

Australian Plant Breeding Conference



The Value of a well defined product profile: Role and content definition

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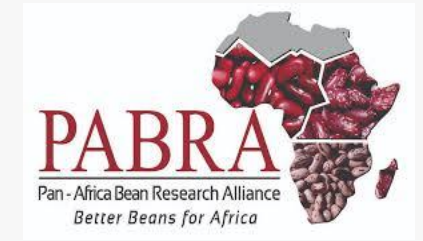
Organization: Alliance Bioversity International-CIAT

Event: Australian plant breeding conference, hybrid meeting, May 9th 2022

Outline

- DLB in brief: Definition
- Product profile: Definition, importance and process
- What's a well defined Product profile?
- Concluding remarks: Product profile vs Product concept

What's DLB: African-Australian-Swiss Food Security Alliance



What's DLB: DLB goes beyond Participatory Plant Breeding



The Business of Plant Breeding

Market-led Approaches to Plant Variety Design In Africa

Edited by Gabrielle J. Persley and Vivienne M. Anthony



www.demandledbreeding.org

New way of developing modern, high-performing crop/livestock commodities sought after by smallholders and their markets

- **Understanding clients and commodity uses**
- **Visioning and foresight**
- **Commodity product design and product profiling**
- **Commodity product development strategy and stage plan**
- **Making the business case for commodity product development**
- **Monitoring, evaluation and learning**

Science



Business



Product Profile: Definitions

- ❖ Product profile is a term that is used **ubiquitously** as:
 - * Product description (within Innovation circles)
 - * Target product profiles, variety ideotypes and variety profiles (Practitioners)
 - * Technical specification of a new variety designed to serve the needs and preferences of a specified group of clients/customers (Business of plant breeding)
- Product profiling: Term often used to describe the process used to create product profile

What's Product Profile and Why Does it Matter?

DLB Product Profile has dual purpose objectives

Concept translated into **breeding objectives** (several PPs)



- * Technical specification of a **new variety** using a detailed set of technical attributes with quantitative measures and qualitative descriptions

- * Depends on **trait prioritization** and **external performance standards**

Communication tool for technical and non-technical audiences to win their support



- * Key actors of value chain
 - * R&D managers
 - * Donor community

Product profiles used by whom and what for?

❖ Member of the PP design team

- * To streamline the focus of their institutional breeding programs, priorities and deployment of resources

❖ R&D Institution management

- * For awareness about the new variety and for prioritizing use of resources

❖ Seed-scaling organizations and value chain representatives

- * To communicate the target profile and seek their input, support and feedback during the breeding program and to estimate market share and pricing of the new variety

❖ Investors and donors

- * To win financial support for the development of the new variety.

- * Demonstrate and provides transparency to donors that their investment is carefully targeted to specific beneficiaries with products that will address clear business opportunities.

Key elements to visualize in a Product profile

A well defined PP should enables the reader to visualize three elements:

❖ Design team:

- The leader and experts who create the product profile

❖ Clients and markets:

- Who the new variety has been designed for, their markets and farming system

❖ New variety technical specification:

- * The technical features and comparative advantages of the new variety

Key elements to visualize in a Product profile: Design Team

* A leader/champion brings together a multidiscipline team of experts to gather information to create the new variety designs

* Typically, the experts may include:

- Breeder - Agricultural economist - Market research specialist - Farmer representatives - Youth and gender expert - Value chain representative(s) - Private sector processing expert - Seeds systems expert (public and/or private sector) - Climate change specialist - Agronomist - Plant pathologist - Entomologist - Food scientist - Public health/nutritionist - Expert in management of new variety development - Intellectual property expert - National country variety release/registration expert.

* A Range of 5-9 experts with the relevant knowledge and skills to address the business opportunity and/or solve an identified problem is needed to create the PPs.

