Tropentag 2024 Vienna: Explore opportunities... for managing natural resources and a better life for all

Role of Network for Diffusion and Adoption of Climate Smart Agriculture Technologies in Bangladesh

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Introduction

- Global climate change- the greatest challenges to agricultural productivity
- Climate Smart Agriculture (CSA)- increases the productivity, adaptation and mitigation (FAO, 2013)
- Network ties actors with one to another by socially meaningful relations (Prell et al., 2009)
- Covering Sustainable Development Goals (SDGs): Zero hunger (2), Climate action (13) and … strong institution (17)

Methods

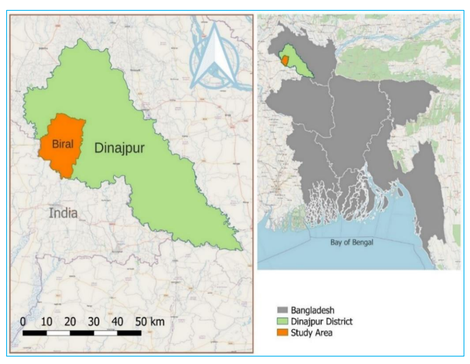

Fig.1 Study area

- Study Area: Dinajpur district of Bangladesh
- Research Design: The complete or socio-centric design
- Data Collection: Interviewing farmers and extension officers
- Data Analysis: By Gephi and SPSS software

3 Climate Smart Technologies

Fig.2 Drought Tolerant Variety

Fig.3 Pheromone Trap

Fig.4 Vermicompost

Fig.5 Vermicompost used crop field

Results

Key actors in the diffusion of climate-smart technologies

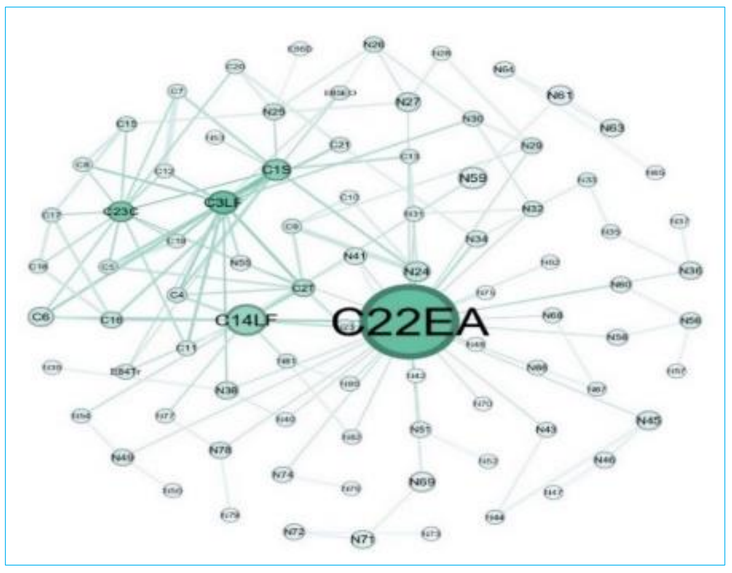

Fig. 6 Network for Drought Tolerant Variety

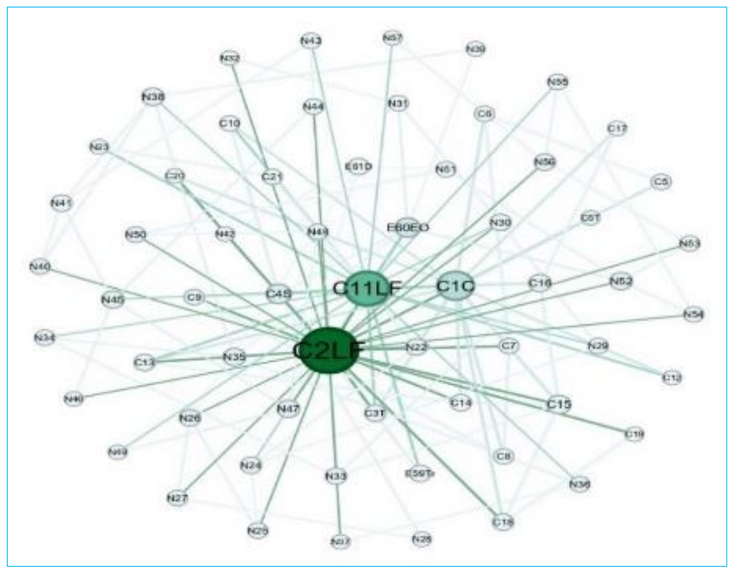

Fig.7 Network for Pheromone Trap

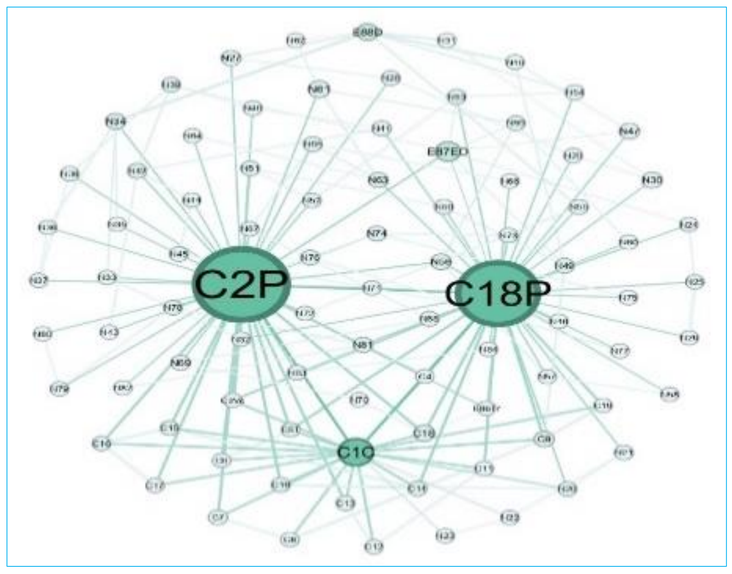

Fig.8 Network for Vermicompost

Table 1. Role of centralities for the adoption climate-smart technologies

Network measures	Pearson's correlation coefficients (r) with the adoption of-		
	Drought Tolerant Variety	Pheromone Trap	Vermicompost
Degree Centrality	0.326**	0.263*	0.205
Weighted Degree	0.314**	0.245	0.233*
Closeness Centrality	0.218	0.262*	0.283**
Betweenness Centrality	0.355**	0.227	0.162
Eigenvector Centrality	0.327**	0.304*	0.278*

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Highlights

- **Key actors:** Early adopter, lead farmers and vermicompost producers
- **Important Centralities**: Eigenvector centrality

Conclusions

- Diffusion networks organized with few central positions, and role of centralities varied based on the technologies
- It recommends for emphasizing the key actors and enabling centralities by connecting potential actors

References

- FAO. (2013). Climate smart agriculture sourcebook. The Food and Agriculture Organization, Rome, Italy.
- Prell, C., Hubacek, K., & Reed, M. (2009). Stakeholder analysis and social network analysis in natural resource management. Society and natural resources, 22(6), 501-518.

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