Status of Sweetpotato Research in Zambia

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Root and Tuber Improvement Programme – Zambia

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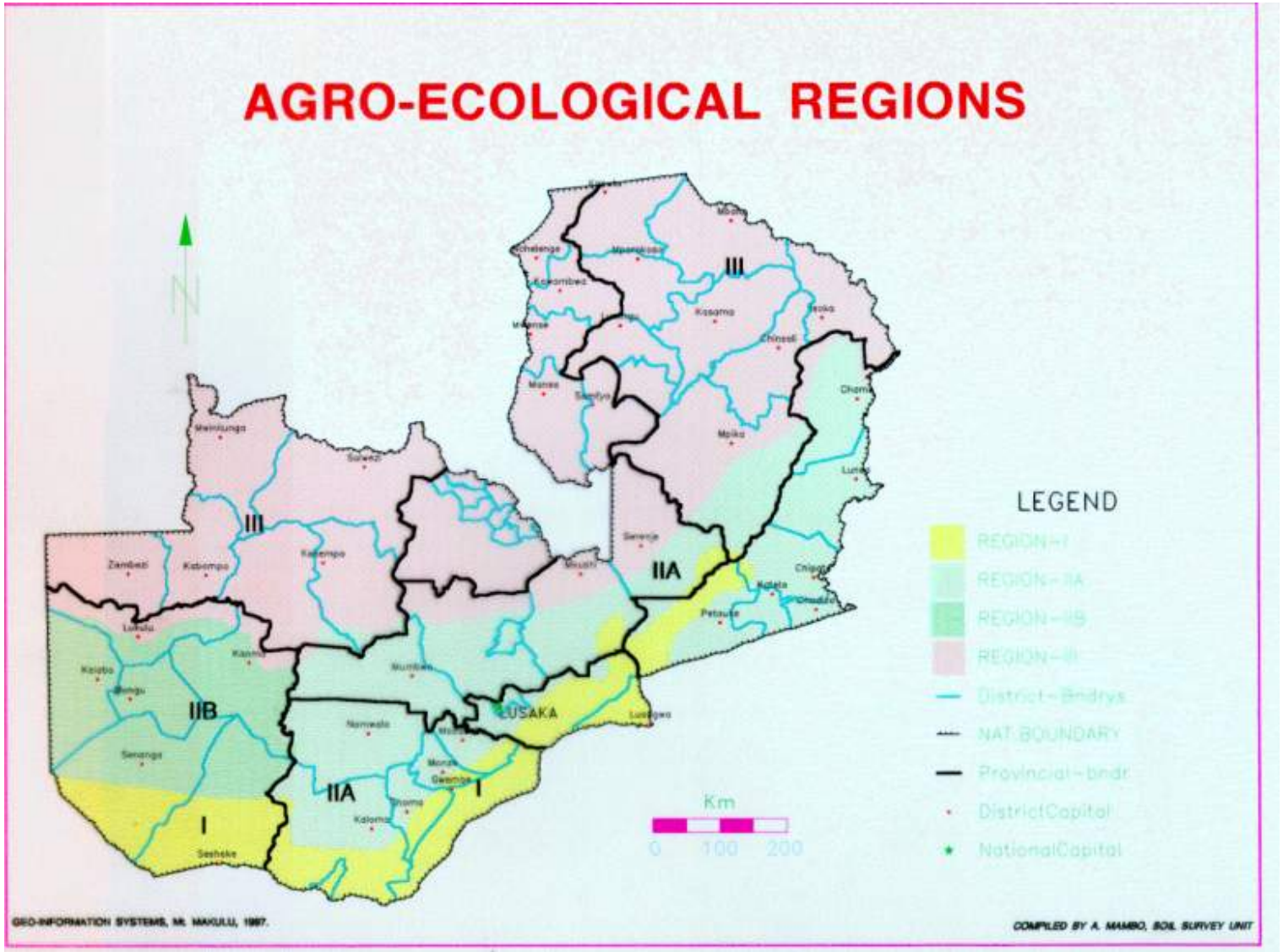
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GEO-INFORMATION SYSTEMS, Mr. MAKULU, 1987.
COMPILED BY A. MAMBO, SOIL SURVEY UNIT

Experiences on germplasm development

- Staff turnover
- Supporting facilities
- On-farm research
  - Packaging of technology
  - Communication
- There is hope!
  - Staff numbers are improving
  - Facilities being put in place
  - On-farm activities initiated

Variety development

- direct crosses
- introductions
- germplasm collections
- The resulting varieties should be
  - high yielding
  - adapted to target areas of production
  - resistant to major pests and diseases
  - short maturity
  - posses other desirable characteristics as demanded by consumers.

