

Breeding African Cabbage (*Cleome gynandra* L.) to improve dry season production in East Africa



(Cernansky 2015)



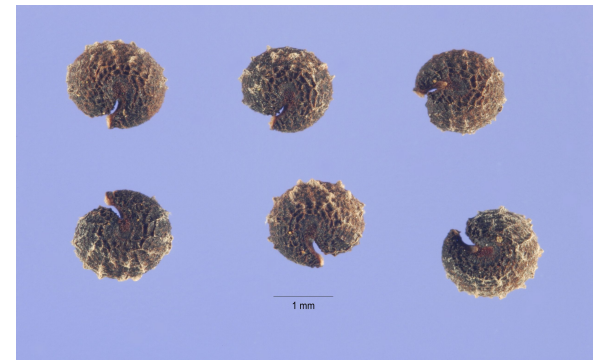
(AVRDC 2009)

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Introduction

- *Cleome gynandra* L.
 - Common: African Cabbage, Spiderwisp,
 - Family Capparaceae, Order: Brassicales
- Erect, annual, subtropic and tropic, herbaceous, pink and white flowers, allogamous
- **Uses:**
 - Traditional food and medicine
 - Consumption of leaves, flowers also edible



(G.A. Cooper, hosted by the USDA-NRCS PLANTS Database)



(http://www.prota4u.org/protav8.asp?p=Cleome+gynandra)

Exploitable Traits:

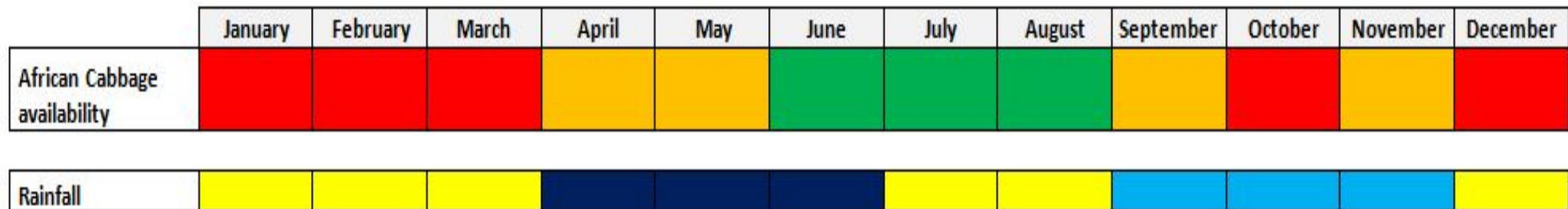
- Leaves ➡ Yield
- Nutritional value (Ca, Fe, Vit. E, protein, beta carotene, antioxidants)
- Bitter taste ➡ Sweet taste
- Seeds ➡ Oil production
- Drought tolerant
- Medicinal properties (Anti-inflammatory)

Traits for selection

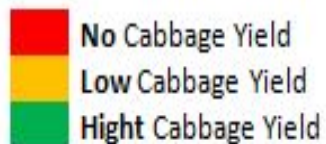
Goal:

Improve regional well-being by diversifying vegetable provision in the dry season

- Yield: Big leaves and quantity of leaves
- Delay flowering → Longer harvest period
- Drought tolerant



(Modified from P. Nekesa and B. Meso in Guarino 1997)

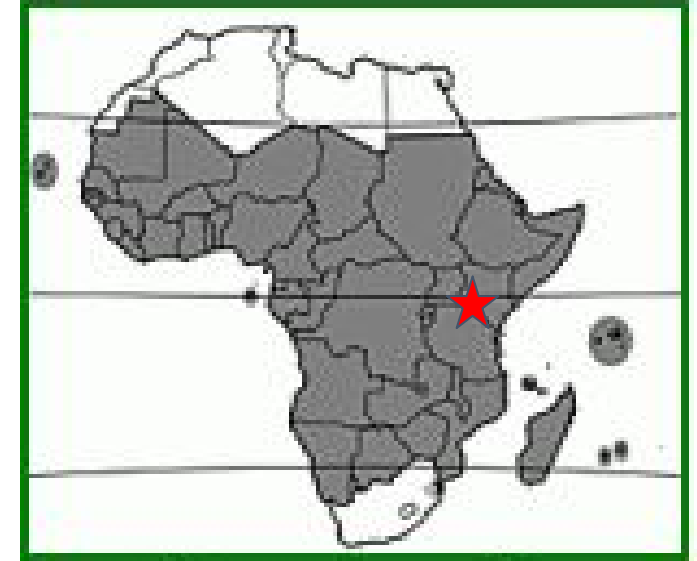


Market Analysis



Rising Star Seed Company

- A start-up of young plant breeders in Kenya
- Est. shareholders equity – 650,000 Euros
- Area of interest
 - Short Term: EAC - East African Community
 - Kenya → other EAC Countries



(<http://www.prota4u.org/protav8.asp?p=Cleome+gynandra>)

Current production:

- Subsistence and direct consumption
- Informal trade at markets
- No dry season sale due to low yield

Market Analysis

Open Market:

- Low traditional vegetable production for dry-season

DRY SEASON PRODUCTION	CROP ENGLISH NAME	BOTANICAL NAME
LOW	AMARANTH	<i>Amaranthus sp.</i>
MEDIUM	COWPEAS	<i>Vigna unguiculata</i>
MEDIUM	PUMPKIN LEAVES	<i>Cucurbita sp.</i>
LOW	BLACK NIGHTSHADE	<i>Solanum nigrum</i>
LOW	SUNNHEMP	<i>Crotalaria brevidens</i>
LOW	JUTE PLANT	<i>Cochorus olitorius</i>
LOW	KALE	<i>Brassica sp.</i>
LOW	PIG WEED	<i>Amaranthus sp.</i>