Product Profile design team

Step 1		
PP Design Team Lead/Champion		Teshale Mamo
		Alliance of Bioversity-CIAT, Tanzania
PP Design Team		
Person	Area of Expertise	Name of organization
Teshale Mamo	Breeder	Alliance of Bioversity-CIAT, Tanzania
Jean Claude Rubyogo	Seed systems	Alliance of Bioversity-CIAT, Kenya
Shida Nestory	Bean breeder	Tanzania Agricultural Research Institute (TARI-Selian)
Edith Kadege	Seed systems	TARI-Selian
Upendo Titi	Socio-economist	TARI-Selian
Mary Mdachi	Nutritionist	TARI-Selian
Bayda	Domestic trader/exporter	BAYMAC company
Esther Mushi	Bean processor	JAGEF group

Key elements to visualize in a Product profile: Clients and their markets

A well defined PP aim to answer the following questions

- ❖ Who the PP is designed to serve?
- ❖ In which country and region(s) are the clients located?
- ❖ What is the crop and how is it used?
- ❖ Which market and market segment is the variety designed for?
- ❖ What input, management and cropping system will the variety suit?
- ❖ Which variety or landrace is currently grown for this market segment and is targeted for replacement by the new variety?

Key elements to visualize in a Product profile

Clients and their markets

Clients and markets

Step 2

Product profile descriptors	
Product profile name	Yellow dry bean
Crop	Common bean (<i>Phaseolus vulgaris</i> L.)
Country	Tanzania
Geographic regions	Northern, Western and Southern highlands
Market segment	New emerging market for yellow bean grain, with good taste and medium cooking time, grown at an altitude of 900–1800 m
Name of target variety to be replaced	Selian 13 Strength: Early maturing, medium cooking time, palatable with good taste Weakness: Low yielding, susceptible to anthracnose, angular leaf spot and bruchids
Date PP created	07.07.2020

PP descriptors

Target client and use	
Value chain primary clients/customers	Farmers, traders, consumers (women and children)
Market scale	Local, regional, national and international export markets
Use	Grain and flour for food, haulms for animal feed
Type of processing	Dried grain, pre-cooked beans
Market class	Yellow bean

Target client and use

Target crop producers and production system	
Number of farmers	800,000–1,050,000
% ratio: male to female farmers	50–60% male; 40–50% female
Production system	Open field
Area of production system	200,000–338,000 ha
Growth habit	Bush (determinate)
Expected level of inputs	Low – fertilizer, crop protection chemicals
Typical yield range of target system	0.5–0.8 t/ha (grain yield under farmer conditions)
Cropping system	Monocropping and intercropping with maize
Mechanisation	Some mechanical threshing
Agroecological zone	Altitude 900–1800 m
Total seed market	12,000–20,000 tonnes

Target crop producers and production system

Key elements to visualize in a Product profile Variety technical specification (VTS)

A well defined PP aim to answer the following questions

- What is the technical specification of the new variety?
- What are the clients and customers
- What are the purchasing drivers for clients?
- Which crop traits in the design respond to these drivers and therefore deliver benefits?
- What are the technical traits and features of the new variety?
- How important is each trait in terms of market demand from different groups of users such as women, men and youth?
- What is the target performance to be achieved for each trait?
- Which variety/landrace(s) grown is being targeted for replacement with the new improved variety?

