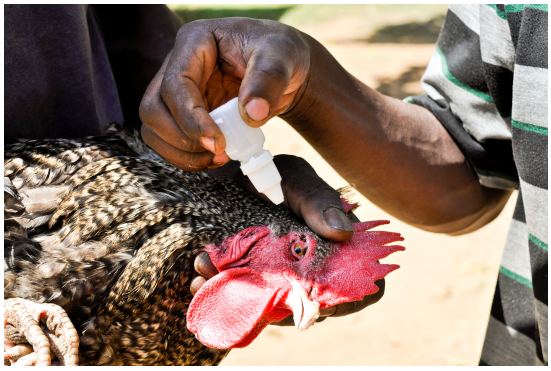
Poultry— Kenya (2015)

Farmers First

PHASE:	Impact Evaluation[1]	50 – 500 farmers	1,000 – 20,000 farmers	Full Scale

Introduction



Hailey Tucker/One Acre Fund.

Millions of smallholder farmers in East Africa rear poultry, most commonly chickens. Chickens serve several functions in smallholder households: they act as a living bank account that can be sold when extra income is needed, can be slaughtered to celebrate important social events, or can generally serve as a high-quality source of protein. However, poultry production can be limited by disease, and local flocks may or may not have robust genetic resilience. In the background research process, One Acre Fund reached out to national and international poultry experts to explore all poultry interventions including: breeding, housing, incubation and brooding, health management, and feeding. Of these interventions, disease and breed were projected to be the most important drivers of impact. Two promising products were identified to address these needs.

Product 1: Thermo-tolerant Vaccine for New Castle Disease

New Castle Disease (NCD) is the most common poultry disease in Kenya, with an average of one to two outbreaks per year during the dry season. 95 percent of farmers surveyed in a study in western Kenya indicated that NCD was the primary disease limiting the productivity of their flocks. Farmers rarely control diseases and are often unaware that NCD vaccines are commercially available.

Product 2: Improved Indigenous Birds developed by KALRO[2]

Initial research indicated that local indigenous breeds are the most common chickens raised by smallholders in the areas where One Acre Fund works. While indigenous breeds are adapted to thrive in harsh environments, their productivity is severely limited by the genetic potential of the breed. To address these limitations, KALRO has developed an improved indigenous variety of birds. This variety has most of the benefits of indigenous breeds, but also has increased growth and egg production.

7.8%	Percent of Kenyan national GDP accounted for by poultry
34%	Percent of farmers in western Kenya with access to veterinary services and vaccines
87%	Percent of One Acre Fund farmers that reported flock mortality due to NCD
100%	Potential increase in annual egg production of KALRO hens versus local chickens

[1] Live animal trials are structured differently from crop trials. In this case, the impact evaluation is the first trial phase, as opposed to the usual first step of desk research.

[2] Kenyan Agriculture and Livestock Research Organisation

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Context and Trial Rationale

Over 90 percent of One Acre Fund farmers keep poultry.

- Strategic interventions to increase the productivity of backyard chickens could contribute to increased food security and improved livelihoods for One Acre Fund smallholder farmers.
- The I-2 vaccine comes in eye-drop form and has to be administered once every four months, or three times per year. Despite the availability of this vaccine, few farmers have access.
- Improved local breeds of birds may increase productivity while maintaining many of the advantages of local breeds.

Major Intervention Trials

Research: One Acre Fund consulted a range of experts to identify the most impactful interventions when considering the productivity of backyard poultry. These included the University of Queensland (Australia) and the Kenyan Agricultural and Livestock Research Organization (KALRO).

A. Randomized Control Trial Design: Impact evaluation

- Sample size: (n)= 500.
- **Vaccination**: One Acre Fund offered its farmers up to 25 doses of this vaccine administered 3 times a year at farmers' homes.
- **Improved breed:** One Acre Fund offered its farmers a box containing five six-week-old birds, along with a 2.5 kilogram (kg) packet of chick mash to ensure that the chicks had access to good nutrition while young in order to reach their productive potential when mature.
- Key outcomes of interest: flock size, bird sales and purchases (revenue), egg production, egg sales and purchases (revenue), and disease incidents in the flocks.

Table 1. Trial outline, Western province, Kenya, 2015.

Trial	Trial Type	Location / Date
1. Control: No Poultry products	Randomized control trial with 500 farmers	Western province, Kenya, 2015
2. Test 1: Vaccine only		
3. Test 2: Chickens only		
4. Test 3: Both vaccines and chickens		

B. Adoption: *High*

- Strong first year adoption; higher demand for poultry products in drought-prone districts.
- Phase 3 adoption (Offered to 26,578 farmers):
    - Chicken Delivery = 16 percent of farmers buying 1.1 units (1 unit = 5 birds)

- NCD Vaccine = 13 percent of farmers buying 1.1 units (1 unit = vaccine for 25 birds)

C. Operability at Scale: *Medium*

- Vaccines: Training group leaders to administer vaccines to their group members' flocks incurs operational complexity as many of the group leaders are unfamiliar with poultry products. In addition, the heat stability of the vaccine is not as robust as hoped. This makes efficient delivery time highly critical to ensure the viability of the product.
- Chickens: The product package includes packaging live birds and shipping them live with the rest of the inputs (fertilizers, seeds, etc.) Efficiently packing and delivering live birds at scale is operationally complex.
- Training: For the poultry product to be successful, it is critical that the chicks are well cared for and the vaccines are efficiently administered. This requires a fair amount of complexity in the training materials, potentially reducing the operability.

Next Steps

In 2016, One Acre Fund will:

- Trial the impact of different feeding regimes on egg production at the livestock research station.
  - Compare the productivity of 3 breeds- local, KALRO improved, and Kuroiler.
  - Calculate the profitability of different feeding regimes.
- Deliver thermo-tolerant NCD vaccines and improved chickens to ~4,000 farmers.
  - Test internal procurement and delivery mechanisms.