Target Market

Producers

- Commercial vegetable farmers
- Smallholder farmers & cooperatives
- Backyard producers

Consumers

- Open market(rural & urban)
- Households (urban & rural)
- Restaurant & supermarket chains

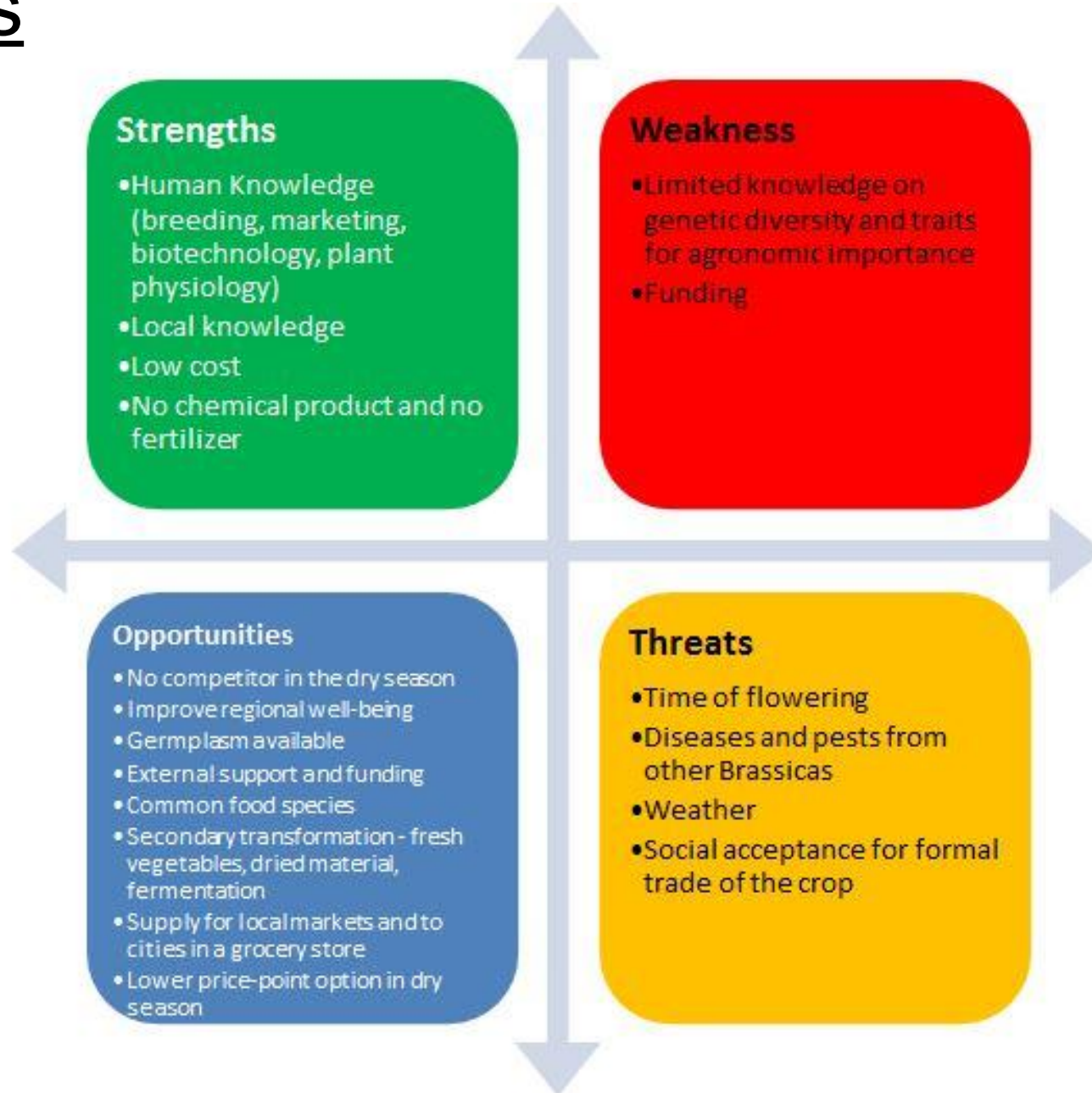
Low cost production

- Public available germplasm
- Open field
- Mass selection

Gantt Chart

Tasks	Start	Finish	2016		2017		2018		2019		2020		2021		2022		2023		
Task 1 : Building project	21/10/2016	15/01/2018																	
Task 2 : Collect Germplasm	16/01/2018	15/05/2018																	
Task 3 : Evaluating Germplasm and Breeding	16/05/2018	01/10/2020																	
Task 4 : Field Trials	01/01/2021	01/10/2021																	
Tasks 5 : Seed Production	01/01/2022	01/10/2022																	
Tasks 6 : Launching 1st Variety	15/10/2022																		

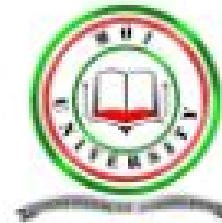
SWOT Analysis



Stakeholders



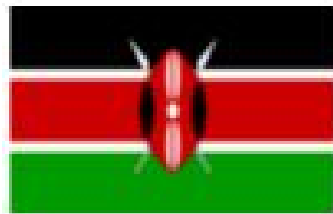
World Vegetable Center



Kenya Plant Health
Inspectorate Service



University of Nairobi



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Thank you!



References

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