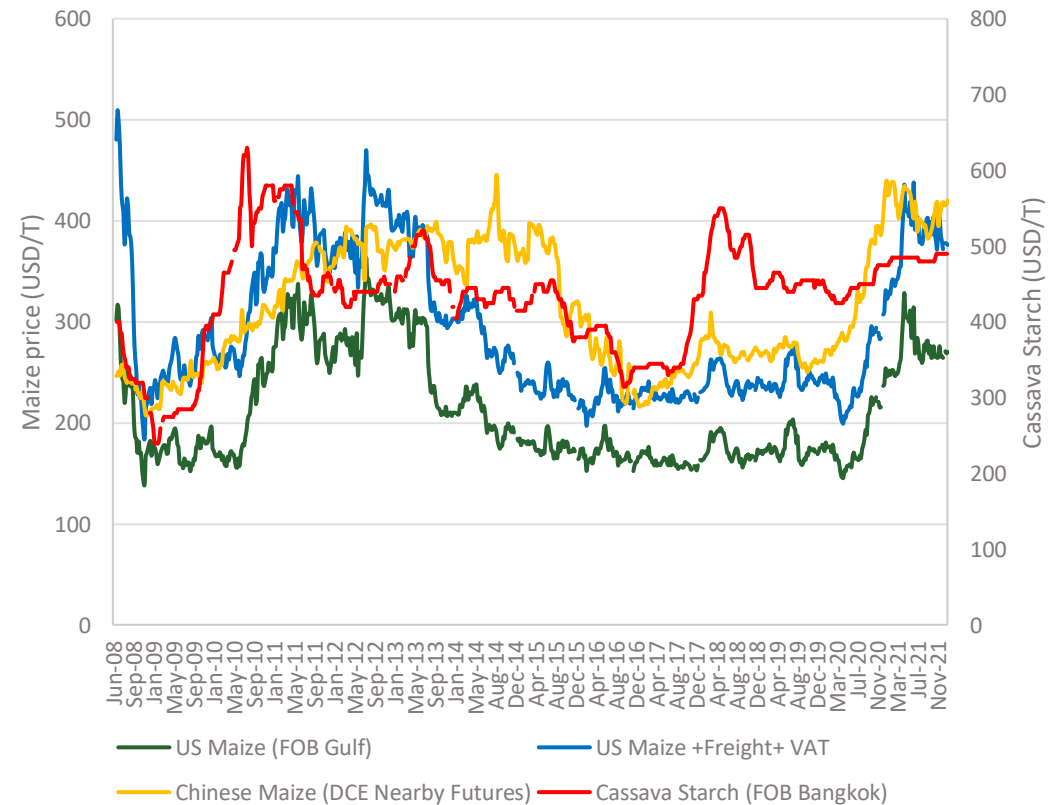
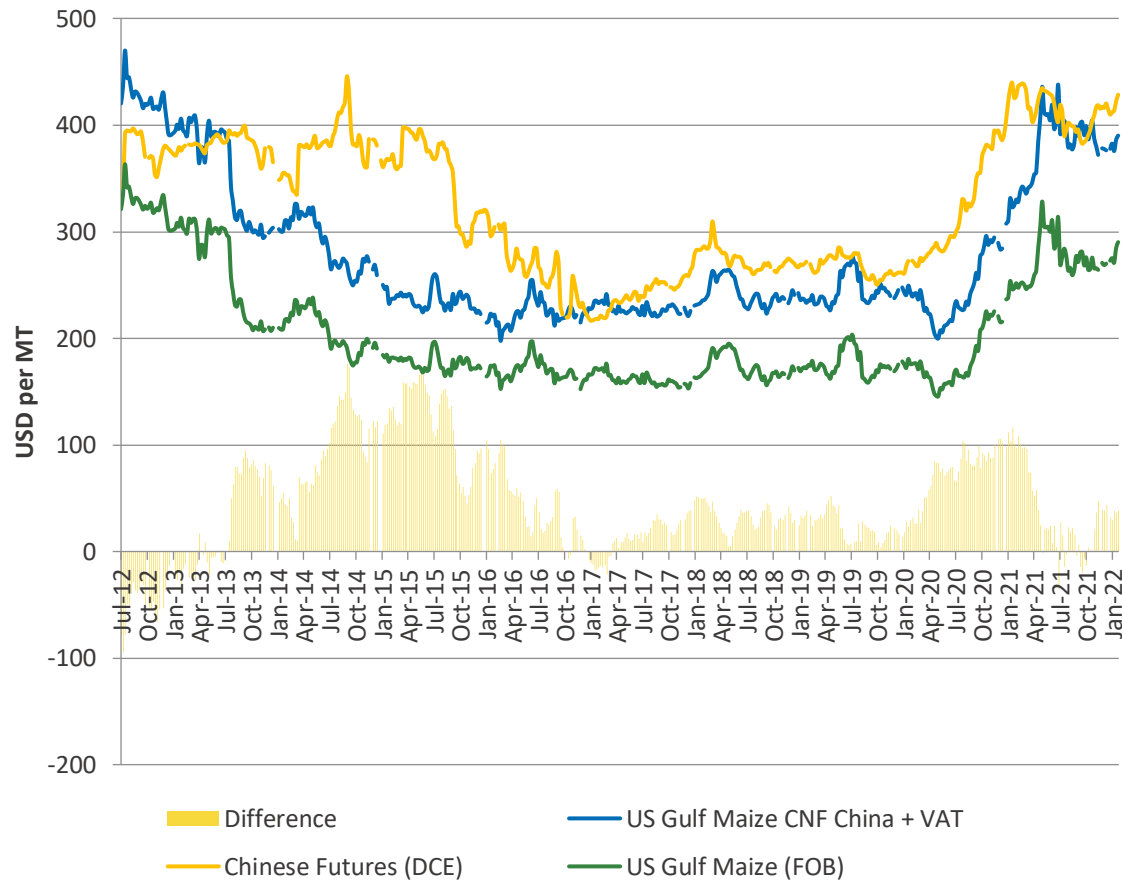
Perennial crops



