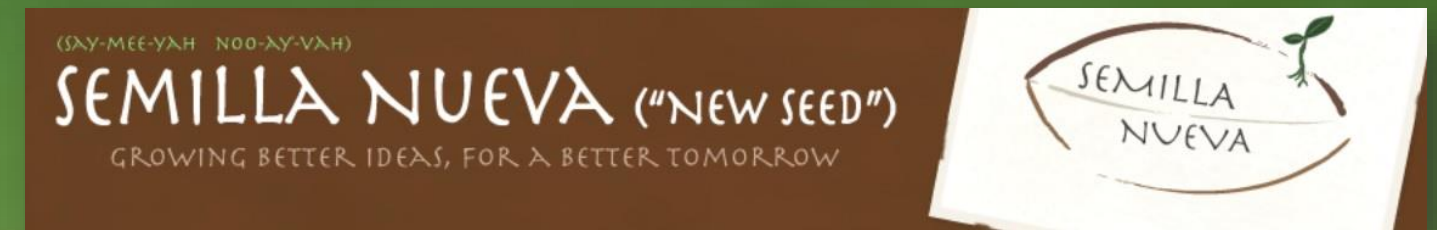


# Understanding Farmers' Challenges and Evaluating Impacts of a Sustainable Agriculture NGO in Communities of Southern Guatemala



Jose Juan Perez Orozco - joseperezoro@ufl.edu



## Introduction

Guatemalan small rural corn farmers face a large number of challenges. These include low market prices, rising input prices, extreme weather events; as well as deteriorating soil and ecosystem health.

Semilla Nueva (SN), a sustainable agriculture NGO, is working to introduce practices such as no-till, cover crops, and incorporation of crop residues in 10 communities in the Pacific Lowlands of Guatemala. SN promotes these practices through farmer experimentation, with the objective to recover soil health and encourage farmers' empowerment.

This study explored the challenges these farmer face, as well as investigated potential impacts of the work carried out by SN.

