

## Farmers First

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

Many farmers in East Africa maintain small plots of vegetables which typically include indigenous and non-indigenous crops. One Acre Fund sought to evaluate recommended planting best practices for three vegetables: red onions, black nightshade (*Solanum nigrum*), and spider plant (*Cleome gynandra*). These nutritious and widely grown vegetables are an important part of the traditional East African diet as a balance to the calorie-dense, maize-based staple dishes. Black nightshade, known locally as *Managu* and Spider plant, known locally as *Saga*, are both leafy vegetables that are well adapted to the growing conditions of western Kenya. They are both often cooked and eaten with *ugali*, the maize-based staple dish of East Africa.



Kelvin Owino/One Acre Fund.

<b>\$12,700</b>	<b>Profit potential for red onions (USD/ha)</b>	<b>79%</b>	<b>Percent daily nutritional iron requirement from 100g of spider plant</b>
<b>\$1000</b>	<b>Profit potential for black nightshade (USD/ha)</b>	<b>14%</b>	<b>Western Kenyan farmers purchasing red onion in the 2015 long rains</b>

### Context and Trial Rationale

- Crop diversification is important ecologically, but it also helps mitigate risks such as plant disease pressure and market volatility for a single commodity (i.e. maize). With disease prevalence ebbing and flowing, advocating for farmers to grow alternative crops helps ensure food security.
- Locally adapted vegetables are a very important source of nutrition. By dedicating small plots to vegetable production, both children and adults can supplement their diets.

### Major Intervention Configurations

- ***New Crops:*** One Acre Fund identified crops that farmers commonly grow in western Kenya, and worked with local seed companies to procure improved seed. We also researched best practices in planting methods and trialed these new crops to evaluate yield potentials within the research station.
- ***Trial Configurations:***
  - 1) **Red onion:** certified red onion seed planted with dry manure and transplanted to 30cm by 10cm spacing.

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- 2) **Black nightshade:** certified black nightshade seed planted with dry manure, thinned to 30cm by 10cm spacing.
- 3) **Spider plant:** certified spider plant seed planted with dry manure, thinned to 30cm by 10cm spacing.

### 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
<b>1. Red Onion:</b> Certified red onion seed, dry manure, 30cm x 10cm spacing	Research Station	Western Kenya, Long Rains 2014	14.2	\$12,733	N/A*
<b>2. Black Nightshade:</b> Certified black nightshade seed, dry manure, 30cm x 10cm spacing	Research Station	Western Kenya, Long Rains 2014	2.6	\$1,040	N/A*
<b>3. Spider Plant:</b> Certified spider plant seed, dry manure, 30cm x 10cm spacing	Research Station	Western Kenya, Long Rains 2014	1.3	\$3,129	N/A*

\*Each crop was grown without a control. The intention was to establish yield baselines under best practice conditions.

### B. Farmer Adoption: *Medium adoptability*

- New Crops:
  - While One Acre Fund will be offering higher quality seed and training on best practices for these crops, these crops are already commonly grow in western Kenya. Most farmers save seed from previous seasons or acquire seeds for free from friends and/or neighbors. As this is the common practice, it may be difficult to justify to farmers the benefits of purchasing these seeds.
- Purchase Behavior:
  - In the 2015 season, 14 percent of farmers in our Teso district in Kenya purchased red onions. This number may increase in coming seasons, as the rate of adoption was much higher (25 percent) among clients who had reenrolled in the program.

### C. Operability at Scale: *High operability*

- Seed for these crops is provided by large seed companies in Kenya and they do not require handling or storage protocols that are different from other seeds we distribute. Trainings are not complex and can be easily integrated into the training schedule.

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## **Next Steps**

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In 2015, One Acre Fund will:

- 1) Distribute red onion seed and training to over 1,600 farmers.
- 2) Continue to evaluate vegetable crops for full-scale distribution.