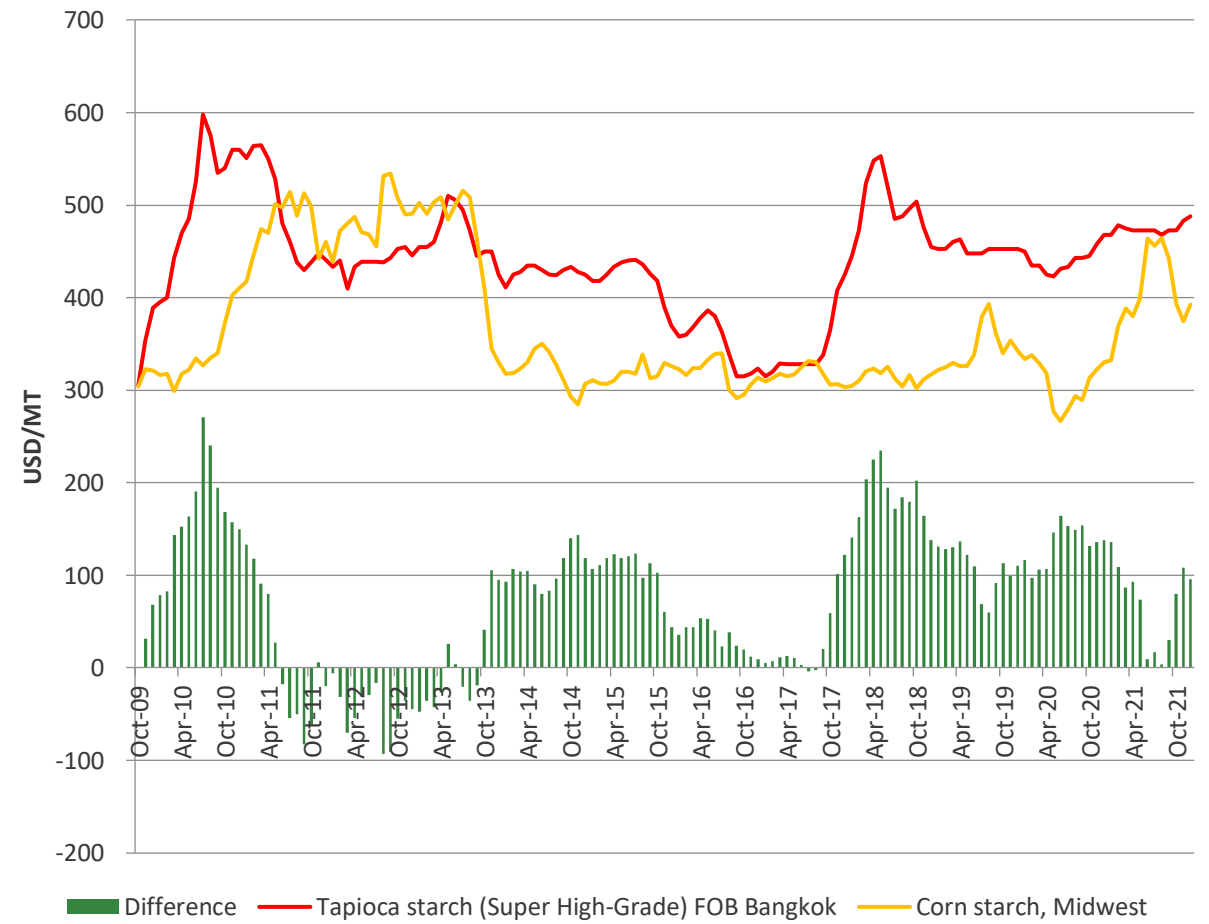
Energy



Rising maize prices in China create demand for cassava products in short-term and lead to increased area of maize production in subsequent crop year.

