

Cocoa Farmers' Willingness to Adopt DNAFoil

For Early Detection of Cocoa Swollen Shoot Virus (CSSVD) Disease in Ghana

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Introduction

Cocoa

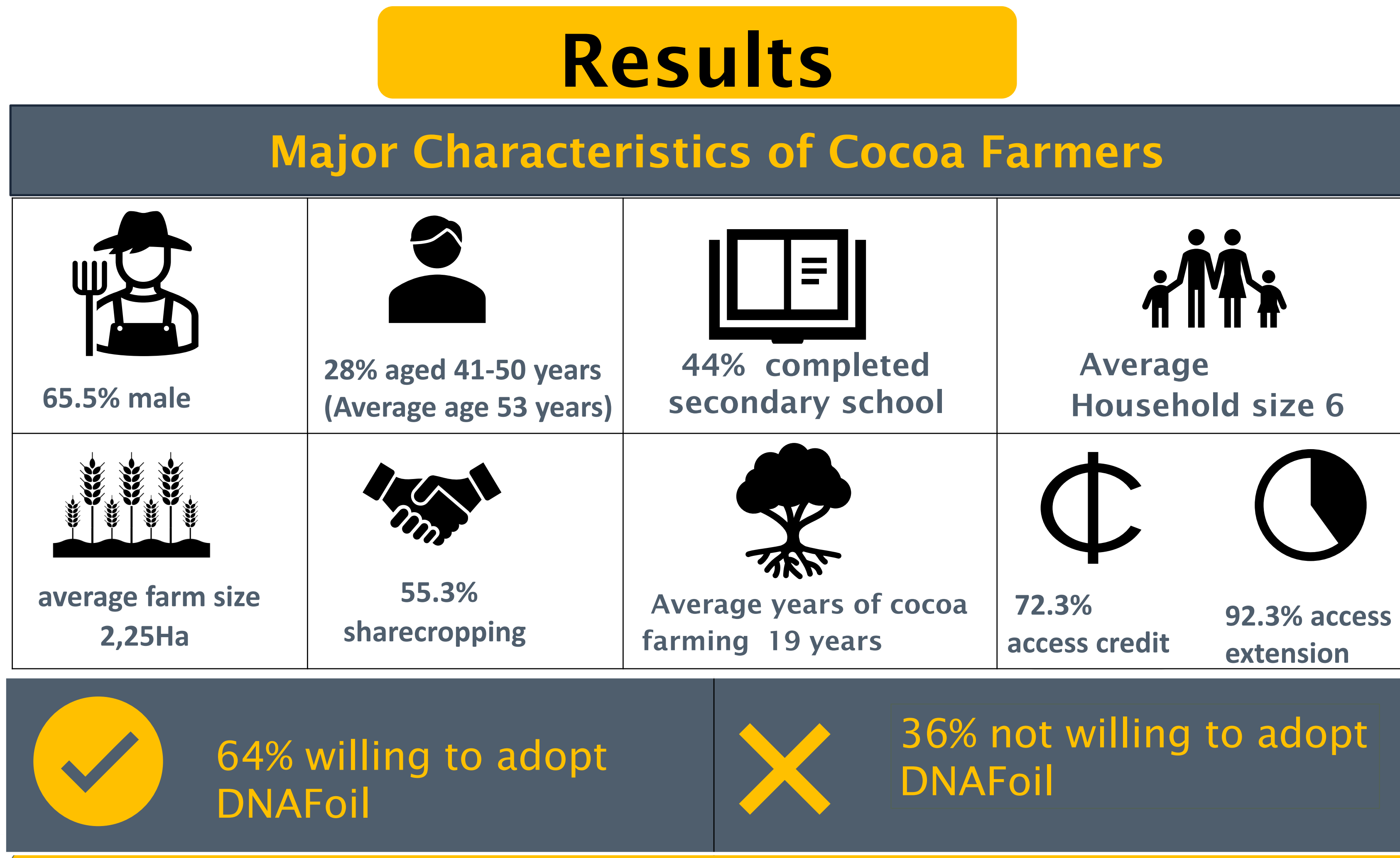
- Pivotal role in Ghana's economy, contributing **\$2 billion** in foreign exchange,
- Employs more than **800,000** farming households

Challenges

- Pests and diseases cause around **38%** of global losses, severely affecting yields and farmer livelihoods.

Cocoa Swollen Shoot Virus Disease (CSSVD)

