

Demand-Led Plant Breeding

Chapter 3

Understanding Clients' Needs

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Chapter 3

Objectives

1. To equip breeders with the knowledge and methods to understand clients and their value chains, their needs, what they prefer and are prepared to pay for in a new variety.
2. To understand markets and the need, importance and principles of market research and best practices to guide the information gathering from clients and crop value chains to drive and validate new variety designs.

Content

1. Crops and their Uses
2. Clients and Stakeholders
3. Markets and Market Segments
4. Clients within Value Chains
5. Understanding Markets and Market Research

Opening Discussion

- Who are the clients of your breeding program?
- What traits do your clients consider important?
- Who uses your varieties and for what purposes?

1. Crops and their Uses

- Some **330,000** plant species are available on the planet
- Only about **7,000** plant species comprise food sources; and of these only **12** species are major food crops
- Food crops have multiple uses that go beyond food – as the rest of the vegetative biomass may be used as animal feed, bedding material, shelter, etc.
- In a demand-led approach, an understanding of the **crop plant uses** and the **people, clients** and **markets** that may be affected by changing specific plant characteristics is vital for new variety design

Different Uses of Tomato in Ghana



2. Clients and Stakeholders

- The terms “**clients**” and “**stakeholders**” are in common use in the business of plant breeding and new variety development
- A “**client**” is a “*customer, buyer, purchaser or receiver of a new crop variety, its crop produce, and/or processed material from a seller, vendor or supplier in the value chain for a monetary or other consideration*”
- **Clients** include seed companies, farmers, crop traders, processors, food companies, retailers and consumers

Clients and Stakeholders

- ***“Stakeholder”*** is a broader term that includes clients but also any person or organisation with an interest in a given crop situation, action or enterprise e.g. government officials, donors, civil society organizations
- ***“Value chain actor”*** is a person or organization buying or selling a crop or processed products in the value chain
- ***“Value chain service providers”*** e.g. Banks, creditors, insurance companies, regulators, etc.

3. Markets and Market Segments

- A market is a forum that allows buyers and sellers of a specific good or service to interact in order to facilitate an exchange
- The price paid by individuals during the transaction may be determined by many factors but usually it is driven by supply and demand

Market Segments

- A new crop variety should be designed to meet a group of individual clients' or organizations' needs that have set of common requirements. This is termed a ***market segment***.
- Understanding market segmentation is required because it defines the scope and likelihood of farmer adoption.
- ***Market segmentation*** can be defined as “a strategy that involves dividing a broad target market (such as a crop) into subsets of consumers, businesses or countries with common needs and priorities, and then designing and implementing strategies to serve them”.

Examples of Market Segments

- A group of farmers that grow a crop in a particular agronomic way
 - e.g. Tomatoes grown in open field conditions in a specified agro-ecological zone or in intensive production under vinyl shelters
- Traders selling a specific market class of beans
- A group of processors that require a unique product type
 - e.g. Cassava that is suitable for production of fuel alcohol
- Consumers with different varietal preferences
 - e.g. Purchasing Irish potatoes for boiling or frying