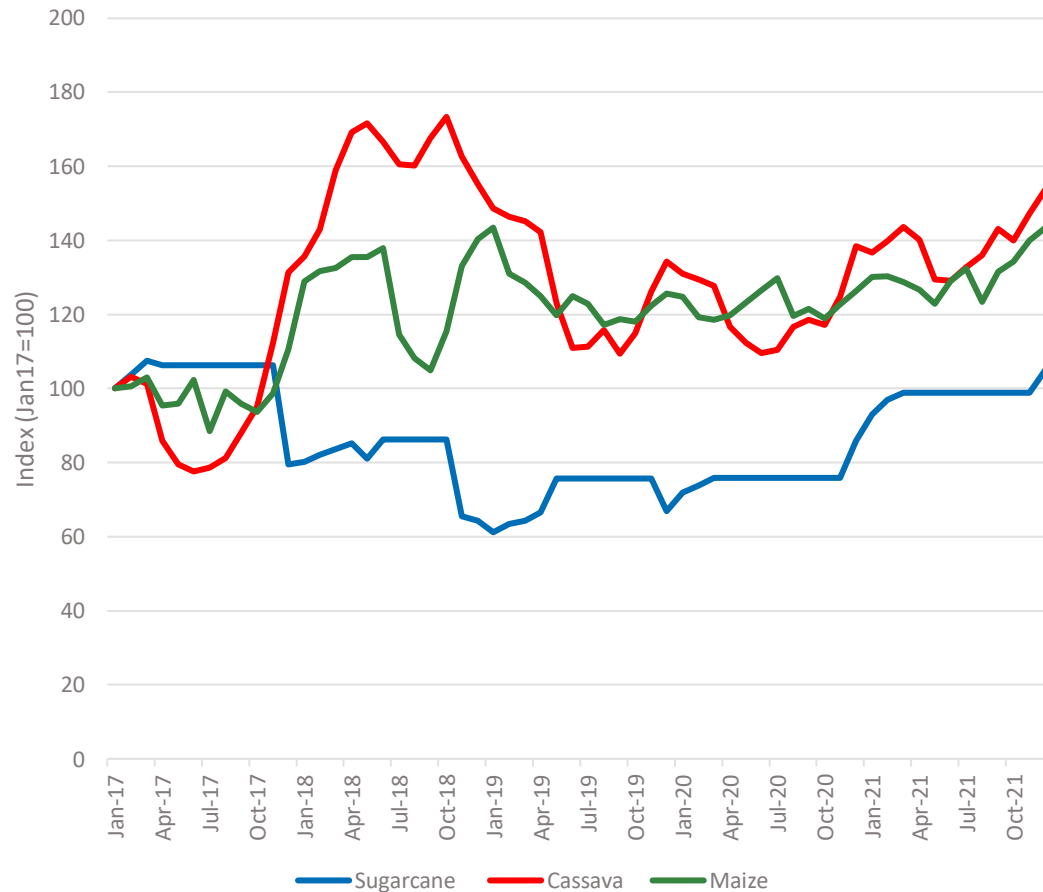


Cassava's competitiveness in global starch market



What crop to grow? Which value chain to engage in?