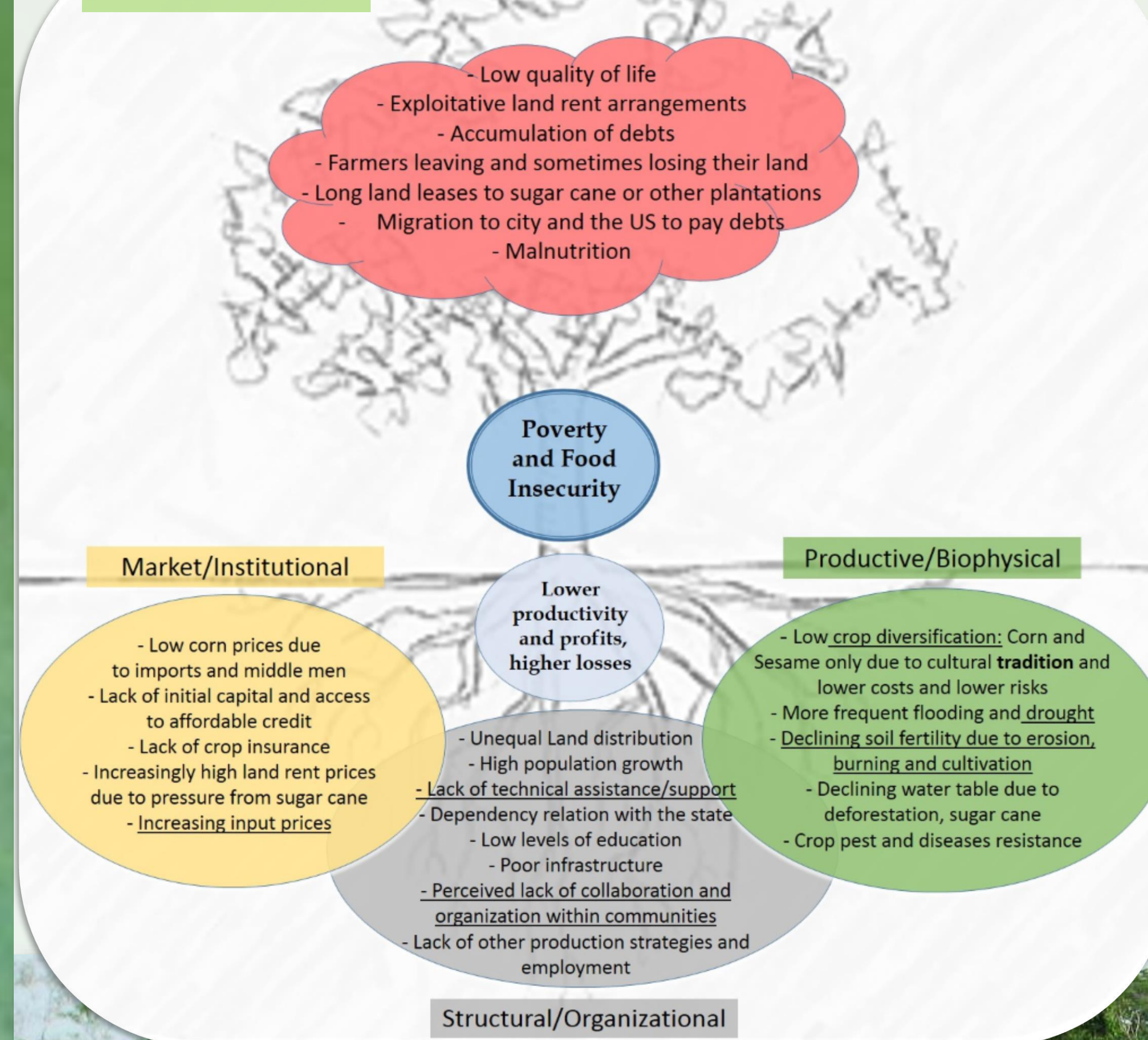


## Study Location

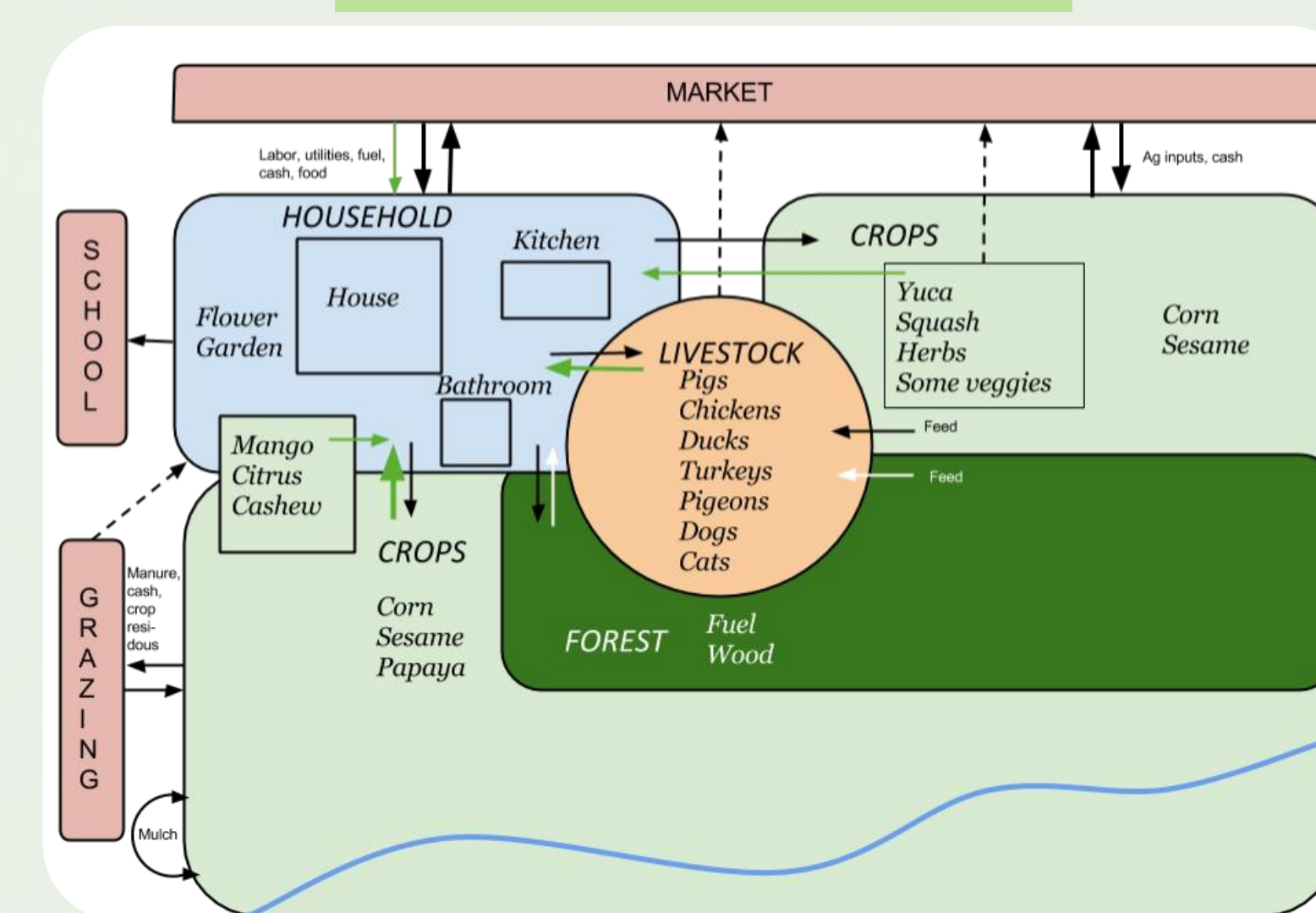
Identified in green are the six communities studied; three located in the departament of Retalhuleu and three in Suchitepéquez. Each community has about 275 households.

SN main office is identified in orange, located in the city of Quetzaltenango.

