

Blast Resistant Finger Millet— Long Rain Season, Kenya (2015)

Farmers First

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

Introduction

Finger millet is an important cereal crop in East Africa. Farmers in Kenya historically grew large quantities of finger millet, but preference for the crop faded with the introduction of maize. One Acre Fund has previously offered finger millet as part of a crop diversification strategy, especially in places strongly affected by Maize Lethal Necrosis Disease (MLND). However, finger millet was removed from the product offerings in 2015 due to very low farmer demand. Nonetheless, One Acre Fund has continued agricultural trials to identify improved millet varieties for potential future inclusion in the program. Millet blast, a fungal infection of the plant leaves and grain head, can have a major negative impact on millet yields. If strong, blast-resistant varieties can be identified, this may help to improve farmer adoption. These trials tested three new millet varieties that are resistant to millet blast.



David Guereña/One Acre Fund

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|--------------------------|--|--------------------|--|
| 3 | New blast resistant varieties tested | 105% | Yield increase for best performing variety |
| 3.6 metric tonnes | Yield per hectare for best performing variety | \$1,539 USD | Profit increase per hectare for best performing variety |

Context and Trial Rationale

One Acre Fund is continuing to search for better performing and more blast resistant varieties of finger millet.

- Finger millet is an attractive cereal diversification option. This is particularly important in light of the threat of MLND.
- A high yielding, disease resistant variety of finger millet could potentially be popular among farmers and could be offered as a product in future years, or if a resurgence of MLND creates a need for alternative crops.

Major Intervention Trials

Variety Trial: One Acre Fund identified three promising new blast-resistant varieties to test.

Trial Treatments:

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- 1) **Control:** The control treatment was a monocrop of the P224 variety from Kenya Seed Company, which is the variety One Acre Fund sold in previous years.
 - a. 6kg/ha P224 seed, 110kg/ha DAP, 110kg/ha CAN, 30cm row spacing
- 2) **Finger Millet Variety IE 4115:** Variety developed by KALRO.
 - a. 6kg/ha IE 4115 seed, 110kg/ha DAP, 110kg/ha CAN, 30cm row spacing
- 3) **Finger Millet Variety KACIMMI 42:** Variety developed by KALRO.
 - a. 6kg/ha KACIMMI 42 seed, 110kg/ha DAP, 110kg/ha CAN, 30cm row spacing
- 4) **Finger Millet Variety U15:** Variety developed by ICRISAT
 - a. 6kg/ha U15 seed, 110kg/ha DAP, 110kg/ha CAN, 30cm row spacing

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

| Trial | Trial Type | Location / Date | Yield (t/ha)* | Profit (USD/ha) | Profit Change vs. Trial Control |
|--|------------------|-------------------------------|---------------|-----------------|---------------------------------|
| 1. Control: P224 | Research station | Kenya, Long rain season, 2015 | 1.76 | \$1,316 | N/A |
| 2. Improved Millet Variety: IE 4115 | Research station | Kenya, Long rain season, 2015 | 3.61 | \$2,855 | \$1,539 |
| 3. Improved Millet Variety: KACIMMI 42 | Research station | Kenya, Long rain season, 2015 | 3.43 | \$2,709 | \$1,393 |
| 4. Improved Millet Variety: U15 | Research station | Kenya, Long rain season, 2015 | 3.25 | \$2,549 | \$1,233 |

*Differences between control and all treatment yields are significant, $P < 0.01$

B. Adoption: *Low*

- One Acre Fund has tried selling finger millet for several years but adoption has been very low (only 2% of farmers chose to purchase the crop for the 2015 season). Farmers strongly prefer maize in most areas and are unlikely to grow finger millet in large amounts.

C. Operability at Scale: *Medium*

- Distributing seeds easily fits into our current logistics processes. Seed stock is readily available through Kenya Seed Company.
- Finger millet requires a completely different set of farmer trainings and planting tools than maize. This adds significant complexity to the program and creates additional burdens for the field team.

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Next Steps

In 2016, One Acre Fund will:

- Continue to monitor the availability of these and other new varieties of finger millet.
- Consider additional trials only if a strong need arises for additional crop diversification research, or if a compelling case can be made that a significant number of farmers would want to grow millet