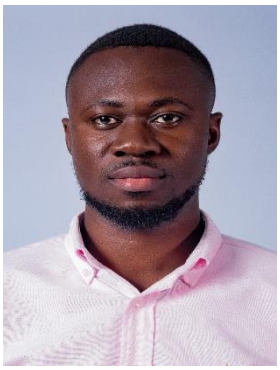
High-Yielding maize variety resistant to Fall Amy Worm (FAW) for the Bono, Savanah, Eastern and Northern regions of Ghana



Ernest AMANOR-LABI
Kwame Nkrumah University of Science and Technology (KNUST) and WACCI

Design target
High Yielding maize variety resistant to Fall Army Worm for Ghana

Ernest Amanor Labi is a motivated MPhil student specializing in Seed Science and Technology at WACCI, University of Ghana, with a background in Agriculture from KNUST, Ghana. He has co-authored a publication on tropical plant biology, showcasing his research interests in genetic variation and breeding.
Ernest's practical experience as an Operations Officer, combined with his academic pursuits, has instilled in him a deep understanding of agricultural challenges and the need for innovative solutions. His awareness of climate change impacts has driven his interest in promoting seed variety through plant breeding and seed science technology.
With a vision to bridge the gap between farmers and middlemen in the agricultural market sector, Ernest aims to utilize his entrepreneurial skills and expertise in production and marketing technologies

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Product Profile design team

Step 1

PP Design Team Lead/Champion	Ernest AMANOR-LABI
	University of Ghana, West Africa Centre for Crop Improvement (WACCI)

PP Design Team		
Person	**Area of Expertise**	**Name of organization**
Pangirayi Tongoona	Plant breeder	WACCI, University of Ghana
Agyemang Danquah	Molecular biologist	WACCI, University of Ghana
Daniel Nyadanu	Plant Breeder	Cocoa Research Institute of Ghana
Richard Adu Amoah	Plant Breeder	CSIR- Plant Genetic Resource Reseach Institute- Bunso
Thomas Agyapong	Agronomist	Senior lecturer, KNUST
Peter Atter Siakwa	Agric Extension Agent	MOFA, Yilo Krobo Municipal

Step 2

Product profile descriptors	
Product profile name	High Yielding maize variety resistant to FAW
Crop	Maize (Zea mays)
Country	Ghana
Geographic regions	Eastern, Bono East, Bono, Savanah, Northern
Market segment and positioning	Farmer
Name of target variety to be replaced	SC 719 **Strength**: Availability of germplasm, **Weakness**: FAW susceptibility
Date PP created	01.03.20222

Target client and use	
Value chain primary clients/customers	farmers
Market scale	households, local, regional, national and international mark
Use	Food, animal feed
Type of processing	Fresh, dried.
Market class	Grain quality

Target crop producers and production system	
Number of farmers	1500-2000
% ratio: male to female farmers	70-80%-male, 30-40%-female
Production system	Open field
Area of production system	2500ha
Growth habit	Determinate
Expected level of inputs	High fertilizer, climate-smart, GAP
Typical yield range of target system	10-11t/Ha
Cropping system	Monocropping, intercropping
Mechanization	Ploughing,harvesting
Agroecological zone(s)	Forest-Savannah transitional zone, Deciduous Forest zone, sudan savannah
Total vegetative propagation material market	20,000-40,000tonnes

Variety technical specification

Client/customer	Driver	Trait category	Preference group: Women (W) Men (M) Youth (Y) W+M+Y (All)	Trait demand classification: 1. *Essential/ "must have"* 2. *Niche opportunity* 3. *Added-value* 4. *Winning trait*	Target traits	Trait description (Quantitative measures)	Name of benchmark variety	Performance required compared to benchmark variety <, =, > etc.
Farmer	Productivity	Yield	All	1	High yielding	Yield range of 10-11t/ha	SC 719 (8-9t/Ha)	>
			All	1	Long cob	Cob length of 25-30cm	SC 719 (25cm)	=, >
		Biotic stress resistance	All	1	FAW resistant	High	SC 719 (None)	>
			All	1	Tolerate to MSV	High	SC 719	=
			All	1	Tolerant to stalk and root lodging	High	SC 719	=
		Abiotic stress tolerance	All	1	Drought stress resistant	High	SC 719	=
	Crop management and harvesting	Plant architecture	All	1	Long stalk	High	SC 719	=
	Market value and price	Crop duration	All	1	Early maturity	Maturity of 90-100 days	SC 719 (110-120 days)	<
	Post-harvest storage	Storage-life	All	1	Prolong storage (with hermetic sack)	Storage time of 2 years	SC 719	=
Transporter	Durability and cost	Container suitability	All	1	Hermetic sack	High	SC 719	=
		Transportability and storage	All	1	Hermetic sack	Moderate	SC 719	=
Processor	Raw material quality specification	Milling	W-Y	1	Fine flour	Moderate	SC 719	=
Retailer	Sales and profit	Shelf-life	All	1	Prolong shelf life	Moderate	SC 719	=
Consumer	Satisfaction	Taste	All	1	Sweet taste	High	SC 719	=
		Appearance	All	1	Semi-dent white	Moderate	SC 719	=
		Shelf-life	All	1	Prolong shelf life	Moderate	SC 719	=
		Nutrition	All	1	Quality protein	High	SC 719	>
		Digestibility	All	1	Fast digestion	Fast	SC 719	=
		Food preparation	All	1	Less cooking period	Fast cooked	SC 719	=
Seed/vegetative material producer	Scalability and cost	Seed genetic purity	All	4	Seed germination	>97% viability and 99% uniformity	SC 719	>

Seed distributors	Variety identification	Larbista 22	All	1	High yielding, FAW resistant variety	10-11t/Ha High	SC 719	> >

Infested maize cob and symptomatic Fall Army Worm contaminated maize genotype

"Fall Army Worm (FAW) has been identified by maize scientists over the last decade as the AIDS and the major limiting factor for maize cultivation and productivity. It is therefore considered an "essential" or "must have" trait in the DLB approach."