COFFEE BREEDING IN KENYA: ACHIEVEMENTS, GAPS AND PRIORITIES

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CRF is ISO 9001:2008 Certified
Main Objectives

- To develop resistant/tolerant varieties that provides sustainable management of the major coffee diseases and abiotic stresses.
- To continuously improve yield and quality of the resistant selections.
MAJOR COFFEE DISEASES IN KENYA

CLR in Low altitudes

CBD in high altitudes

BBC in windy and cooler high altitude areas
BREEDING ACHIEVEMENTS

- Selection and subsequent improvement of yield and quality of 3 traditional varieties (SL28, SL34 and K7) – Released in 1930’s

- Development and release of high yielding compact hybrid cultivar Ruiru 11, that combines good quality with resistance to major diseases of coffee (CBD & Leaf Rust) – Released in 1985

- Development and release of 3 lines of Batian cultivar that are also high yielding, of excellent quality and resistant to CBD and Leaf Rust – Released in 2010

- Ability to use modern selection technologies for enhanced development of new varieties – hypocotyl & leaf disc inoculation, MAS and efficient quality testing
RUIRU 11 in Eastern Kenya (Low altitude marginal zone)

- High Yielding
- Good Quality
- Resistant to CBD & CLR
- Early Maturing
- Compact/Dwarf
- Widely Adapted
BATIAN in Eastern Kenya (Low altitude marginal zone)

- High Yielding
- Good Quality
- Resistant to CBD & CLR
- Early Maturing
- Tall and Deep Rooted
- Widely Adapted
OUR CAPACITY
EARLY SELECTION FOR DISEASE RESISTANCE

Leaf Disc Inoculation for CLR

Hypocotyl Inoculation for CBD
Selection for Cup Quality – Sensory Evaluation
Well Equipped Analytical Laboratory

Biochemical data

Assessment of Toxins

Pesticide Residue Levels
Modern Tissue Culture Laboratory

Advantages of TC
• Mass Production
• True to type plants
• Disease free plants
• Early Bearing***

Disadvantages
• High cost of production
• Requires high skilled labour
Breeding for durable resistance to CBD and Leaf Rust without adversely affecting yield and quality.
- Has been successful but an emerging challenge is the diverse variation within the pathogen to counter the narrow genetic base of Arabica coffee – 6 new races of CLR detected in Kenya.

Selection for resistance to BBC – Breeding programme being developed since the disease has become more widespread.

Climate change – is changing dynamics of crop diseases and pests, reducing suitable coffee growing areas - necessitating breeding for tolerance to abiotic stresses (draught, salinity, high temperatures).

High demand of coffee planting materials brought about by improved coffee prices and renewed interest in coffee growing.
Coffee Planting Materials Demand Trends

![Bar chart showing demand for improved and traditional coffee varieties from 2006/07 to 2011/12. The chart indicates a significant increase in demand for improved varieties in 2011/12.](chart-image)