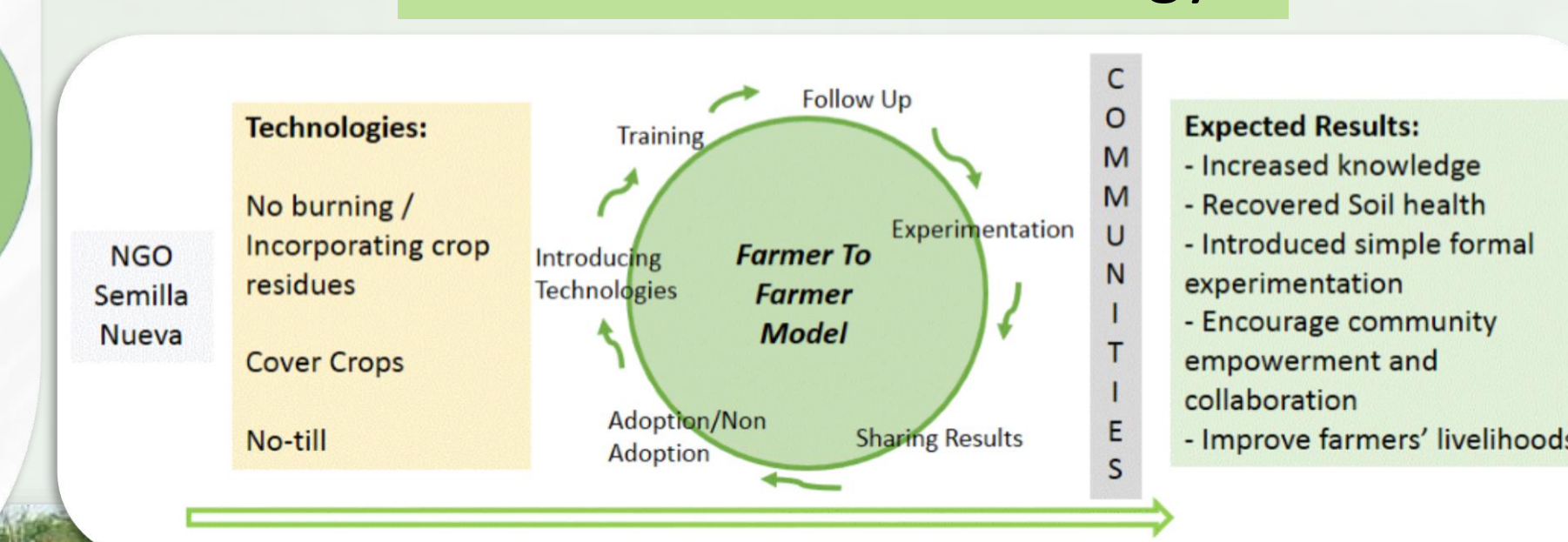
## Problem Tree



## Model of Typical Farm



## NGO Work Methodology



## Farmer Quotes

*"My wife told me: do not plant anymore. Look, she told me: farming only leaves you with enough money to plant and pay, it does not leave you anything else... what's left is the bloody work... But I'm so used to it..."*

*"The corn stalk breaks up and it becomes fertilizer.. It gives strength to the soil..."*

*"The soil has recovered its color, its was getting reddish... now it is black"*

*"It's better to die with a fighting spirit than to die of hunger"*

## Research Questions

- 1.What are the main challenges farmers face at making a living from agriculture?
- 2.Are there any farmer characteristics that explain why some farmers are more likely to experiment with a practice promoted by SN?
- 3.Is there any positive measurable impact of SN promoted technologies such as no burn, no-till and cover crops?
- 4.From the farmers' perspective, what are the potential risks and benefits of using the technologies promoted by SN?

## Methods

- A survey was conducted with 147 farmers in six rural communities, divided in three groups:
  - Group 1. Farmers directly involved with SN
  - Group 2. Farmers not directly involved with SN, but live in communities where SN works.
  - Group 3. Farmers who live in communities where SN does not work.
- Two farmer focus groups were carried out to discuss preliminary information from the survey. Also, in-depth interviews and participant observation were used.

## Results Question 1:

- Farmers struggle with a large number of challenges; which differ by community, and most are beyond their control. See Problem Tree above, and results from focus groups in the graph to the right.
- Crop losses due to extreme weather events may become the most critical agricultural problem in the near future. Land availability is decreasing rapidly in some communities.