Key elements to visualize in a Product profile

Variety technical specification

Variety technical specification

Step 3

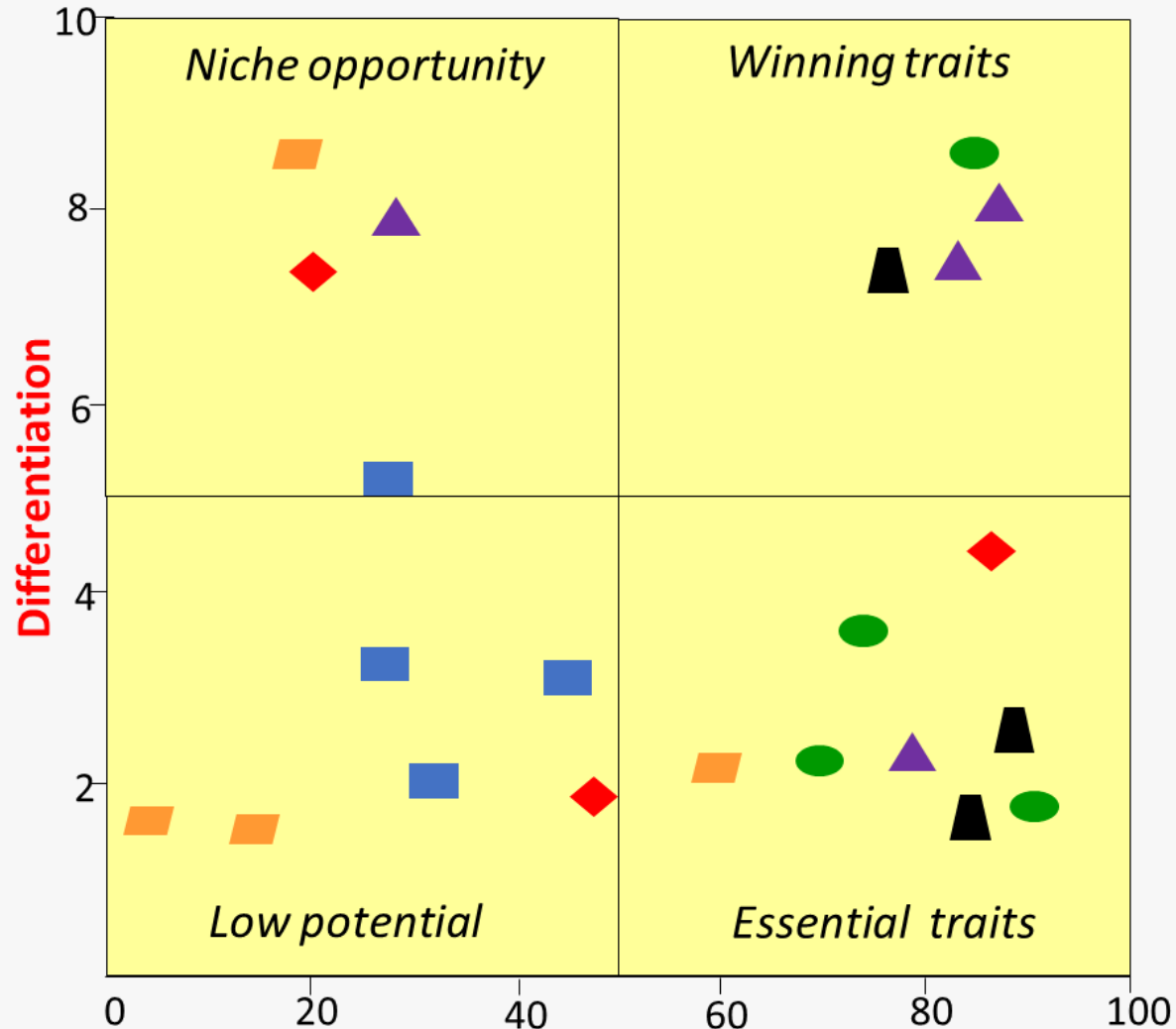
Client/customer	Driver	Trait category	Preference group: Women (W) Men (M) Youth (Y) W+M+Y (All)	Trait demand classification: 1. Essential/"must have" 2. Niche opportunity 3. Added-value 4. Winning trait	Target traits	Trait description (Quantitative measures)	Name of benchmark variety	Performance required compared to benchmark variety <=> etc.
Farmer	Productivity	Yield	All	1	Grain yield	Dry grain weight > 2 t/ha	Selian 13	>
		Biotic stress resistance	All	1	Angular leaf spot (ALS)	<3 (CIAT scale)	Jesca	>
			All	1	Anthraxnose	<3 (CIAT scale)	Selian 10	>
		Abiotic stress tolerance	All	1	Drought	Medium tolerance – at flowering stage (terminal and intermittent drought)	Selian 12	>
		Biomass	All	3	Biomass	Dry pods and stem	Jesca	>
		Plant architecture	All	3	Uniform flowering time	Terminal inflorescences flower at same time	Selian 13	>
	Market value and price	Grain weight	All	1	Dry grain weight	Grain weight - bag of six buckets (approx 18 kg each)	Lyamungo 90	>
		Crop duration	All	4	Early maturing	< 67 days	Selian 13	<
Consumer	Satisfaction	Taste	All	1	Taste	Palatability	Selian 13	>
		Appearance	All	4	Yellow colour	Uniform and attractive	Selian 13	>
		Nutrition	W	1	High grain micronutrient content (Zn, Fe)	Iron > 50 ppm, Zinc > 25 ppm	RWR-21-54	>
		Digestibility	W	1	Flatulence, soft seed coat after cooking	Low gas production	Selian 13	<
		Food preparation	W	1	Cooking time	Less than 60 min in consumer conditions	Selian 13	<
Seed producer	Scalability and cost	Seed genetic purity	All	1	Seed germination	> 97% viability and 99% uniformity	Selian 13	>