Fresh Tomatoes, their Uses and Pricing Segments



Type: Large tomatoes
Use: Fresh sliced, cooking
Pricing: Economy price



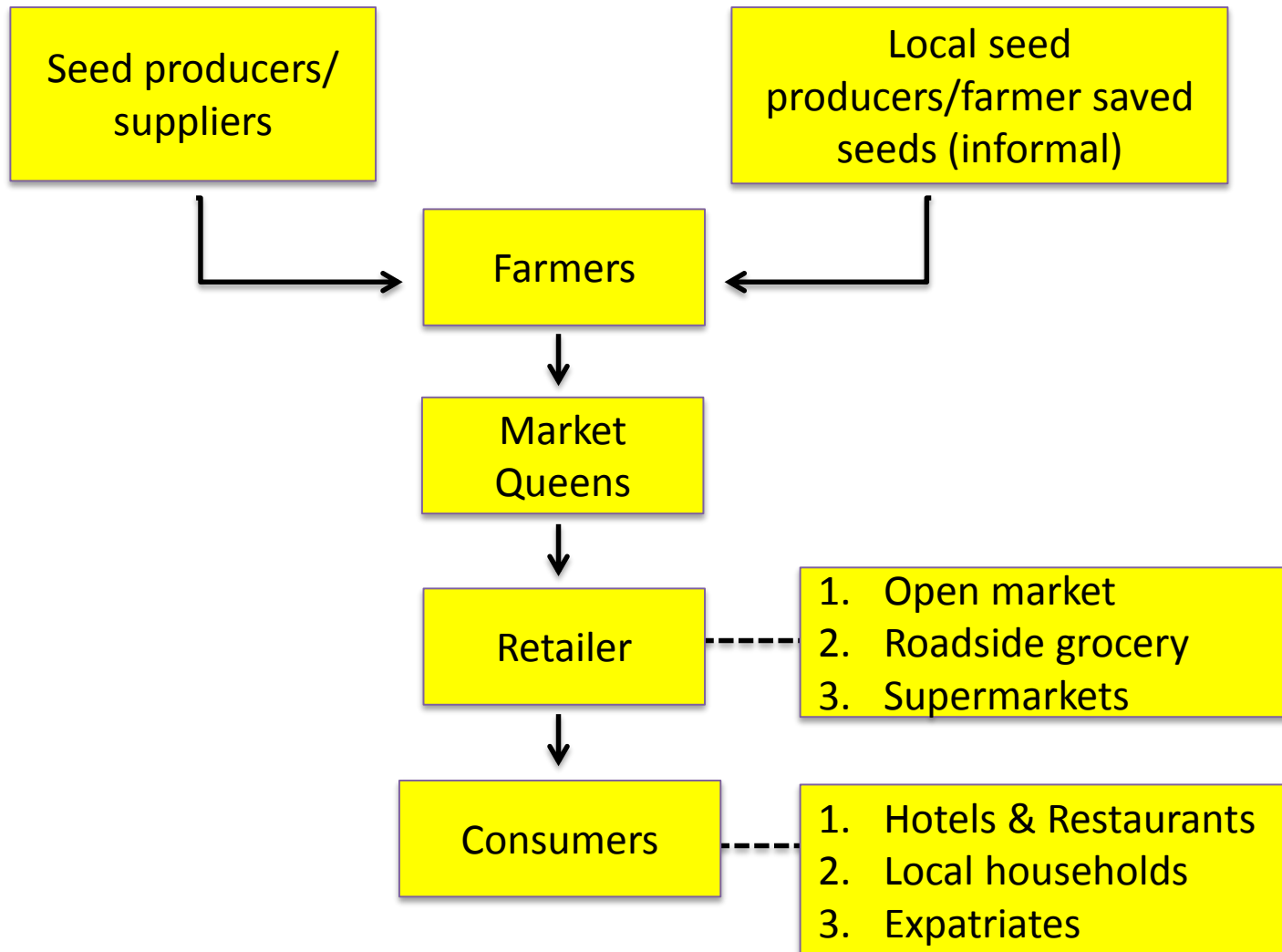
Type: Cherry (on the vine)
Use: Salads
Pricing: Mid-range price



Type: Mini, amber plum
Use: Salads and snacking
Pricing: Premium price

Simplified Tomato Value Chain in Ghana

Market Segments



4. Clients within Value Chains

- Different clients in value chains have different requirements and often cannot all be satisfied with the same variety, especially when there are specialist properties required for processing
- Breeders should have regular contact with clients in all parts of the value chain and involve them in new variety design