Multiplication

- Primary site – Mansa Research Station
    - Seven released varieties
- Secondary sites
  - Mutanda Research Station
  - Msekera Research Station
  - Mt Makulu Research Station
- Tertiary site – on-farm seed growers

Distribution

- Mechanisms
  - Sell (Primary and tertiary sites)
  - Paybacks in project context
  - Free from NGOs (e.g. Henwood Foundation, PAM, PLAN)
  - Government programmes
    - Food security packs
  - Disaster mitigation
  - Field days
  - Efforts are independent and not coordinated

Distribution

- Seed system
  - This effort may not be sufficient to meet the demand for quality seed
  - Need for commercial entities to join
  - Need for seed growers to be linked to growers
    - Contracts signed
  - Facilities to clean infected materials to be put in place to support seed growers.

Major uses for sweetpotato

- Mainly consumed in boiled form at breakfast.
- Consumed as a snack raw, roasted, boiled or fried.
- Sweetpotato in groundnuts stew.
- Leaves are an important vegetable.
- Significant source of income
- Exchanged for labour and bartering.
- Fed to animals especially pigs.
- Brewing of traditional beer known as *Kachasu.*
- Traditional beverage called munkoyo

Sweetpotato based products developed and promoted

- Confectioneries (bread, scones, cakes, pies etc)
- Chips for animal feed.
- Fried sweetpotato chips (snack).
- Weaning products at farm level.

Varietal Development

- Increasing:
  - dry matter (DM) content (>30%)
  - production (>20t/ha)
- How ?
  - Combining the CIP-pathogen tested with locally useful cultivars
  - Botanical seeds from CIP-Maputo, and the regional breeding programs (e.g. South Africa)

Varieties released in Zambia

Traits	**Zambezi**	**Luapula**	**Chingovwa**
Yield (t/ha)	15.65	17.42	17.77
Dry matter (%)	22.60	25.75	24.95
Skin colour	Copper	White	Cream
Flesh colour	Deep orange	White with anthocyanins	Cream
Storability	Good	Good	Poor
Cooking quality	Good	Good	Good
Plant type	Runner	Runner	Erect
Leaf type	Deep lobe	Shallow lobe	Deep lobe (finger type)
Flowering habit	Poor	Poor	Good
Maturity (months)	4	4	3.5

Varieties released in Zambia

Selected Traits	Varieties				
	Lunga	**Mulungushi**	**Lukulu**	**Kalungwishi**	**Lukusashi**
Plant type	spreading	Semi-erect	erect	Semi-erect	Semi-erect
Leaf type	Moderately lobed	Moderately lobed	Moderately lobed	Moderately lobed	Cordate
Skin colour	Red	Red	Cream	Pale orange	Reddish brown
Flesh colour	White	yellow	cream	Pale orange	Cream orange
Maturity (months)	4	4-5	4-5	4	3-4
Mean yield (t/ha)	30	29	34	28	37
Root DM (%)	29	33	27	32	27

Recent research and development work (or related studies) on OFSP

- Breeding
- Multiplication
- Storage studies on boiled dried chips, jam

Raising planting materials in the wetland (dambo)

Linkages with other sectors

- PAM
- World Vision – Zambia
- GART

Future potential of OFSP varieties

- Artificial fortification of sugar is expensive
- Palm oil extraction is laborious and time-consuming
- Sweetpotato is a cheap and more reliable source of vitamin A
- Besides, OFSP is palatable, attractive and appealing to the consumer.

Social marketing strategies of sweetpotato

- Food fares
- Field days
- Farm visits
- Demonstrations
- Posters
- Brochures

Micro-enterprise development activities

- Manufacture of livestock feed (trial)
- Women groups

Current and future research on breeding for nutritional traits and other desirable qualities

Materials	Trial Name	Number of clones	Design
CIP-MOZ	Single row	542	Check plot
Local germplasm	AYT	24	RCBD
CIP-KENYA	PYT	17	RCBD
Hand pollinated-OFSP	PYT	25, 25	Lattice
Hand pollinated-cream	PYT	25, 25	Lattice
Open pollinated-OFSP	PYT	25	Lattice
Open pollinated-cream	PYT	16, 16, 49	Lattice
Naspot and Kanyasi	PYT	22	RCBD
G x E	UYT	25	Lattice
Open pollinated-comb	AYT	20	Lattice
On-farm	On-farm	5 (20)	Augumented RCBD

Future plans

- Promotion of on-farm production of OFSP
- Development, adoption and promotion of OFSP recipes
- Promotion of sweetpotato based weaning foods in health centres and community health centres
- Multiplication of OFSP to make seed available to partners and farmers.

Challenges and opportunities to boost production (quality and quantity)

- ✓ Promotion of the already developed varieties through demonstration, farm field day, on-farm trials, multiplication/awareness
- ✓ Continue to develop adapted and preferred germplasm that meet requirements of the emerging market
- ✓ Develop germplasm resistant/tolerant to drought
- ✓ Surveillance and diagnostic of new threats and develop mitigation strategies
- ✓ Strengthen policy that support the development of sweetpotato
- ✓ Limited human resources capacity strengthened


STOP
EATING
ANIMALS