# Scaling an innovative credit product for smallholders across contexts

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Evidence to Action Conference

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# Evidence from a Randomised Evaluation in Kenya

Jack, William; Kremer, Michael; de Laat, Joost; and Suri, Tavneet, “Borrowing Requirements, Credit Access, and Adverse Selection: Evidence from Kenya.” NBER Working Paper 22686. Sept 2016.

# Low adoption of agricultural technologies

- Recent development of new agricultural technologies with potential to contribute to economic growth and poverty alleviation
- Credit constraints prevent many small holder farmers from investing in new technology
  - Sizeable initial deposit or a guarantor is often required to receive a loan, restricting access for most
- In developed countries, asset collateralized loans for purchase of houses, vehicles, and small business equipment are common
    - In event of loan default, asset is repossessed by bank
    - Using assets as collateral is rare in developing countries, where credible and efficient processes to seize collateral may be lacking
- For certain products, can asset collateralization expand farmer access to credit without affecting repayment rates?

# Can innovative financing help farmers access water tank loans?

- The asset: Water tanks are a big outlay (~$350) but might be affordable if can pay gradually.
  - Water tanks make good collateral:
    - Hard to hide and hard for the farmer to move
    - Easy for the cooperative to repossess
    - Maintain their value and can be resold

- Study context:
  - Kenya's Central and Rift Valley provinces

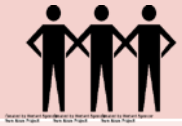
  Many farmers already involved in SACCOs

- Study population: Smallholder dairy farmers
  - Farmers were members of SACCOs, selling milk to local dairy cooperatives
  - Average herd size of 2 cows

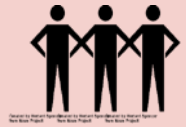
# Innovative financing

- Researchers partnered with Nyala Dairy Cooperative to offer smallholder dairy farmers a loan to purchase a 5,000-liter rainwater harvesting tank
- Water tanks offered to farmers through an innovative credit contract:
    - The tank itself is used as a collateral
    - Repayments are automatically deducted from monthly milk sales at the cooperative
    - Term: 24 months; managed by the SACCO
    - If farmers failed to repay, the cooperative would repossess the tank and sell it to cover the outstanding loan obligation
- Researchers also compared this asset collateralized loan contract to other “standard” loan contracts, including one that was fully cash-collateralized by the farmer’s own deposits and guarantors

