Why are we all in this room?
- Our shared mission and what we can learn from each other

The example I know best: One Acre Fund
- Basic background on our program
- How we do research in the field

The task ahead of us
- My opinion on how we should do research
Why are we here? Our shared mission
Farming is the dominant economic activity of the world’s poor.
We need to work together more

Impact (per client)

Social Good

Scale

Researchers: Thinking about impact but not about scale

NGOs: Thinking about scale but not about impact
We serve one-acre farm families in East Africa
- Staple crop farmers in Kenya, Rwanda, Burundi, and Tanzania
- Comprehensive model that doubles farm profit per acre

We are a non-profit, but operate like a business
- Farmers pay for services, largely covering field costs

8 years old—starting initial scale-up
- Currently serve 175,000 farm families with 2,000 staff—98% who live alongside our families in rural areas
- Will directly reach at least 1 million families by 2020
Keep it simple, stupid: three things will change the world

- ~ 35% Improved seed
- ~ 35% Fertilizer
- ~ 20% Better farming practices
- ~ 10%

Mechanization, GMOs, pesticides, herbicides, economies of scale, further plant breeding, soil analysis, micro-soil analysis, irrigation

Better farming practices

Fertilizer

Improved seed

World fertilizer use (KG per arable hectare)

Source: World Bank, World Development Indicators
Innovation 1: Complete “market in a box” for one-acre farmers

- Producer groups
- Productive asset loan (seed & fertilizer)
- Training
- Post-harvest support
Innovation 2: Rural distribution
Our program is growing very quickly

Core program 2013
- 180,000 farmers
- $120 income/farmer
- $30 donor cost/farmer

Core program 2016
- 450,000 farmers
- +$135 income/farmer
- $20 donor cost/farmer

Gov’t Services 2016
- 1,500,000 farmers
- +$45 income/farmer
- $5 donor cost/farmer

~$50M direct value created for farmers

Building capacity of African gov’ts for nationwide, sustainable change

Proof points for other African gov’ts to reform agriculture systems
In addition to a core program, we have a large R&D operation

Direct field operation

- Producer groups
- Productive asset loan
- Training
- Post-harvest support

Research operation

- Chlorine dispenser
### One Acre Fund’s R&D approach

#### Product Selection Criteria

<table>
<thead>
<tr>
<th>Impact</th>
<th>Adoptability</th>
<th>Simplicity</th>
<th>Operability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can a product significantly improve a client’s income?</td>
<td>Are a significant number of clients willing to purchase the product?</td>
<td>Is the product simple enough that all clients can achieve a consistent result?</td>
<td>Can we scale the product with minimal increase in operational complexity?</td>
</tr>
<tr>
<td>&gt;$20 incremental income (after repayment) per adopter</td>
<td>&gt;50% of farmer network expected to adopt</td>
<td>Level of skill required to adopt technology successfully</td>
<td>Level of operational complexity at scale (FTEs or $)</td>
</tr>
</tbody>
</table>
## One Acre Fund’s R&D approach

### Product Testing Framework

<table>
<thead>
<tr>
<th>Phase One</th>
<th>Phase Two</th>
<th>Phase Three</th>
<th>Phase Four</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># Farmers</strong></td>
<td><strong>Trial Type</strong></td>
<td><strong>Testing Priorities</strong></td>
<td><strong>Criteria</strong></td>
</tr>
<tr>
<td>0</td>
<td>Research station</td>
<td>Initial impact estimates, initial simplicity estimates</td>
<td>Finalize all four criteria</td>
</tr>
<tr>
<td>100-300</td>
<td>Trial District</td>
<td>Confirm impact and simplicity under real farmer conditions, initial adoptability and operability estimates</td>
<td>Full-country rollout</td>
</tr>
<tr>
<td>1,000+</td>
<td>1-2 Core Districts</td>
<td>Confirm adoptability and operability at scale</td>
<td></td>
</tr>
<tr>
<td>50,000+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Sample innovation: grevillea trees

- Long-term farmer income (3-6 years)
- Many benefits
  - High demand for timber
  - Household uses
  - Soil and environmental health
- Behavior change
  - Most farmers buy trees from nurseries with limited scalability
  - Farmers harvest trees too quickly
Sample innovation: grevillea trees

Impact

- Tested dozens of tree bag and tree socket soil mediums and fertilizers
- Goal: consistent planting method to produce as many seedlings as possible
- Each viable seedling translates into a tree worth $10+ within five years
Sample innovation: grevillea trees

Adoptability: Planting method

- Two critical paths:
  - Tree Bag → Seed Bed → Field
  - Tree Bag → Socket → Field

- We tested both configurations with 500+ farmers
- Socketing (pictured) looks like the best option
Sample innovation: grevillea trees
Adoptability: Behavior

- High temptation to sell early
- Behavioral interventions
  - Tree pledge signposts and calendars (pictured) to remind farmers to hold onto trees ("Patience Brings Success")
  - Tree “values training” emphasizing long-term uses of trees
- Ongoing Phase 1-2 trials

Sample innovation: grevillea trees
Sample innovation: grevillea trees

Operability

- We created the supply chain from scratch
- Not that hard—minimal inputs requirements for grevillea

Seed testing

Warehouse operations

Seed packaging
What is next? There is a lot of work left to be done

- Sub-Saharan Africa alone has 220m+ undernourished people
  - The majority of undernourished people are farmers whose profession is to grow food.
  - We have a lot of work left to do.

- NGOs are producing scale, but little impact.

- Researchers are producing impact, but no scale.

- We need to learn from each other.
  - We see the world very differently
  - But we share the same goal
Possible lessons for each other

### The NGO sector

- **Care more about impact**
  - Our organizations exist to produce impact. It is insane that we do not measure it more.

- **Increase R&D capacity**
  - More trials, more people >> better results for farmers

### For Researchers

- **Abandon academia!** We need you in the field.
- **Seek more realistic conditions**
  - Larger N, larger land sizes
  - Actual farmer conditions
- **Work with scalable partners**
  - Partners will help you scale your impact after you publish the paper
Questions?