## Results Question 2:

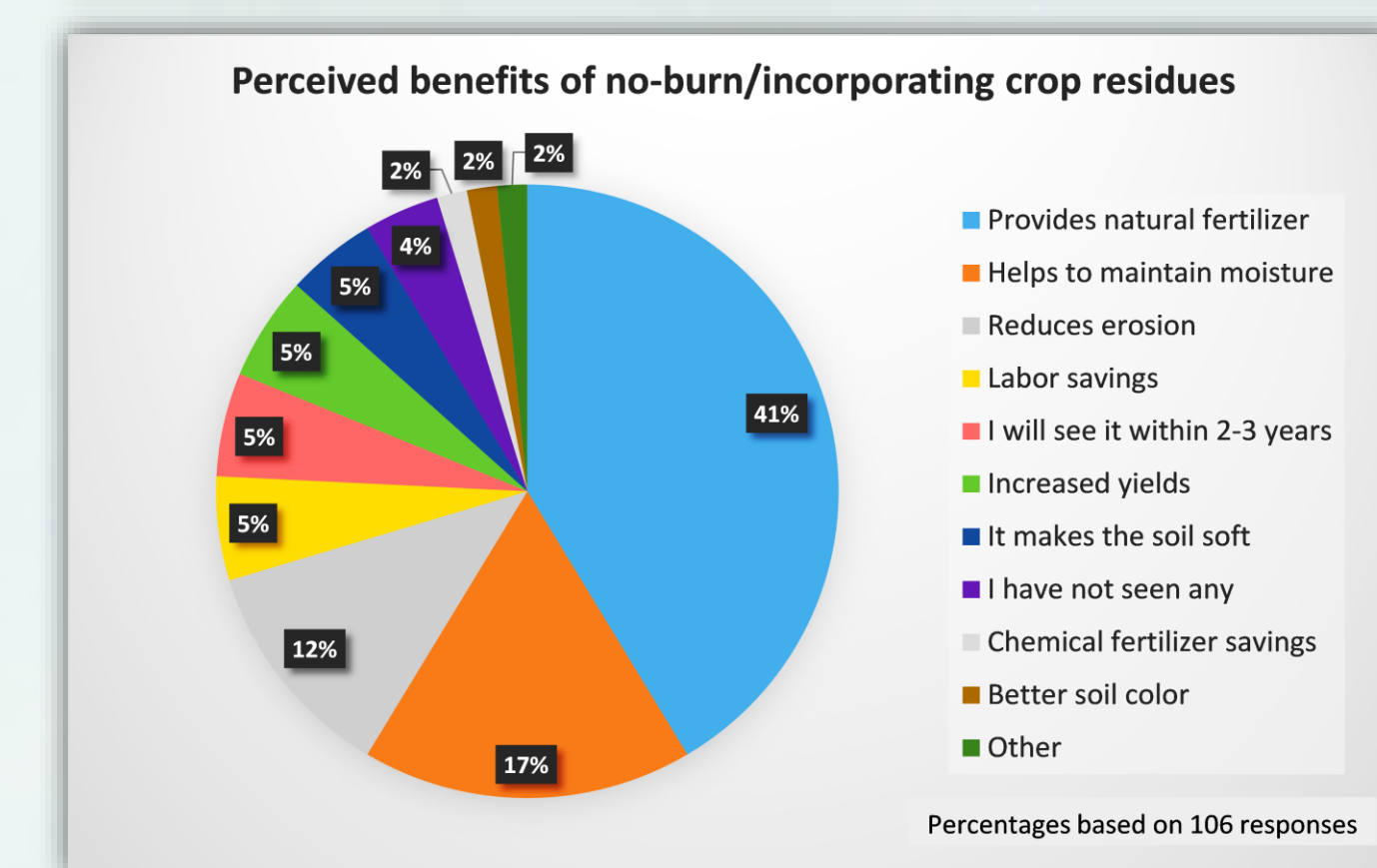
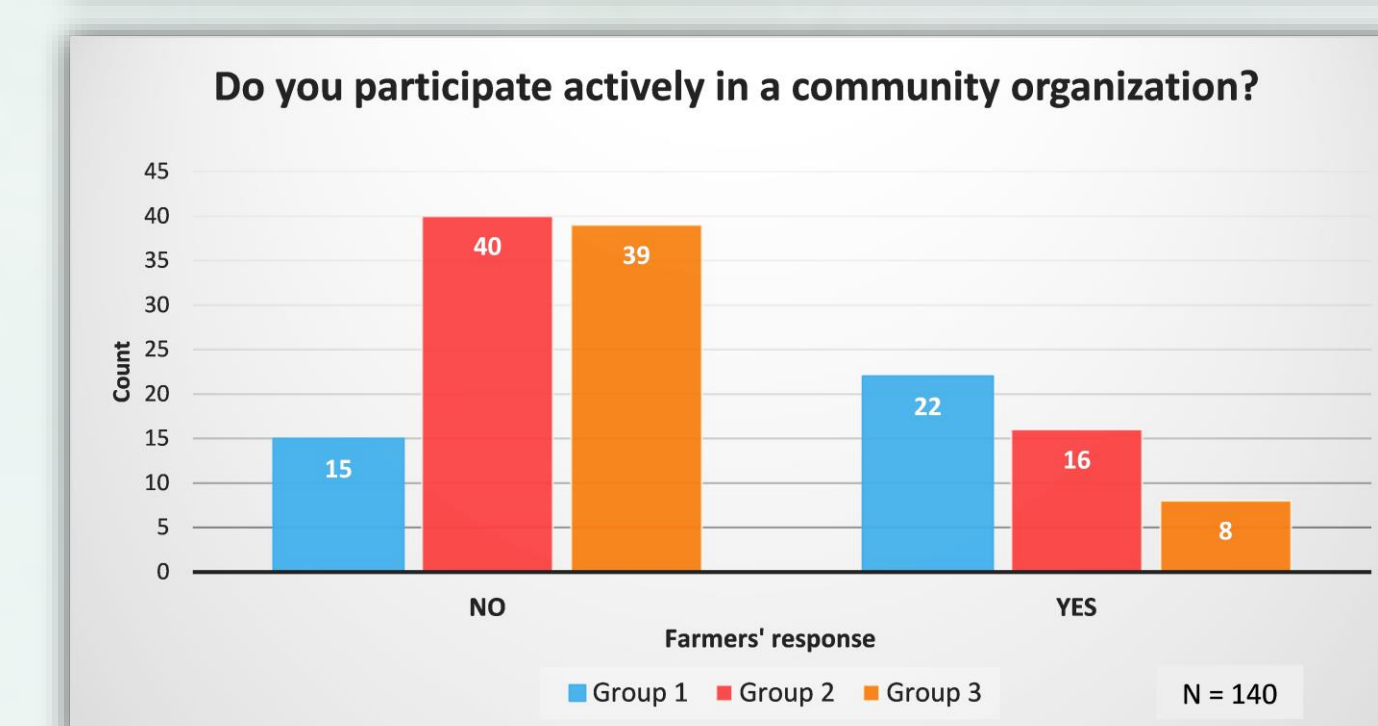
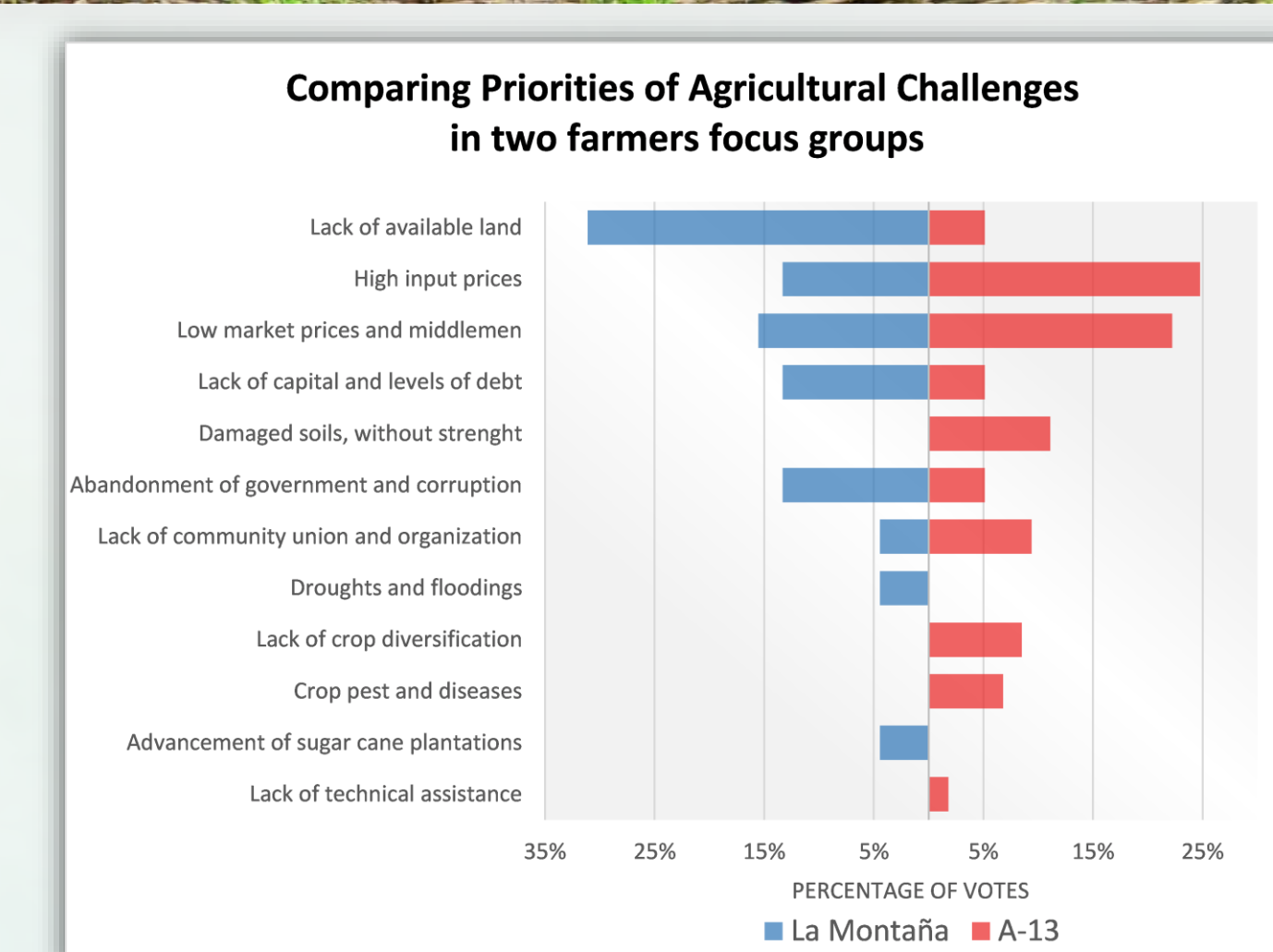
- Farmers more likely to experiment with these practices and work with SN obtain a higher portion of their income from agriculture (67% for group 1), compared to groups 2 (54%) and 3 (39%).
- Having prior training and participating actively in a community organization are good predictors as well (See middle graph on the right). Land property and access to irrigation also appear to have a role.
- Farmers experimenting are slightly older (45 yrs 39 years old), and have a higher number of years cultivating (27.6 yrs 22.5) than others.

