

Networking, information and technology adoption: A Social Network Analysis of Colombian small/medium scale cattle producers

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Photo Adoption of improved forages in Cauca, Colombia Picture by Neil Palmer

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Introduction

- Cattle production contributes with nearly 9.5% to the global anthropogenic green house gas (GHG) emissions
- Climate change mitigation and reduction of the environmental footprint in cattle production can be achieved through the adoption of improved forages and the implementation of sustainable agricultural practices
- Social Networks are an important strategy in helping people to cope with challenging conditions such as a lack of basic services or inputs. In many cases they are replacing formal services and input providers, relying on the delivery of informal financial services, extension services and problem solving assistance
- For the adoption of improved forages social networks might be an influential factor

Objectives

- To identify nodes and the general structure of interactions between cattle producers in Cauca, Colombia
- To determine the influence of social networking on the adoption of improved forages

Materials & Methods

This study is part of the research program “Development and implementation of forage resources for sustainable bovine production systems in the Cauca department, Colombia” between the International Center for Tropical Agriculture (CIAT) and the Cauca University

A survey was conducted with 307 cattle producers from the municipalities of Patía and Mercaderes, in Cauca, Colombia. Most of the respondents are small (0–50 animals) and medium (50 –200 animals) scale producers but also few large scale (>200 animals) producers were included

UCINET 6.620 was used for social network analysis and Netdraw 2.160 for obtaining the social network figure. Collaboration between producers, in terms of information and resources, was employed to obtain the centrality variable

Social Network Analysis (SNA)

Pearson correlation analysis was used to evaluate the influence of the centrality variable on the access to information, technical knowledge and adoption level. The Mann-Whitney U test was applied for the analysis of mean differences in the adoption level between regular and board members of associations

Correlation analysis

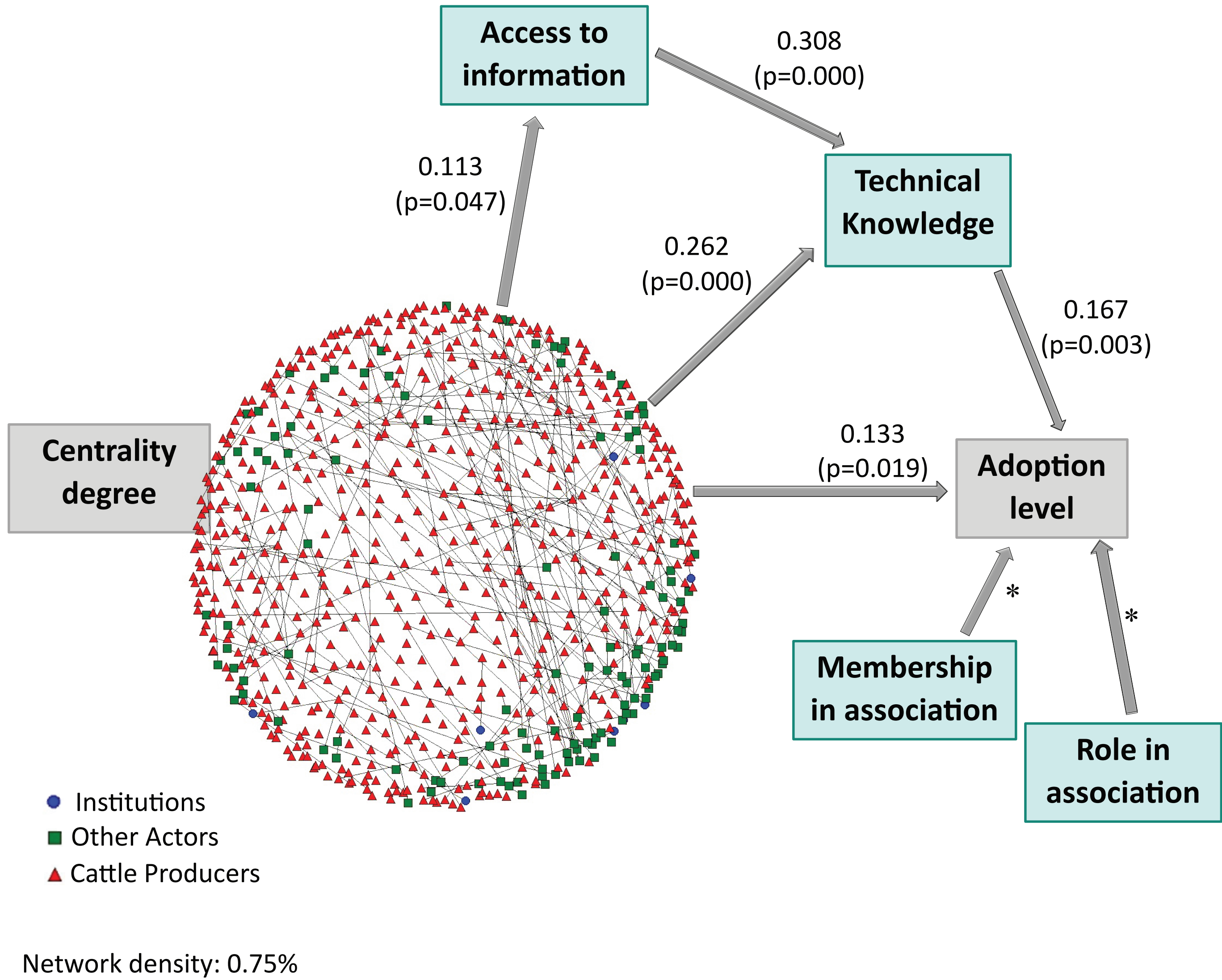
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Results

- The investigated network is undirected and shows a density of 0.75%
- Cattle producers with a higher centrality degree show a higher adoption level of improved forages
- Producers with a higher centrality degree have more access to information, which increases their technical knowledge and this results having influence on the adoption level of improved forages

Figure 1 Social network and its influence



*The role of producers in associations (regular member vs board members) has influence on the adoption of improved forages. In general, producers who belong to an association showed a higher adoption rate. Directive members showed higher adoption rate than regular members ($p<0.005$)

Conclusions

- Network actors with a higher degree of centrality could play an important role in the dissemination of scientific findings and technologies facilitating up- and out-scaling processes
- Members of associations are key actors in the social network for promoting the adoption of agricultural technologies in their community
- Information, training and education programs could have a significant effect in increasing adoption of technologies. More training is recommended to promote innovation diffusion such as e.g., training of trainers programs with local producers

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