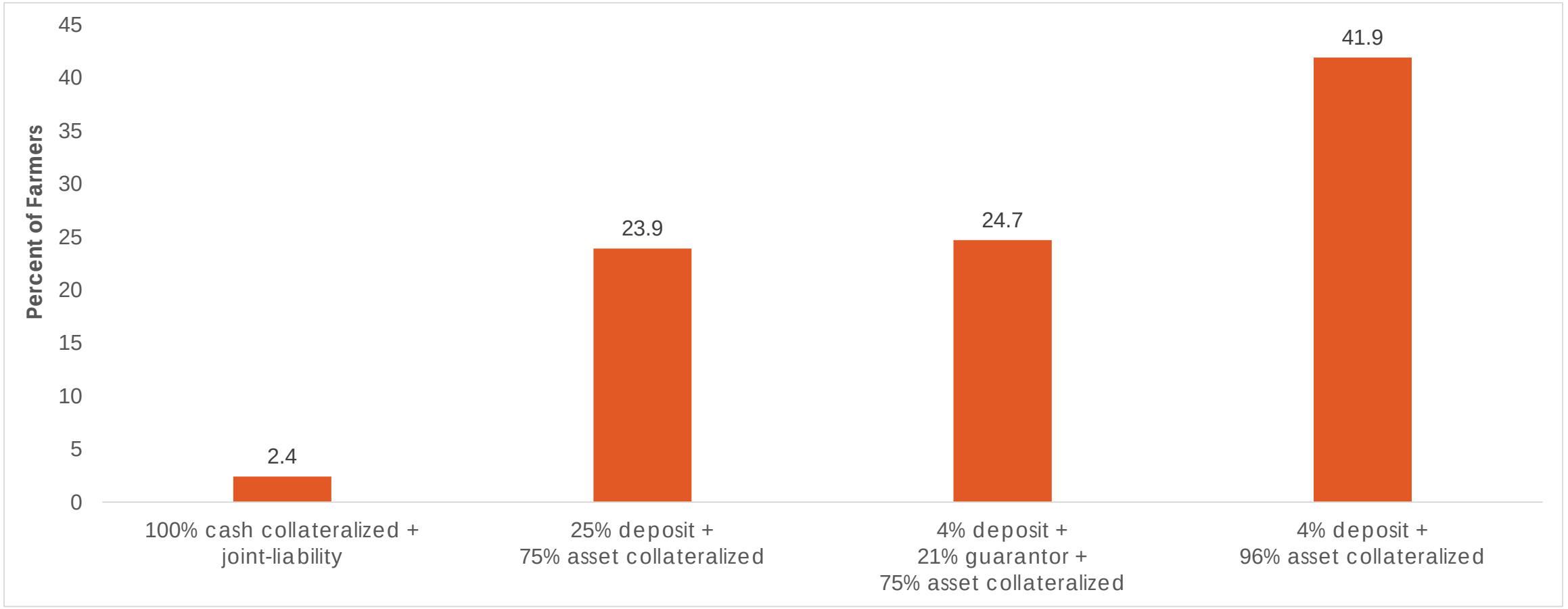
# Treatment Groups

| Group | Deposit | Guaranators | Asset Collateral |
|---|---|---|---|
| Status quo | 33% | 100%  | None |
| Asset collateral - low | 25% | None | Tank  |
| Joint liability | 4% | 21% | Tank  |
| Asset collateral - high | 4% | None  | Tank  |

# Results

| Group | Deposit | Guaranators | Asset Collateral | Take-up | Repossession Rate |
|---|---|---|---|---|---|
| Status quo | 33% | 100%  | None | 2.4% | 0% |
| Asset collateral - low | 25% | None | Tank  | 27.6% | 0% |
| Joint liability | 4% | 21% | Tank  | 23.5% | 0% |
| Asset collateral - high | 4% | None  | Tank  | 44.3% | 0.7% |

# Loan Take-up




Take-up rates are overall rates taking into consideration the original sample and the out of sample offers

W. Jack, M. Kremer, J. de Laat & T. Suri (unpublished) Joint Liability, Asset Collateralization, and Credit Access: Evidence from Rainwater Harvesting Tanks in Kenya.

# And had real effects

- **Real impacts** on household water access, time saving, and girls' school enrolment


+17.5pp ↑ Likelihood of owning any tank

45%


8

-3.17 ↓ Minutes/day fetching water

+4pp ↑ Enrolment rate

98.4%

-9.66 ↓ Minutes/day tending livestock

# Discussion

- Asset collateralization has the potential to expand access to credit
- However, there may be a minimum level of deposit required.
- The SACCO continued the asset-collateralized loans, but chose the option of 75% collateral and added an appraisal fee of 700 ksh.

Broader Lesson

- The profit maximizing lender will set borrowing rates too high.
- Government cap on interest rates compounds the problem.
- Innovative financing can help solve this.

# Applying the idea in Rwanda

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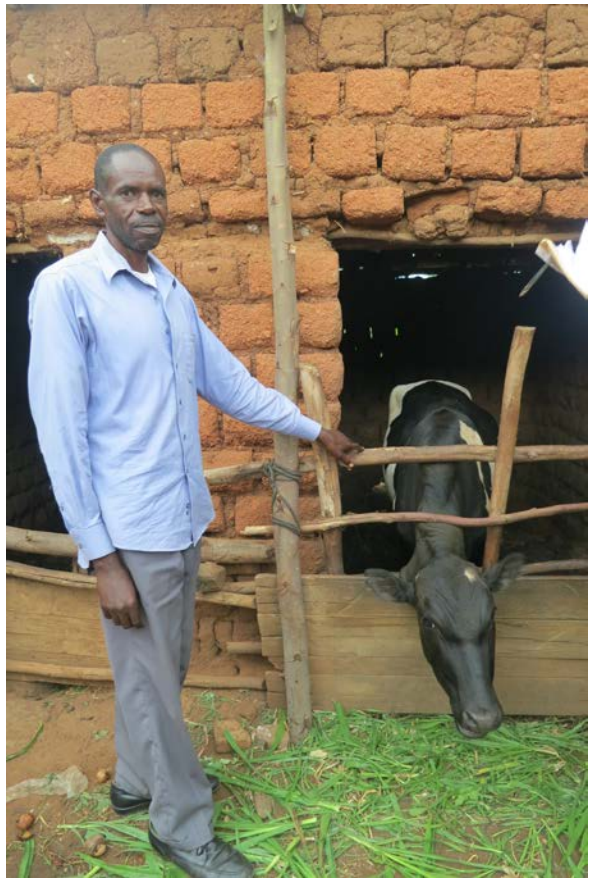
J-PAL Africa