## Results Question 3:

- There is no evidence of positive impacts of SN programs in terms of crop yields, fertilizer use and empowerment related measures.
- Farmers who practice no burn and incorporate crop residues perceived that their soil condition has improved.

## Results Question 4:

- No burn, and incorporation of crop residues is perceived as the most beneficial practice with low risks. See graph on the right for more detail.
- Farmers widely perceived that the use of pigeon pea cover crop needs better adaptation to their productive systems, while no-till is perceived as a risky practice.



## Conclusions

- Farmers resist to give up farming grounded in their cultural tradition, food security concerns, and their desire for autonomy.
- Expectedly, farmers more likely to try these practices are more dependent on agriculture, and are more active in their community.
- It maybe too early to tell if SN programs are having a positive impact on farmers' productivity, income and empowerment. However empirical evidence shows that at least soil conditions are improving.
- No burn is the most important practice so far, due to low costs and risks and some tangible benefits in the short term. Farmers expect to obtain other benefits such as yield increases in a couple of years.

## Acknowledgements

Sincere thanks to Dr. Danielle Treadwell and Dr. Carmen Deere for feedback and support; as well as other MDP faculty. This study would not have been possible without the commitment and support of staff and interns of Semilla Nueva, and to all those farmers that shared their challenges, stories and lives with me.

