

# *An investigation of the impact of innovation characteristics, social capital, and gender on adoption of the hydraulic injector fertigation technology in the Jordan Valley*



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# Introduction



- Fertigation is being used for farming in the Jordan Valley but unsure to what extent and what type of technology
- Need for better water and fertilizer saving technology  
->> Hydraulic injector fertigation technology developed
- NCARE conducted trainings and offered loans to farmers for the technology and still low levels of adoption

# Research Problem



- **Purpose:**

To explore the adoption process of the hydraulic injector fertigation technology by farmers in the Jordan Valley

- **Objectives:**

1. Describe the current situation for fertigation in the Jordan Valley, including the hydraulic injector technology.

2. Describe how Rogers' innovation characteristics influence the adoption of the hydraulic injector technology

3. Describe how social capital influences adoption of the hydraulic injector technology.

4. **Describe how both innovation characteristics and social capital influence adoption of the hydraulic injector technology**

5. Explore how gender affects the adoption of the hydraulic injector fertigation technology.

# Methods



- **Mixed Methods**
  - Quantitative - Questionnaire
  - Qualitative Focus Groups and Key Informant Interviews
- **Population - farmers growing crops under irrigation**
- **Sample:**
  - 100 farmers (61 adopters; 39 non-adopters)
  - 4 focus groups

# Results



## **OBJECTIVE 4**

# Explanation of Objective 4

- **Adoption characteristics:**

- Relative Advantage
- Compatibility
- Complexity
- Trialability
- Observability

- **Social capital:**

- Trust
- Group membership
- Togetherness
- Everyday sociability
- Trust
  - ✦ Bridging Social Capital
  - ✦ Bonding Social Capital
  - ✦ Linking Social Capital

# Findings: Objective 4



- Describe how both innovation characteristics and social capital influence adoption of the hydraulic injector technology

Analysis	Model	Results
Log. Regression	Model 1: $\chi^2$ (10, N = 100) = 19.01, $p = 0.04$	Group membership: ( $p = 0.01$ )
Backwards Log. Regression	Model 8: $\chi^2$ (3, N = 100) = 14.78, $p = 0.00$	Observability ( $p = 0.05$ ), Trust ( $p = 0.01$ ), & Group membership ( $p = 0.00$ )
Follow-up Log. Regression	Model 1: $\chi^2$ (5, N = 100) = 6.77, $p = 0.00$ .	<u>Group membership</u> ( $p = 0.00$ ) & <u>Linking social capital</u> ( $p = 0.03$ ).



# Discussion



## **IMPLICATIONS & RECOMMENDATIONS**

# Implications - Innovation Characteristics



- Farmers' perceptions of an innovation will influence their decision to adopt
  - Extension needs to work on addressing farmer perceptions of the technology ->> increased technology adoption
- Farmers need to be convinced to use a new technology which can be incredibly difficult.
- Use the social system to pass appropriate and accurate information about agricultural technologies and work to change perceptions.

# Implications - Social Capital



- Understanding the role of the social system and the development of social capital on adoption can have important implications.



Social networks, especially those linking farmers with resources, can enhance adoption.

# Implications - Social Capital



- Adoption of the hydraulic injector fertigation technology could be enhanced by encouraging farmers to become a part of farmer groups



- Group membership

->> linking capital

->> access to information and resources [*not available on their own*]

# Recommendations



- **NCARE & other Extension/ Rural Advisory Services**
  - More investigation of perceived characteristics of innovations by farmers (or potential adopters)
  - Encourage/ aid farmers in the development of farmer groups to address livelihood challenges pertaining to production, markets, etc.
  - Make technologies and their results more visible for farmers
  - Identify innovative farmers and use their potential to act as change agents
  - Further investigation of the situation with women as farmers (who they are, what technologies they use, their preferences and needs)
  - Most importantly, to strengthen the ties between agricultural innovation systems to include research, extension, and the farmer - >> leading to development of new technologies that are contextually compatible for the farmer

# Thank you



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