# Globally Informed

# Locally Grounded



# Takeaways from context scoping

**Reasons why the project might work**

- Lots of dairy farmers with the same number of cows on average
- Water storage is a problem
- Institutional partners willing to participate, i.e. dairy cooperatives, their cooling centres, and SACCOs
- Availability of lightweight durable plastic tanks

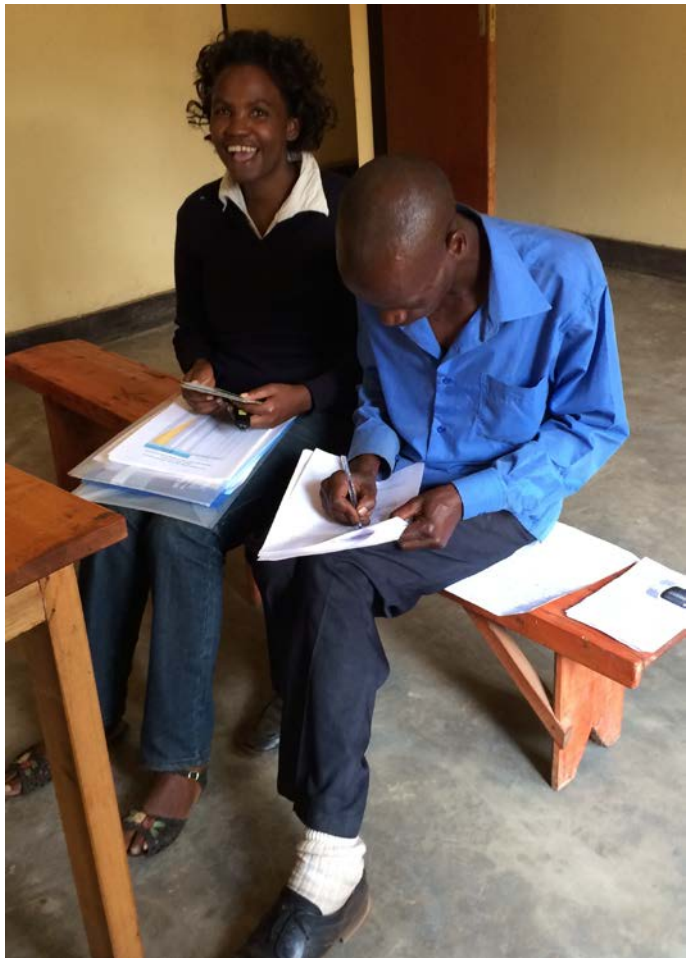
**Reasons it might not work**

- Dairy cooperatives and SACCOs are separate entities
- Tanks new idea for individuals
- Tanks are more expensive than in Kenya

Solution: Test the process and monitor take up and repayments.

# Phase I: Intense support

- Small pilot in 1 sector, with intense support
- 43 farmers took the loans (about 25% of those eligible)
- Repayments went moderately well
  - 1 farmer defaulted but repossession and tank re-sale went smoothly
  - 40% of farmers have been late at least by 1 month



# Phase II: Workshops for SACCOs

- 53 SACCOs attended the workshops
- 13 SACCOs have signed a contract with a tank company
- 6 SACCOs actively offering loans
  - 93 additional tanks sold so far


# Another Water Tank Loan Project in Rwanda

- Rwanda Natural Resources Authority offered asset-collateralized water tank loans
- 3 year, environmental programme: 2014 – 2016

| Loan Option | Ubudehe Category |
|---|---|
| Loan Only | 5th (middle), 6th (well off) |
| Loan + Subsidy | 4th (surviving), 3rd (poor) |
| Low-cost artisan tanks | 2nd (poorer), 1st (poorest) |

- About 5,000 tank loans provided (loan and loan + subsidy) as of Dec 2016

# Thank You!