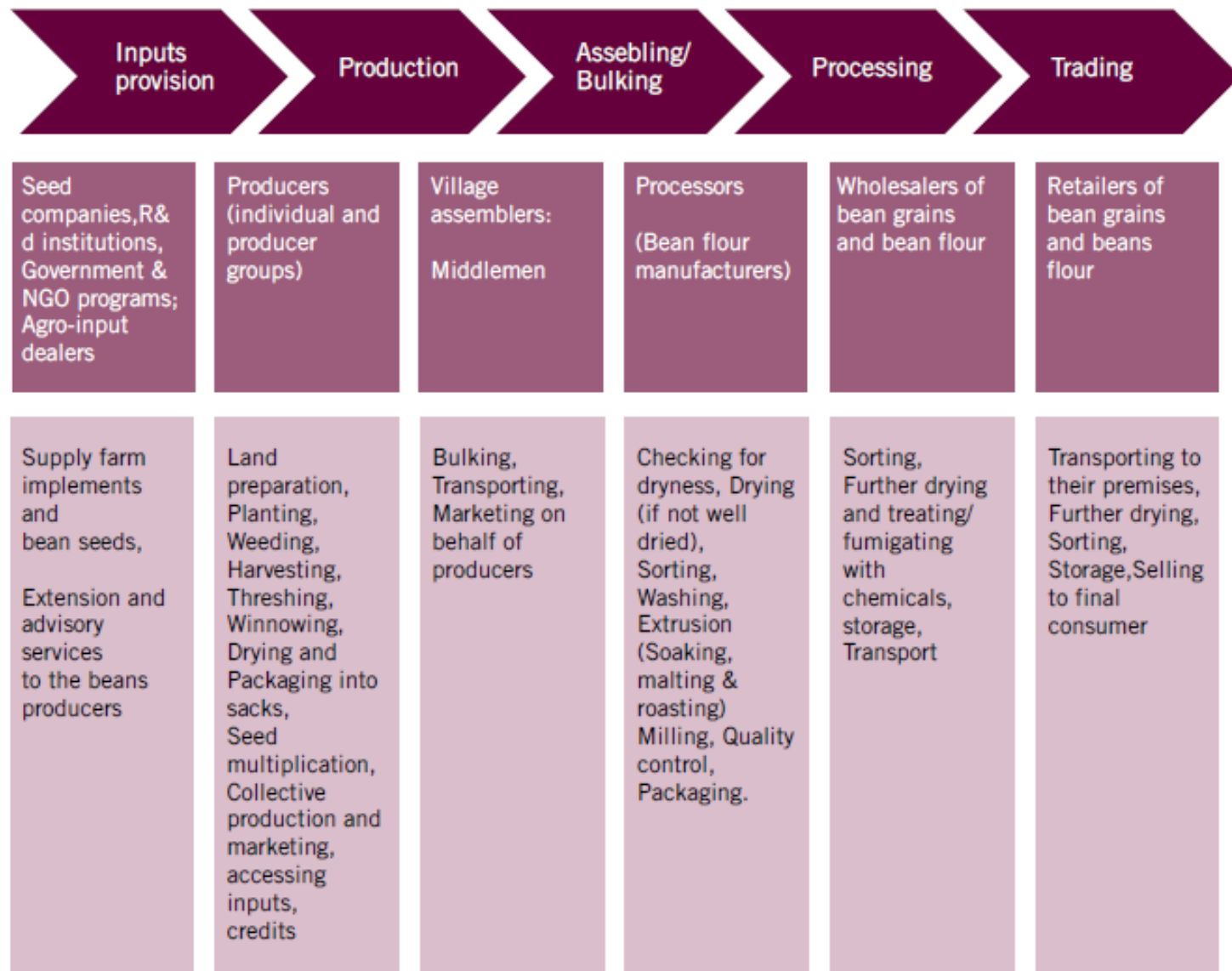
Group Exercise – Value Chains

- List the value chains in the crop(s) that you work with.
- List the key stakeholders and value chain actors for one of the value chains that your breeding program serves
- What is the relative importance of these actors in setting your breeding goal?

