Implications for conservation agriculture

Strategies for scaling up conservation agriculture need to recognize which local actors are critical to local knowledge development and transfer and target them for special consideration in any communication campaigns. These findings offer a starting point for identifying the individuals who are likely to be key agents in whether or not the promotion of conservation agriculture will be successful.

On the whole, agricultural service sector/community agents are overwhelmingly agreed that maintaining a permanent crop cover is the thing to do and that tillage causes land degradation. On the other hand, this conventional wisdom is not held by the farmers of Tororo. Many are quite uncertain about the importance of a crop cover, and more disagree than agree. Indeed, farm and non-farm actors alike in Tororo believe that labor-saving machinery and chemical inputs are the keys to successful farming.

The analysis of relationships presented in the network map indicates that the majority of the central actors in Tororo agrees or strongly agrees with the statement that tillage causes land degradation, a strategic factor in any transition to conservation agriculture. However, several key actors, such as the government parastatal and government extension agent are not on board. However, beliefs also seem contested among more peripheral community agents who interact closely with farmers. A local savings group leader, counselor and pastor support the belief, but a local teacher and the women's organization leader disagree. Since both large and small farmers remain uncertain, a learning opportunity may be present.

Two points of entry for developing a strategy for promoting conservation agriculture in Tororo are suggested by this analysis. Farm organization leaders may be high priority targets for transmitting knowledge about conservation agriculture to the local production network. In addition, agrovet stockists occupy an especially important position as well. Targeted meetings with these network actors could encourage a rapid adoption of conservation agriculture.

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Network opportunities for promoting conservation agriculture

Tororo, Uganda

What are the opportunities and constraints in local agricultural production networks to introduce and scale up conservation agriculture? In Molo Sub-county, 93 farm households were surveyed about their network contacts and beliefs about agricultural production. Follow-up interviews were conducted with 15 most frequently-reported farmers' agricultural production contacts.

Based on these findings, this brochure:

1. Identifies central actors in the Tororo/Molo Agricultural Production Network
2. Describes perspectives on agricultural production and predispositions for conservation agriculture
3. Maps information flows and beliefs about whether tillage causes land degradation

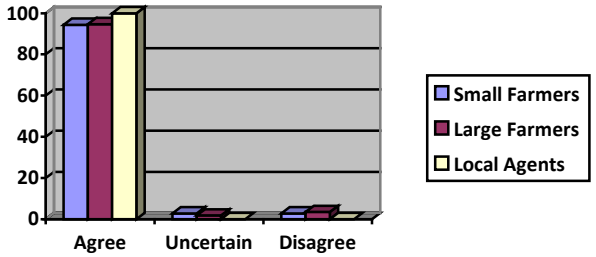
Beliefs about agriculture production

In order to understand the predisposition of farmers and agents toward conservation agricultural production practices, we asked them whether they agreed with three statements concerning the principles of conservation agriculture. Believing that there may be differences in perspective according to farm size and position as various community agents/service sector providers, the following graphs report the percentage of respondents in each category. Small farmers have three acres or less in cultivation.

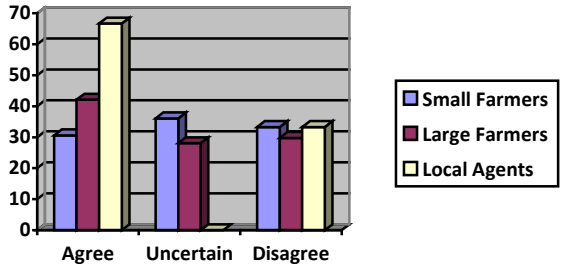
We did not find compelling evidence of interdependence among these beliefs. Farmers and non-farm agents consider them independent concepts, not a set of behaviors associated with a particular style of agricultural production. Nevertheless, there is nearly unanimous support among all farmers and non-farm agents that rotating crops is best practice.

However, while the majority of non-farm agents agree that tillage causes land degradation and that one should maintain a permanent crop cover, both large and small farmers are divided on these issues. There is a significant minority of all three groups in Tororo who disagree that tillage causes land degradation. Most farmers and a majority of large farmers are predominantly uncertain about whether one should maintain a permanent crop cover.

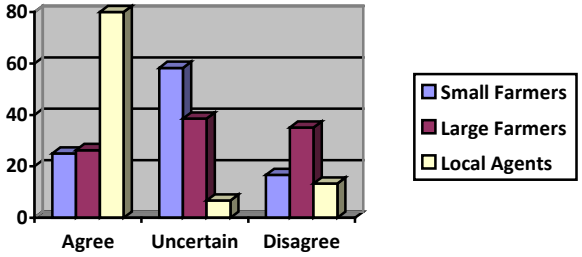
Rotating crops is best practice:



Tillage causes land degradation:



One should maintain a permanent crop cover:



Analyzing network structure

In analyzing Tororo's agricultural production network, this research was interested in identifying actors who had the highest number of contacts and which actors exercised the most control over the flow of information between actors in the network. In network analysis, these two measures are known as degree and betweenness centrality. The table below presents the top-scoring actors for each type of measure in Tororo.

The table below demonstrates that in Tororo, the actors who have the most contacts also exercise the most control over the information flows between contacts. Clearly, the local farm organization leader, the governmental parastatal Tororo Datic, and agrovet suppliers are the most central actors in transmitting agricultural information and knowledge within the agricultural production network in Tororo. These actors represent key individuals to be engaged in efforts to promote knowledge of conservation agriculture production and practices.

Four Most Central Actors in Tororo

Rank	Agent	Degree Centrality	Betweenness Centrality
1	Farm Organization Leader	20	20.42
2	Government Parastatal	19	19.84
3	Urban Agrovet	19	15.09
4	Local Agrovet	19	14.39