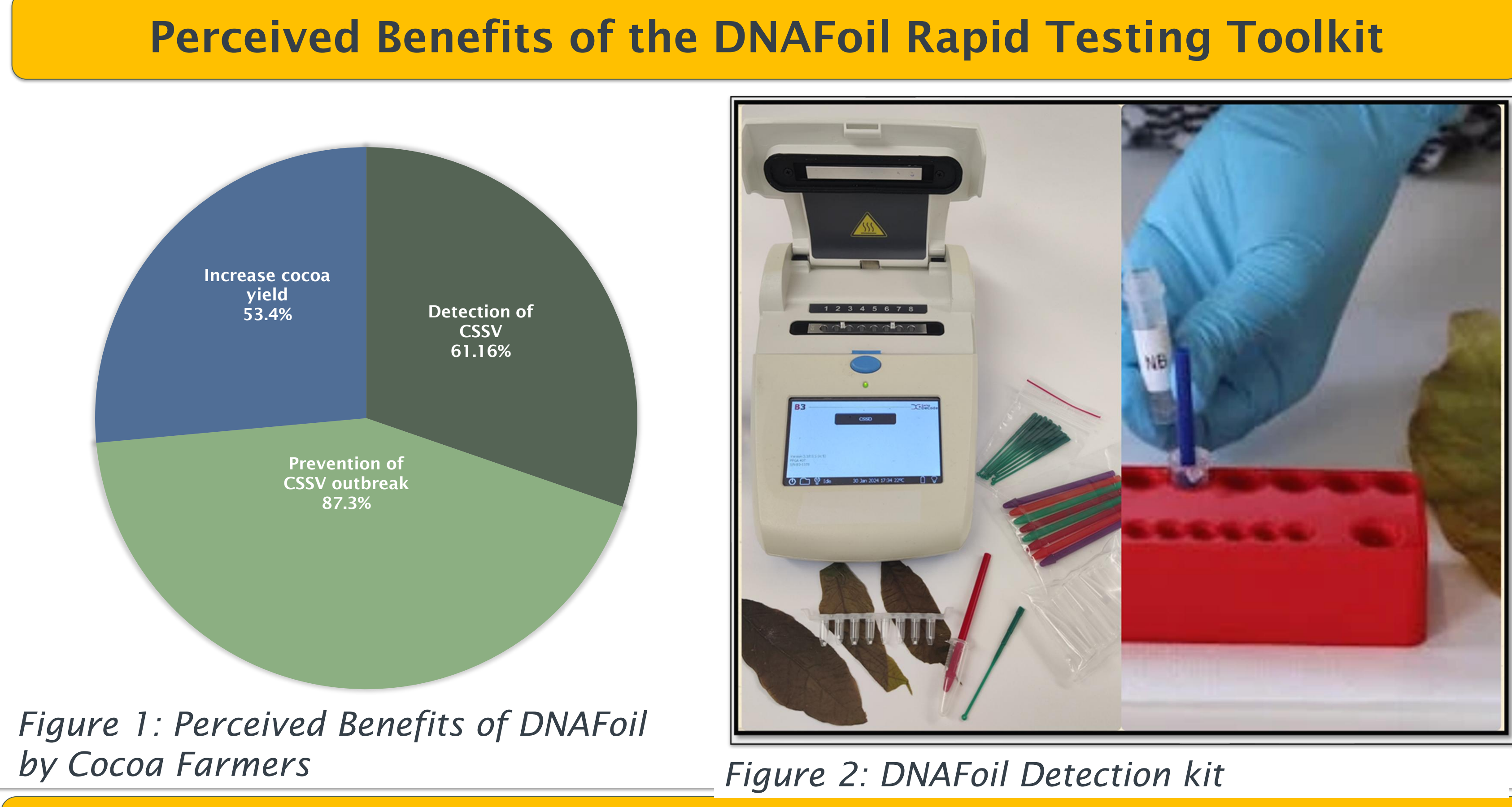
- Reduces **70-80%** yields,
- kills trees within **2-3** years
- 300 million** cocoa trees destroyed
- Symptom-based detection hinders control



DNAFoil CSSVD Early Detection Kit

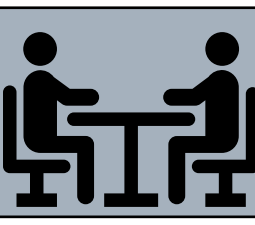
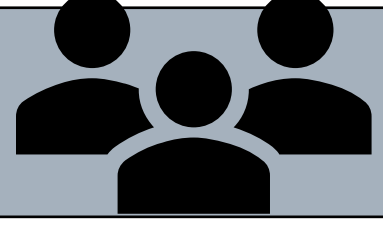
- In-field early diagnosis
- User-friendly technology
- Reduces CSSVD spread to healthy plants
- Protects farmers' income
- Prevents deforestation

Research Question: Are the farmers willing to adopt the DNAFoil rapid testing toolkit for early detection of CSSVD?



Methods

Mixed Method Approach

Quantitative Methods 	Qualitative Method 
Interviews n = 206 farmers <ul style="list-style-type: none">Face-to-face interviews in 2 cocoa regionsStructured questionnaire Content <ul style="list-style-type: none">Socio-demographic characteristicsCocoa farming profileWillingness to adopt the DNAFoil toolkit	14 focus groups n = 242 farmers <ul style="list-style-type: none">1 farmers' group in each communitySemi-structured guides Content <ul style="list-style-type: none">Challenges of adopting the DNAFoil toolkitStakeholder perspective

Binary logit regression analysis for determining factors influencing cocoa farmers' willingness to adopt DNAFoil

Factors Influencing Cocoa Farmers' Willingness to Adopt DNAFoil

 Sex (+, **)	 Age (NS)	 Education (+, 5%)	 Farming Experience (NS)	 Farm Size (NS)	 Access to Extension (NS)
 Perception of DNA (+, **)	 Group membership (+, **)	 Land Ownership (+, ***)	 Awareness of CSSVD (NS)	 Incidence of CSSVD (+, **)	<div>+ = positive effect</div> <div>*** = significance of 1%</div> <div>** = significance of 5%</div> <div>NS = Not Significant</div>

Challenges of Adoption 

Initial cost of purchase.

Technical know-how on operation.

Availability of the kit.



Figure 3: Cocoa tree infested with mealybugs (CSSVD Vector)

- Conclusion and Recommendations
- CONCLUSION
- CSSVD poses a threat to cocoa farmers in Ghana.
 - Relying on visible signs of the disease delays effective intervention.
 - The detection of CSSVD in symptomatic trees is still difficult
- RECOMMENDATIONS
- Subsidizing the initial purchase of the DNAFoil kit
 - Strengthening of the extension for training of DNAFoil
 - Strengthening and empowering of farmers' group to foster Adoption.
 - Integration of DNAFoil into the national cocoa policies for CSSVD-free seedlings.