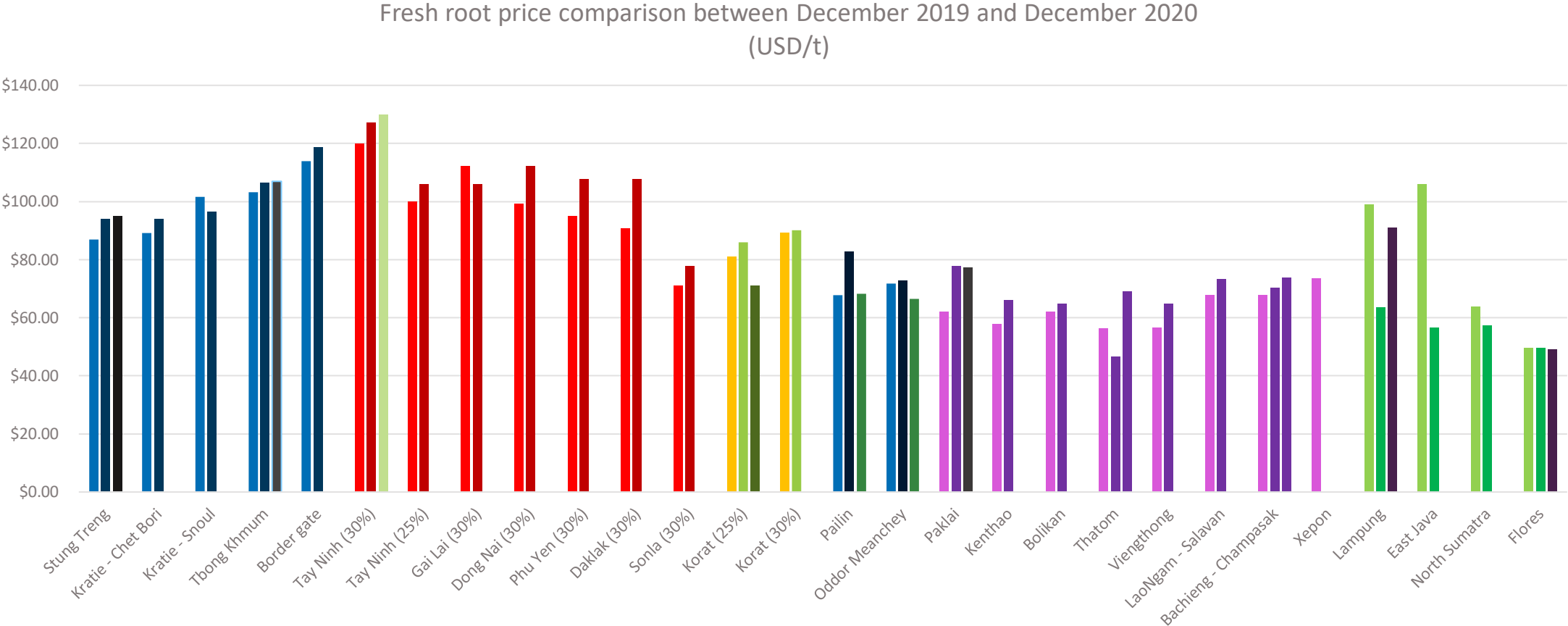
Shift to cassava from sugarcane



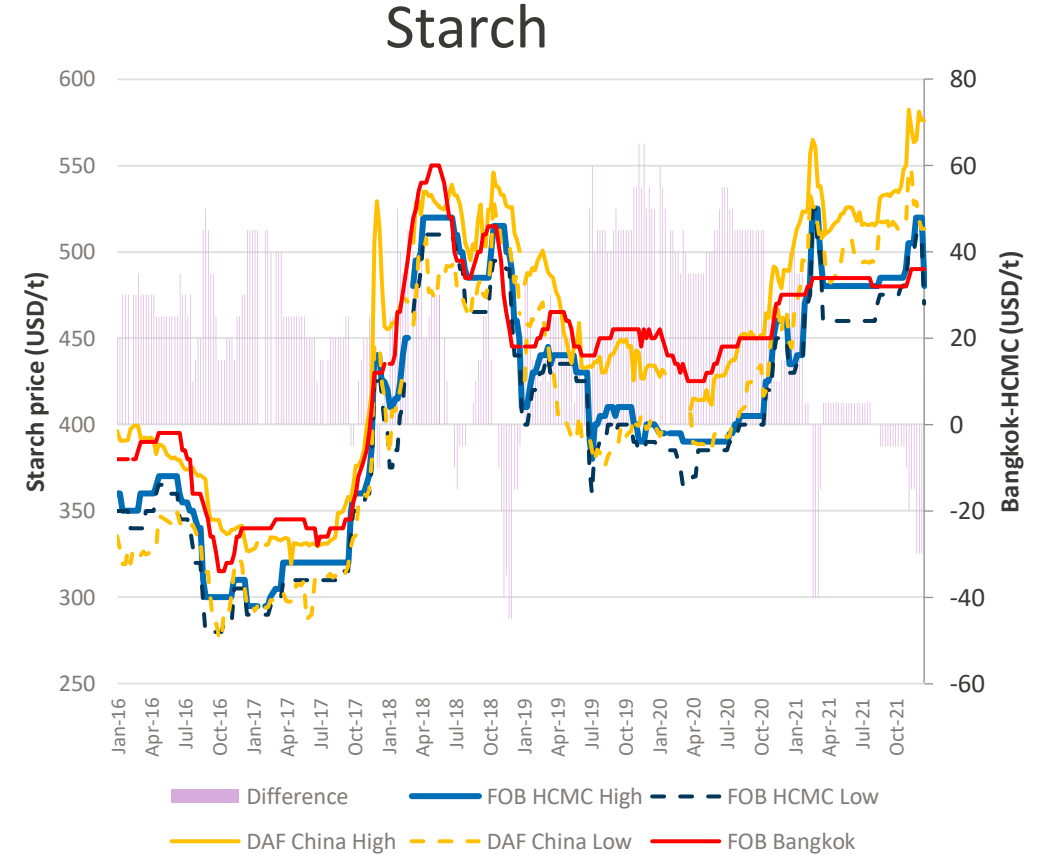
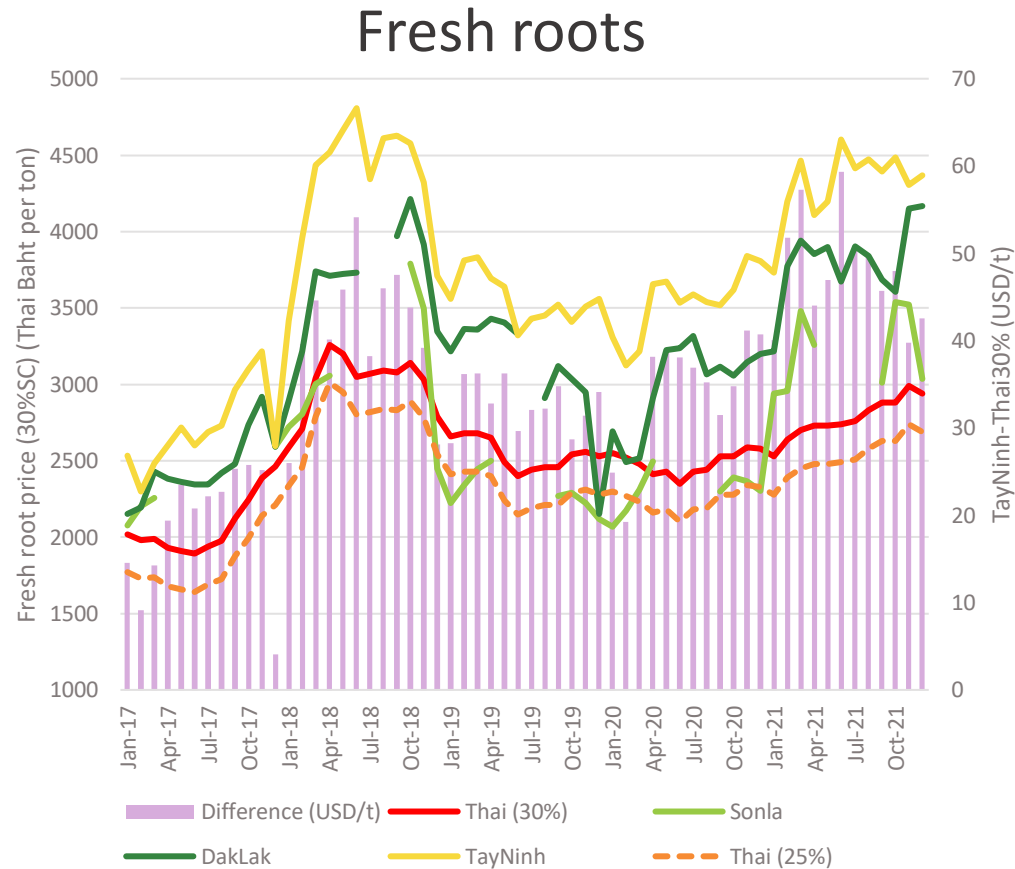
Farmers move to produce dried chips

