Croton tree – Is it the answer to Africa's growing demand for **cheap, low-carbon energy?**

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INTRO

- Access to energy needed to fuel livelihoods.
  Bioenergy products can provide energy income, while reducing (GHG) emissions.
- *Croton megalocarpus* (Croton) is an indigenous, prolific and widely distributed tree in East Africa.
- It is valuable feedstock for several applications.
- Croton seeds contain approximately 30-32% oil by weight and have a high protein content of 50%.

METHODS

Business case study and a choice experiment to examine household preferences in planting, cultivating, collecting and selling of seeds to the market.
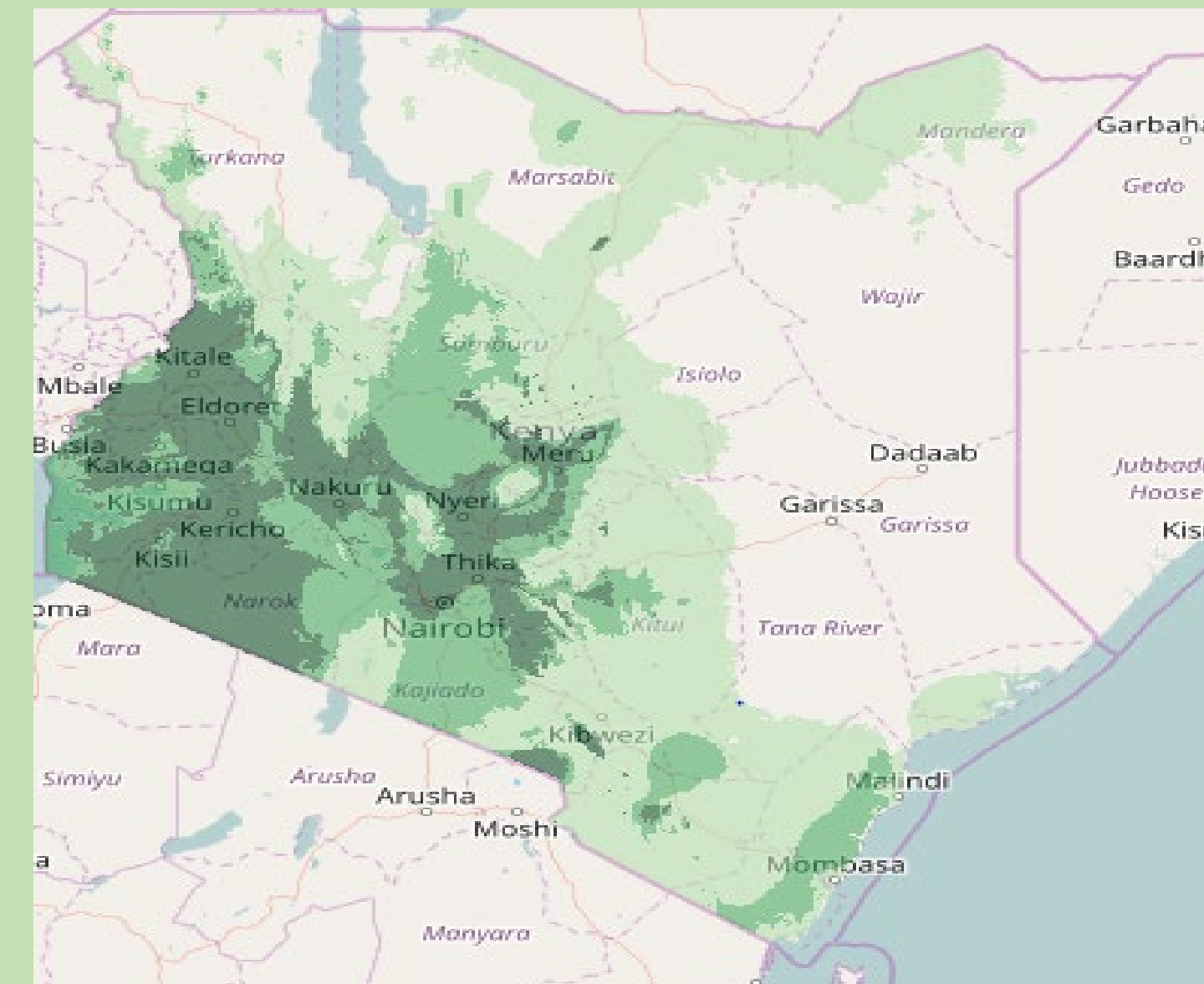
RESULTS

- For the poorest farmers surveyed, this additional income contributed up to 33-50% of their annual income.
- 'grateful to have money now' and, 'this is our coffee'.
- 91% of the respondents) are interested and willing to plant (more) croton trees.
- Only 48% of the collectors are satisfied with the current model arrangement.

ACTIONS

- Low labor requirements (alternative business models).
- Production efficiencies.
- Commercialization of products: optimal product mix, new products, niche markets.

Development of a Croton value chain can have positive impacts on rural livelihoods in East Africa

Croton suitability map for Kenya based on temperature, rainfall and elevation (landscapes portal: http://landscapeportal.org/maps/1740/view

Take a picture to download the full paper

Table 1
Attribute description and levels.

Attribute	Definition	Level
Labour option (labour)	Households collect the seeds themselves	• 1 = Yes (standard practice) • 0 = No
Maturation period (mature)	Age at which tree starts bearing seeds. An annual production of 10 kg is assumed for the initial years (until 10th year)	• 0 • 3 • 4 (standard age) • 6
Seedling Price (seedling)	Cost of seedlings in KES	• 0 • 10 (standard price) • 20
Yield (yield)	Average kg the tree produces from 10 years onwards	• 15 • 25 (standard yield) • 40
Seed price (price)	Amount in KES farmer receives for 1 kg of harvested seeds	• 3 • 5 • 10 (standard price) • 15 • 20 • 40

Table 4
Random parameter logit base model.

Attributes and characteristics	Attribute main effects (standard errors)	Standard deviations (standard errors)
Labour option	−0.695*** (0.231)	1.056*** (0.314)
Maturation	−0.392*** (0.077)	0.437*** (0.105)
Seedlings Price	−0.030** (0.014)	0.042 (0.027)
Yield	0.079*** (0.010)	0.017 (0.025)
Seed Price	0.320*** (0.038)	0.185*** (0.028)
# of choice questions	2000	
Log-Likelihood	−592.98	
Pseudo R^2	0.572	
# of Parameters[a]	10	

Table 5
Marginal rates of substitution (using Krinsky-Robb procedure with 1000 draws and the yield attribute as the common denominator) and relative importance of attribute.

Attributes	Marginal rates of substitution (MRS)			Relative importance
	MRS	Standard errors	95% confidence intervals	
Labour	−8.794	2.772	[−14.226, −3.361]	0.043
Maturation	−4.958	0.953	[−6.825, −3.090]	0.072
Seedlings Price	−0.376	0.188	[−0.744, −0.080]	0.037
Yield	1.000	n.a.	n.a.	0.121
Seed price	4.046	0.448	[3.168, 4.924]	0.727

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