

Pigeon Pea—Long Rain Season, Kenya (2014)

Farmers First

PHASE:	<u>Research Station</u>	50 – 500 farmers	1,000 – 20,000 farmers	Full Scale
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Introduction

Pigeon pea is a perennial legume that is native to India. It is highly adapted to dry environments, has very deep roots, and can produce a high amount of biomass. The plant produces a highly nutritious grain and can produce yield even through the dry season. In addition, the nitrogen fixation capacity of pigeon pea is estimated to be 235kg N/ha. The leaves and immature stems can be cut and used as a green manure that will enrich both soil nitrogen and organic matter. It can be grown as a monocrop, an intercrop with maize or other grains, or even as a perennial hedgerow. While pigeon pea is widely grown in the drier areas of eastern Kenya, it is not very well known in the west. Despite this, the multiple uses of pigeon pea hold high potential for enhancing the food security, agricultural productivity, and livelihood of One Acre Fund smallholder farmers.



Kevan Christensen/One Acre Fund

235kg N/ha	Nitrogen (N) fixation capacity of pigeon pea (kilograms per hectare)	1 t/ha	Yield potential of pigeon pea grain (tonnes per hectare)
5%	Percent of the global pigeon pea market met by African agriculture	250,000 tonnes/year	Import market for pigeon pea in India alone

Context and Trial Rationale

Pigeon pea is a unique, perennial, leguminous crop that is highly adapted to drought and poor soil fertility.

- Incorporating pigeon pea strategically into smallholder cropping systems could provide a successful niche for the benefits of pigeon pea to be realized by the One Acre Fund smallholder farming community.

Major Intervention Configurations

- *Research:* One Acre Fund consulted a range of experts to identify promising best management practices for pigeon pea in East Africa. These include the International Centre for Research in the Semi-Arid Tropics (ICRISAT) and the Kenyan Agricultural and Livestock Research Organization (KALRO).
- *Field assessment:* Research station trials were conducted in Kenya in 2014.
- *Trial Configurations:*
 - 1) **Control:** The control treatment consisted of no fertilizer.
 - 2) **Fertilizer:** 124 kg/ha DAP fertilizer was applied at planting.

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A. Yield and Profit: The below table summarizes agronomic results

Trial	Configuration	Location / Date	Yield (t/ha)	Profit (USD/ha)	Profit Change vs. Trial Control
1. Control: Mbaazi 1 seed only	Research station	Kenya, Long rain season, 2014	0.4	\$372	N/A
2. Fertilizer: Mbaazi 1 seed, 124 kg/ha DAP at planting	Research station	Kenya, Long rain season, 2014	0.3	\$174	-\$198

B. Adoptability: *Medium adoptability*

- Current knowledge of pigeon pea for farmers in western Kenya is limited. More work is required to identify perennial yield potentials.
- Once a niche strategy for pigeon pea cultivation has been identified, farmer preference and adoption rates will need to be reassessed.

C. Operability at Scale: *High operability*

- Distributing seeds easily fit into our current logistical infrastructure. However, few seed companies offer pigeon pea seeds.
- Depending on the recommended cropping system, pigeon pea trainings would have to be developed.

Next Steps

In 2015, One Acre Fund will:

- Trial pigeon peas grown over the duration of two cropping seasons (the long and short rain seasons in Kenya) and through the dry season.
- A multi-season trial will allow us to better evaluate the yield and profit potential of this perennial crop.