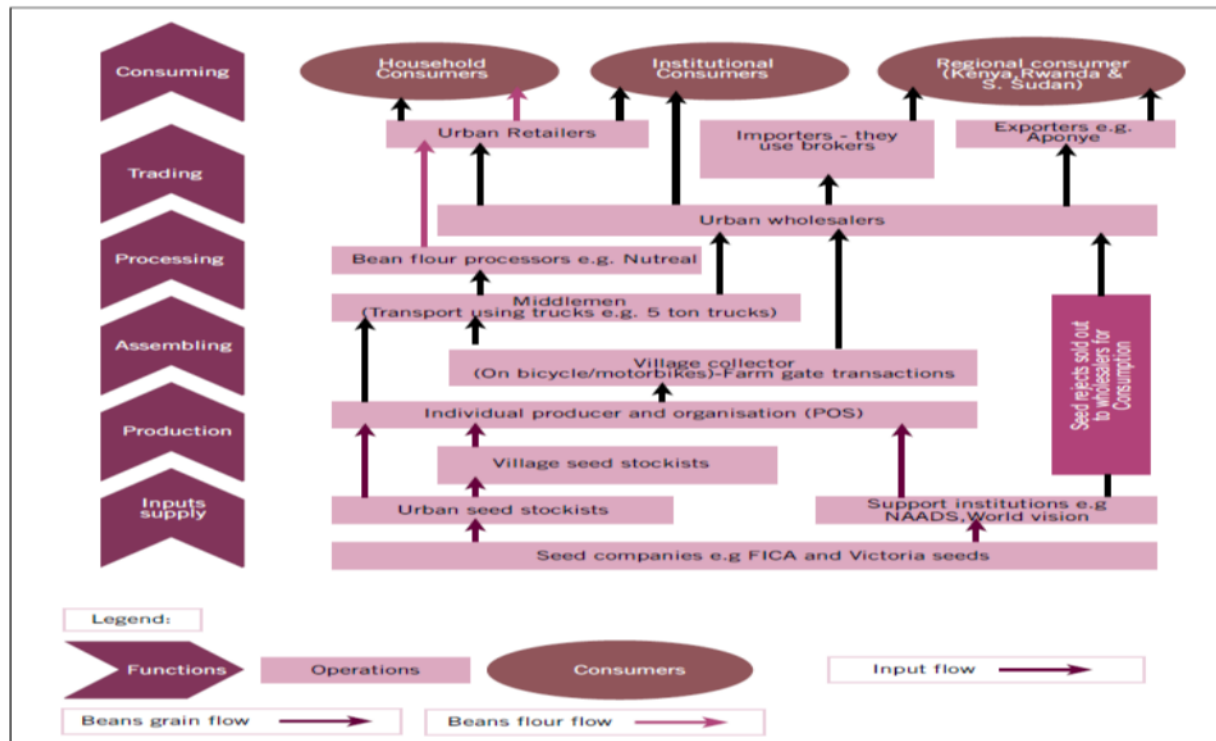
List of Actors in Crop Value Chains

Simple Crop Value Chain (List 1)	Complex Crop Value Chain Network (List 2)
Seed company/distributor Farmers Local market Traders Processors Wholesalers Retailers Supermarkets	Crop breeders Variety release agencies Seed producers Seed companies Agrochemicals Farmers Extension services Commodity producers Millers Refiners Packers Processed foods Manufacturers Importers Exporters Wholesalers Informal retailers Supermarkets Restaurants Fast foods outlets Consumers

Function of Ugandan Dry Bean Value Chain



Ugandan bean value network



5. Markets and Market Research

How do you obtain the information on what are the market needs?

Market Research Definitions

- Market research also termed “*opinion research*”, “*market survey*” or “*poll marketing research*”
- Market research agencies specialize in best practices and advanced techniques to obtain unbiased, high quality data
- Market research is conducted during new variety development, not only at the product concept stage but also at intervals through breeding, product prototyping, variety launch and post commercialization release

Market Research

Best practices

- **Best market research practices** - Breeders need to access key information from farmers and all clients in crop value chains.
 - The best quality market research methods should be used that remove bias; may require skilled third parties, such as social scientists and independent market research agencies to gather information, and conduct interviews on behalf of plant breeders.
- **Partnering with social scientists** – breeders should liaise closely with social scientists who are conducting market research and *ex-ante* impact assessments and:
 - Seek to include additional questions in the questionnaires that can be used to guide new variety design and plant breeding programs

Market Research

Participatory appraisals

- **Participatory rural appraisals (PRAs)** are a starting point for gathering market research information. PRAs usually only include farmers in rural areas.
- Participatory “*urban*” appraisals need to be extended to many other clients in the value chain and especially traders, retailers and consumers in urban situations.
- **Avoid making assumptions** – breeders require regular contact with key clients to avoid making incorrect or only historically relevant assumptions

Market Research

Benefits

- Market research enables clients' opinions, needs and wants to be investigated. It helps to identify the needs of all clients in value chains so that solutions are developed that best address these needs. These include:
 - Ensuring smallholder farmers can access varieties that will improve their economic situation and livelihoods
 - Enable farmers not only to produce more yield but also crops with the quality needed to sell into markets
 - Setting R&D priorities and delivering new varieties that can stimulate market growth and value creation
 - Market research can also be used to validate new variety designs, concepts or solutions.

Market Research

Risks of not using market research

- New varieties, products or technological innovations are created that are not used by farmers
- Public or private investments are wasted
- Investment in plant breeding does not give returns and the innovation is not sustainable
- Lack of confidence by government agencies in the performance of their national research system, leading to finance ministries seeing R&D as a cost and not as an investment with a return
- Lack of involvement of the public in developing new varieties and so lack of credibility and trust by the public towards agricultural scientists and the new varieties they are releasing

6. Conclusion

How is Demand-Led Breeding Different from Current Breeding Practices?

1. **Client focus** - Breeding goals and objectives are set based on what clients want and need rather than any bias towards either what technology can offer or a specific focus on individual trait improvement
2. **Value chains** - Much greater understanding is required about the structure of crop value chains and the buying and selling factors of different clients and their relative priority in setting new variety designs

How is Demand-Led Breeding Different from Current Breeding Practices?

3. **Demand led breeding** puts much more emphasis on regularly consulting and understanding the needs and preferences of all clients and stakeholders in a crop value chain, not only farmers.
4. **Variety design and bench-marking** - Much stronger emphasis is placed on systematic, quantitative assessment of varietal characteristics and creating product profiles with benchmarks for varietal performance and line progression.

How is Demand-Led Breeding Different from Current Breeding Practices?

5. **Market research** - Much stronger emphasis on gathering unbiased, reliable, independent information on clients' needs and preferences
6. **Market and business knowledge** – Demand-led breeding require greater knowledge about crop uses, markets and the “business” (economics) of breeding. It takes the best practices from breeding and integrates these with the best practices in business

Implications for the Role of the Breeder

- **The business of breeding** – Demand-led approaches require breeders to learn the “*business of plant breeding*” and be able to gather and assimilate information from multiple clients and sources within crop value chains
- **Partnering and collaboration** – Breeders need to broaden their reach, influence and know-how beyond their technical competencies and to be able to manage collaborations and partnerships with both the public and private sectors

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