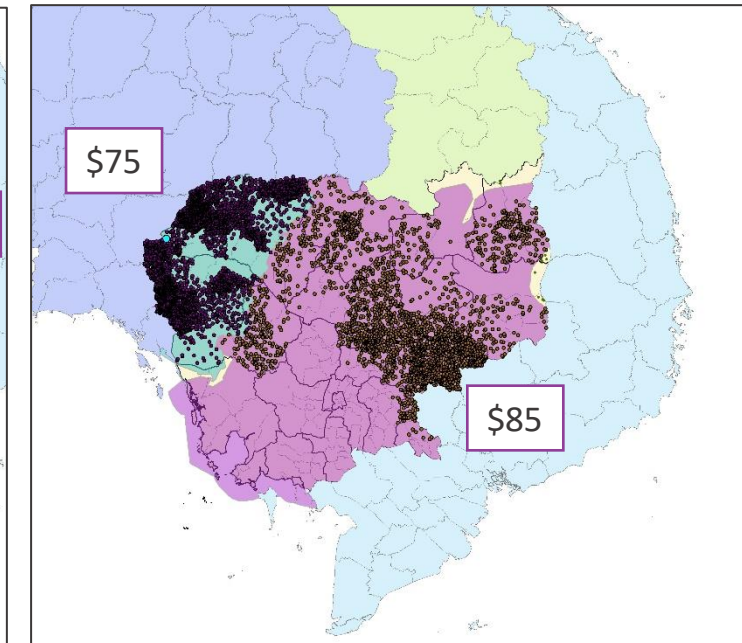
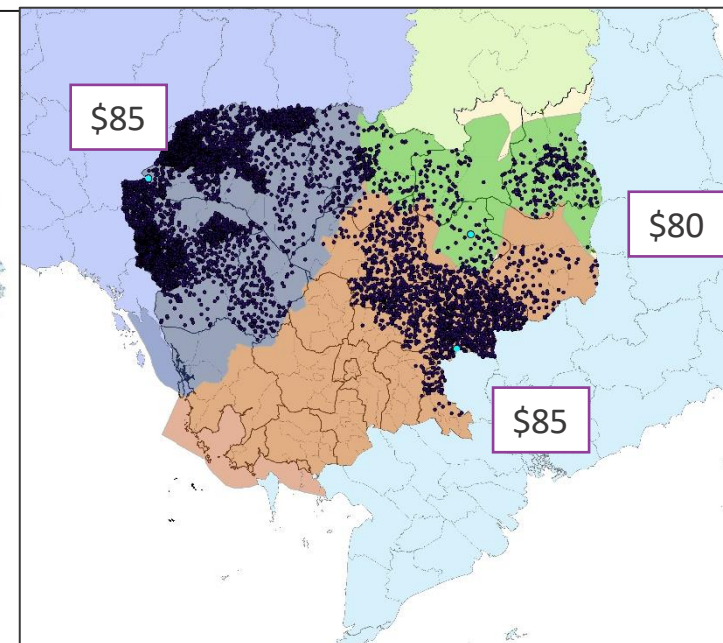
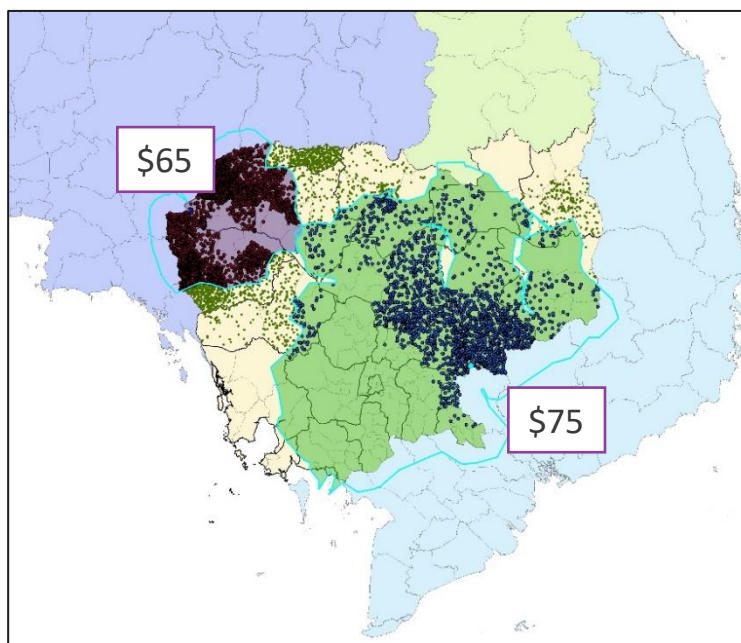
