Effect of Social Networks on Groundnut Farming: The Case of Kenya and Uganda

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BACKGROUND

Groundnut is an important food and cash crop in the semi-arid regions of Eastern Africa.

Challenges
- Low farm productivity—700 kg/ha for Kenya and 800 kg/ha for Uganda compared to 2,200-3,000 kg/ha on-station trials.
- Poor agronomic practices, pests, and diseases, and low producer prices.
- Lack of information on value addition techniques along the groundnut value chain (Okello et al., 2010; Okoko et al., 1998)

Demand, Supply, and Production Issues
- Lack of organized production systems for improved seed.
- Lack of interest by the private sector in groundnut seed multiplication.
- Farmers require public sector support in Groundnut seed production (Ntame et al., 2008)

RESEARCH QUESTIONS

RQ1: How do farmers' social networks affect information acquisition and adoption of improved groundnut varieties in Kenya and Uganda?

RQ2: What is the structural pattern of social networks among groundnut farmers in Kenya and Uganda?

RQ3: What implications do the patterns have for technology development and dissemination?

METHODS

Sample
- 481 groundnut farmers from both countries
- 243 research farmers (participated in research trials)
- 248 non-research farmers (had no linkage with researchers or extension)
- All planted groundnuts in 2009
- Sample distributed across Teso, Busoga, and Northern Uganda, and Nandi District, Kenya

Data Collection
- Data collected through a face-to-face interview
- Farmer responses based on free recall
- Survey forms and data coding ensured uniformity of the responses

Data Analysis
- RQ1. Quantitative data analysis using a bivariate probit model to examine variables that explain farmers' information acquisition and variety adoption
- RQ2. Social network analysis used to display groundnut farmers' network structures in both countries. Cramar's V and Rajap's information indexes used to help interpret patterns

FINDINGS

RQ1. Factors that influenced farmers' information acquisition and adoption of improved groundnut varieties by country (Table below)

<table>
<thead>
<tr>
<th></th>
<th>Uganda</th>
<th>Kenya</th>
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<tbody>
<tr>
<td>Gender</td>
<td>Info. Acq.</td>
<td>Adoption</td>
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<tr>
<td>Education Level</td>
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<td>Family size</td>
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<tr>
<td>Farm size</td>
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<tr>
<td>Credit</td>
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<tr>
<td>Farmer type</td>
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<td>Own Experience</td>
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<td>External Support</td>
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<td>Rho</td>
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<td>-0.29</td>
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Note: Other factors in the models with no significant impact were: age, distance to the market, and group membership


CONCLUSIONS

- A network of strong- and weak-ties influence farmers' information acquisition.
- Compared to Kenya, Ugandan farmers demonstrate a pattern of richer and denser relationships with their weak-ties (e.g., extension).
- Non-relational factors such as farmers' own experience, gender, farm size, credit access, and geographic location also influence how farmers acquire information.
- Although social network factors facilitate learning, other factors outside the farmer's domain influence adoption choices (e.g., gender, location).
- Lack of information about a technology in a social system may delay the adoption process—farmers tend to experiment more before subjecting a good proportion of land to new varieties.
- Farmers' geographic location is a key component in acquiring information and adopting new varieties.

IMPLICATIONS

- Understanding social network structures and their properties provides an important step in technology dissemination.
- The introduction of new information into farmers' social networks facilitates their connections with external weak-ties.
- Need more research on the effects of gender on groundnut information acquisition and adoption.
- Need to explore how societal or cultural norms impact information flows and resources within farming community networks.
- Develop policies to support non-relational factors that impact adoption (e.g., infrastructure, labor, marketing, credit access).