- Fodder/forage
- Post-harvest storage
- Durability and cost
- * Raw material quality specification
- Sales and profit
- Variety identification

- Transporter
- Processor
 - Retailer
 - Seed distributors

Key elements to visualize in a Product profile

Variety technical specification



Key elements to visualize in a Product profile

Variety technical specification

Variety technical specification

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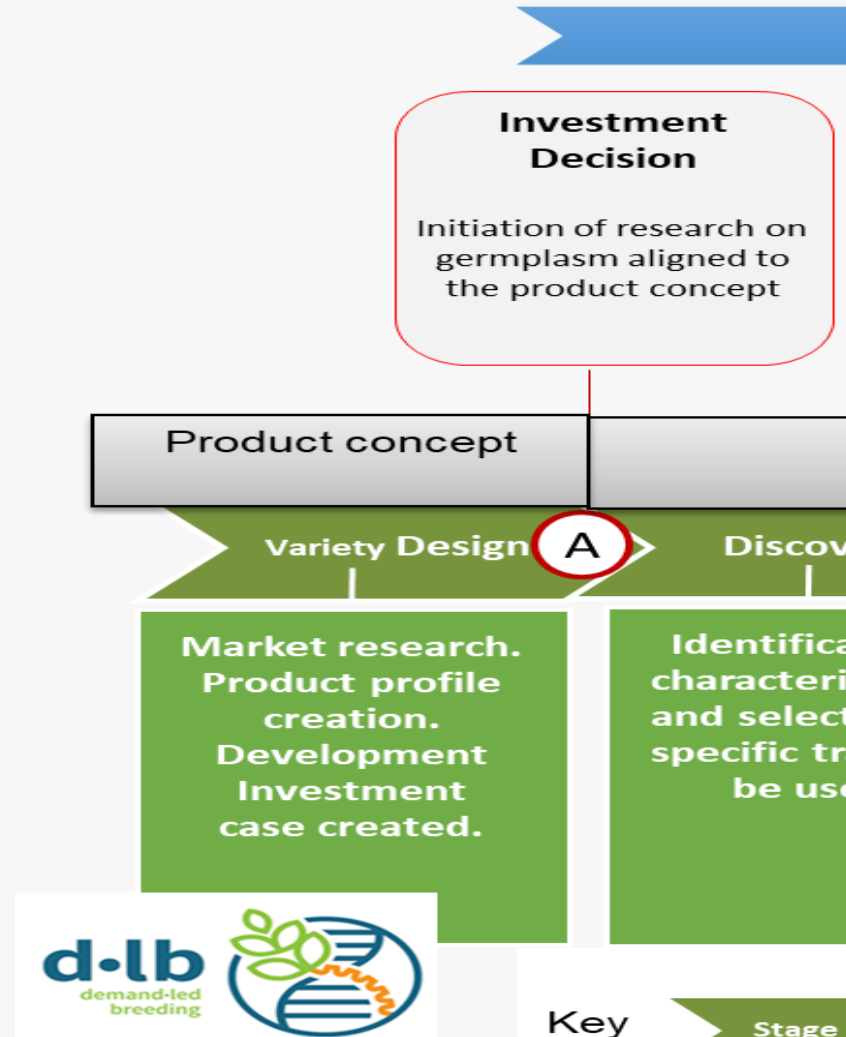
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- Processor
 - Retailer
 - Seed distributors

Concluding remark: Product Profile Vs Product Concept

Product concept

High level thought and strategic marketing to provide the best product possible to the customer

Include variety design and product profiling as “Ideotype”



Product profile

Actual product/commodity on the market or developed or translated into breeding objectives

Seen as a key activity contributing to the product concept

Acknowledgements

THANK YOU