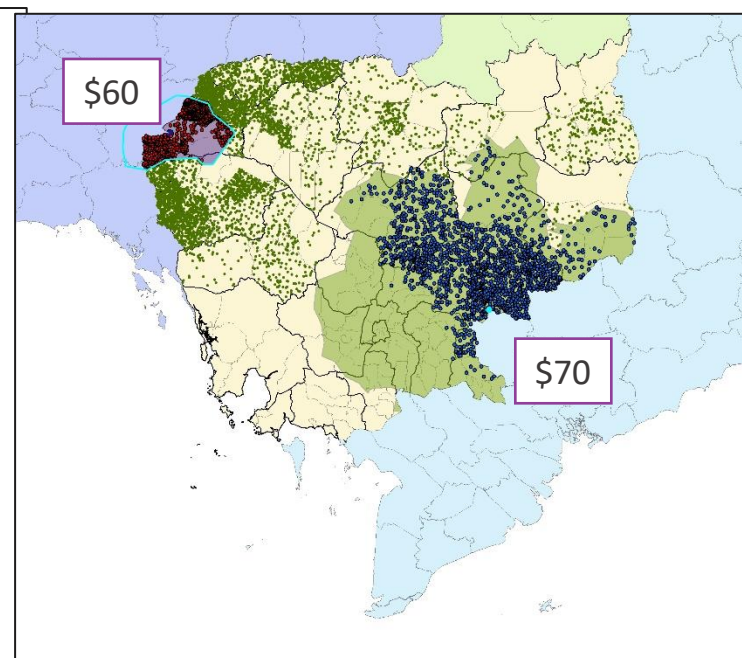
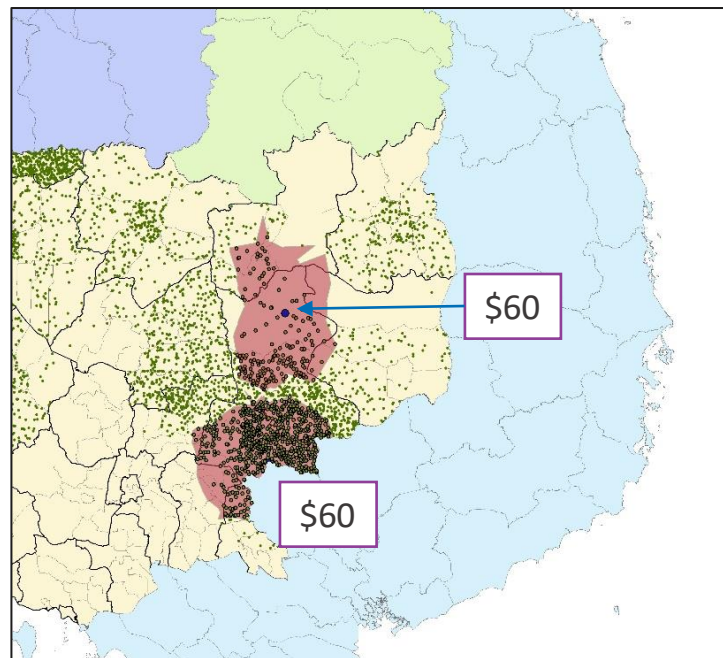
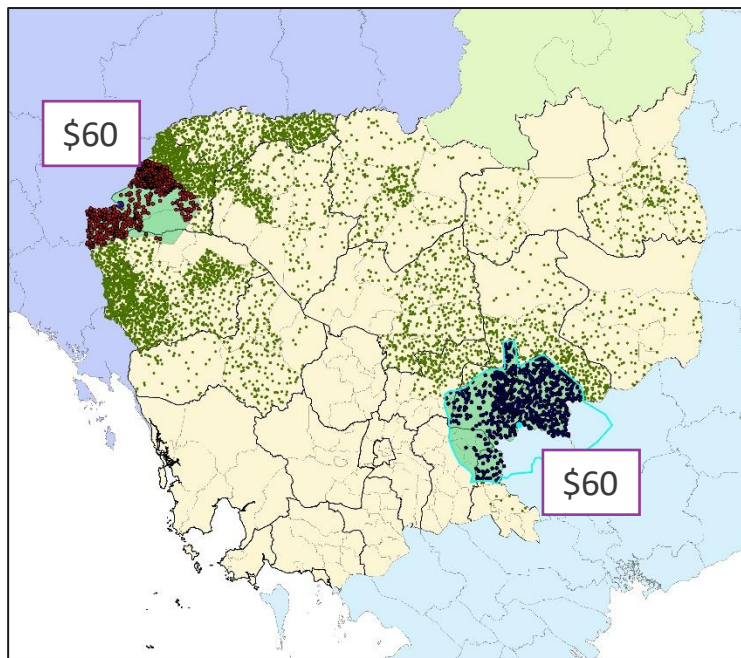


Farm gate prices impact the economic impact of disease & incentive to adopt new technologies – purchase new or clean seed

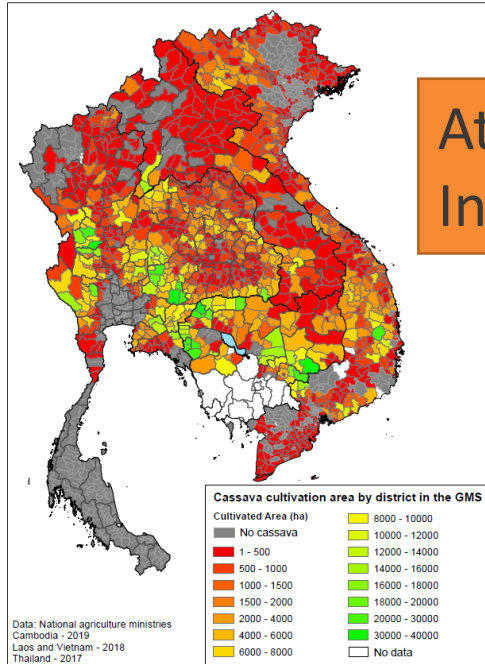
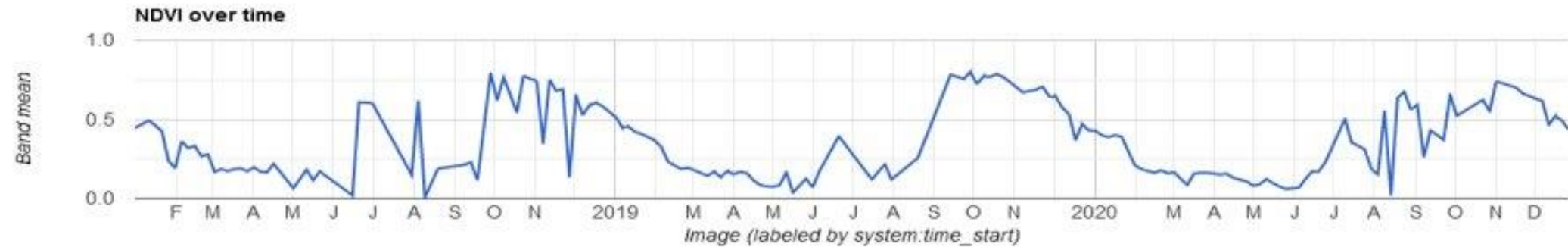


Differences in prices impact the flow of roots and connections between value chain actors – incentive for stakeholder

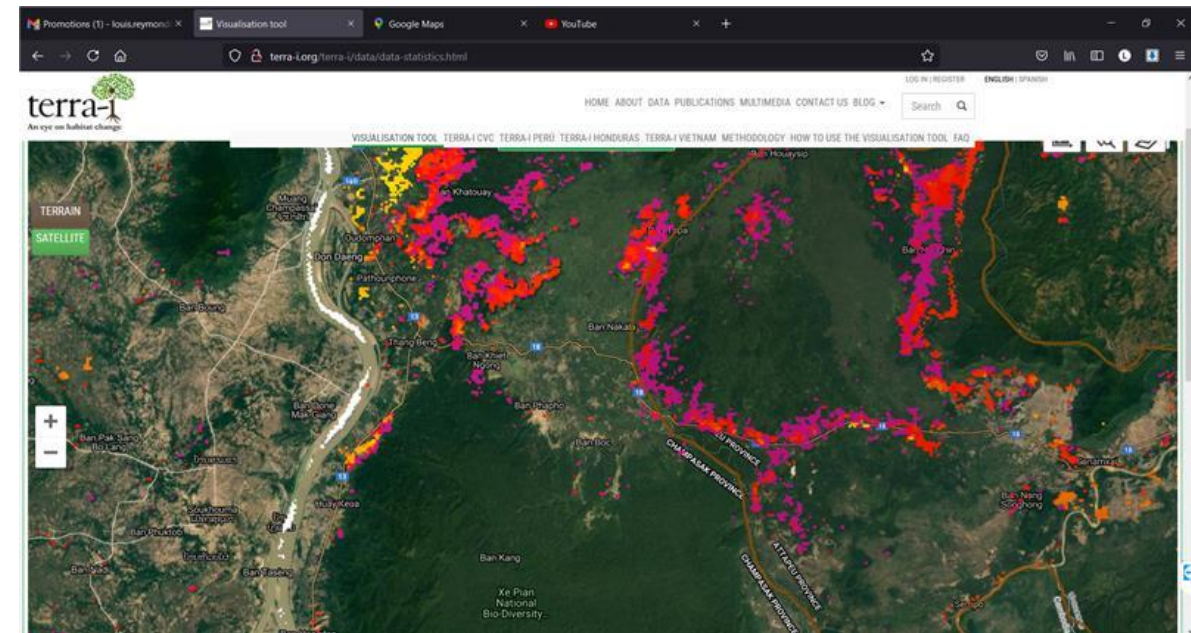




Using remote sense data to understand area expansion and disease introduction risk and overall changes in supply



At least 2 years old
Inaccurate data



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Economic impacts of disease and adoption of new practices

Economic impact of CMD and seed system intervention (Scenario analysis – Cambodia data)

	Low price	Average Price	High price
Price of Fresh Roots (\$/t)	\$25	\$75	\$125
Benefit of positive selected KU50 stems (\$/ha)	\$225	\$675	\$1125
Benefit of 'clean' stems @ \$3 bundles(\$/ha)	-\$80	\$480	\$1040
Buy clean stems – breakeven price	\$2.33	\$7.00	\$11.67
Threshold price for MRR = 200%	\$0.78	\$2.33	\$3.89
But - Do positive selection unless price of stems is less than (\$/bundle)	\$0.46	\$1.38	\$2.29
Farmer benefit from positive selection (\$) (Kampong Cham, Kratie, Stung Treng, Tbong Khmum)	\$36,918,675	\$110,756,025	\$184,593,375
*10% adoption	\$3,691,868	\$11,075,603	\$18,459,338
*25% adoption	\$9,229,669	\$27,689,006	\$46,148,344

Economic impact of Cassava Witches Broom Disease

Kampong Cham, Cambodia



50.8t/ha @ 30.7 % starch content
= 24 tons of Dried Chips



29.4t/ha @ 25.4 % starch content
= 12 tons Dried Chips

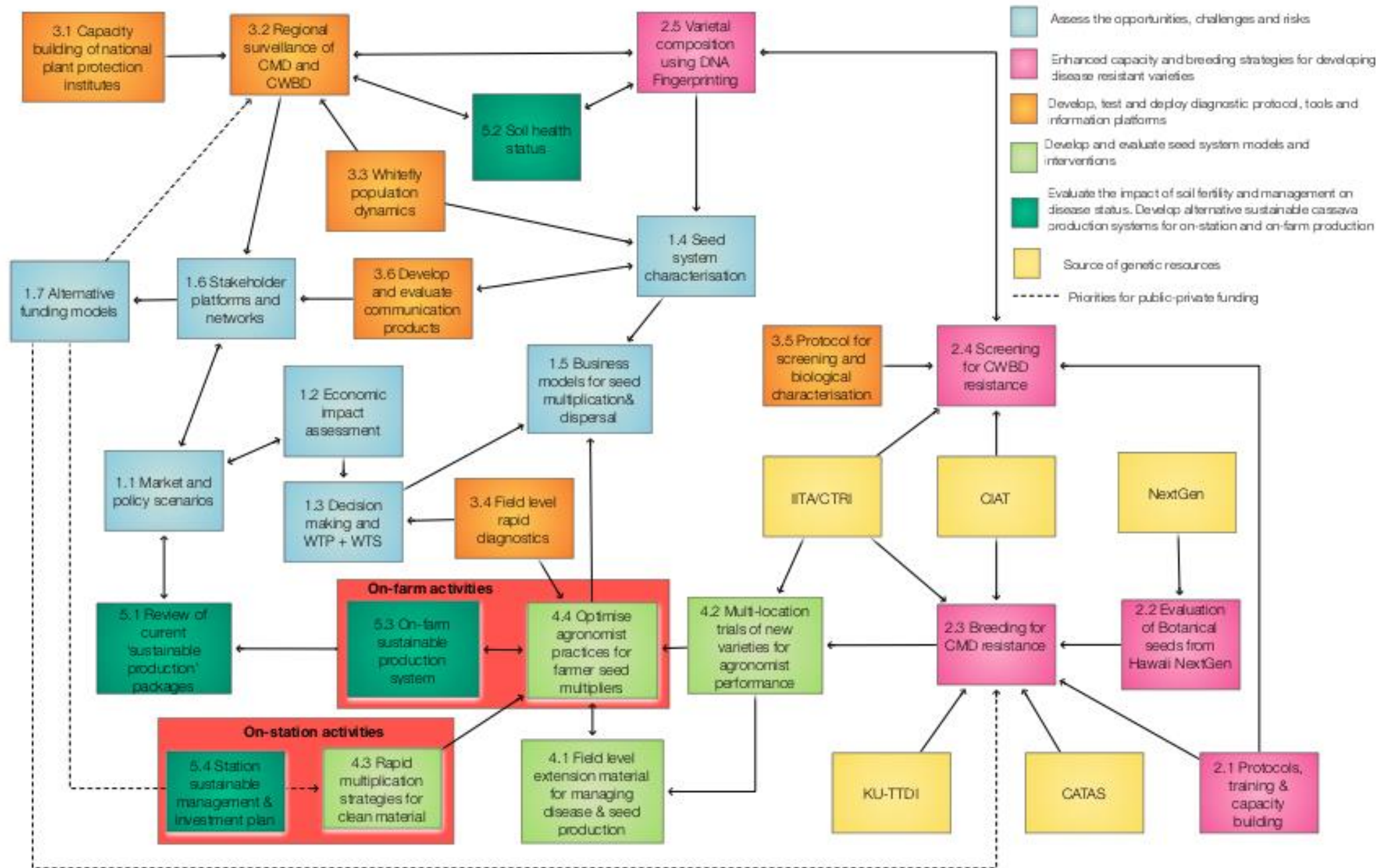


Under what level of disease pressure do you change to the first generation of CMD resistant varieties?

Gross income (\$/ha)
(price deduction for low starch content)

High Disease Pressure					Medium Disease Pressure					Low Disease Pressure			
Price	Season	TMEB419	KU50	CR24-16	Season	TMEB419	KU50	CR24-16		Season	TMEB419	KU50	CR24-16
\$25	1	1129	197	863	\$25	1	607	672	447	\$25			
	2	848	834	788	\$125	1	3037	3361	2236	\$125			
\$125	1	5643	987	4313									
	2	4238	4171	3938									

Develop choice games to test decision making under uncertainty



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Thank you!

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<https://cassavadiseasesolutionsasia.net/> -



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