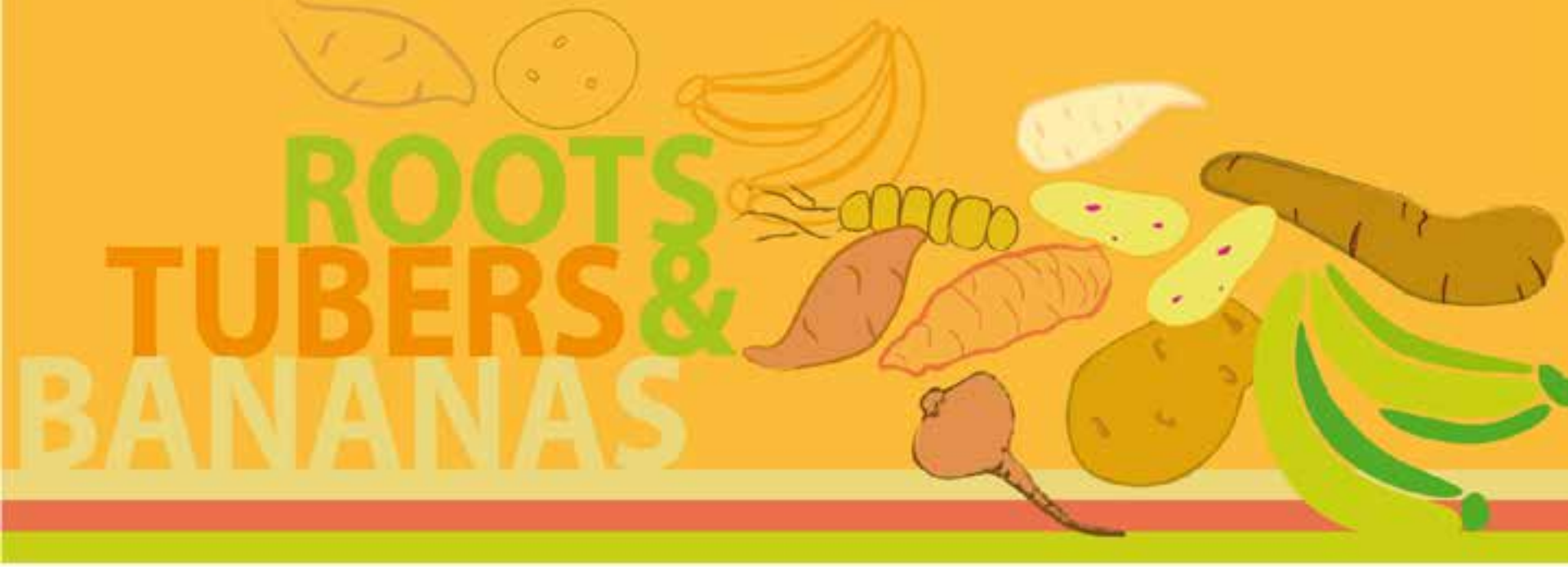


Geographic Targeting for Diagnostic of Banana Fusarium Wilt

David Brown

ESRI User Conference
July 14-18, 2014

CGIAR Research Program on Roots, Tubers and Bananas

Bioversity International

Presentation outline

- What is Bioversity International
- What is Fusarium Wilt
- Work description – Geographic Targetting
- Results
- Conclusions

Bioversity International

Bioversity International is a research-for-development organization seeking solutions to global issues through the **use** and **conservation** of agricultural and forest biodiversity.

Our Vision

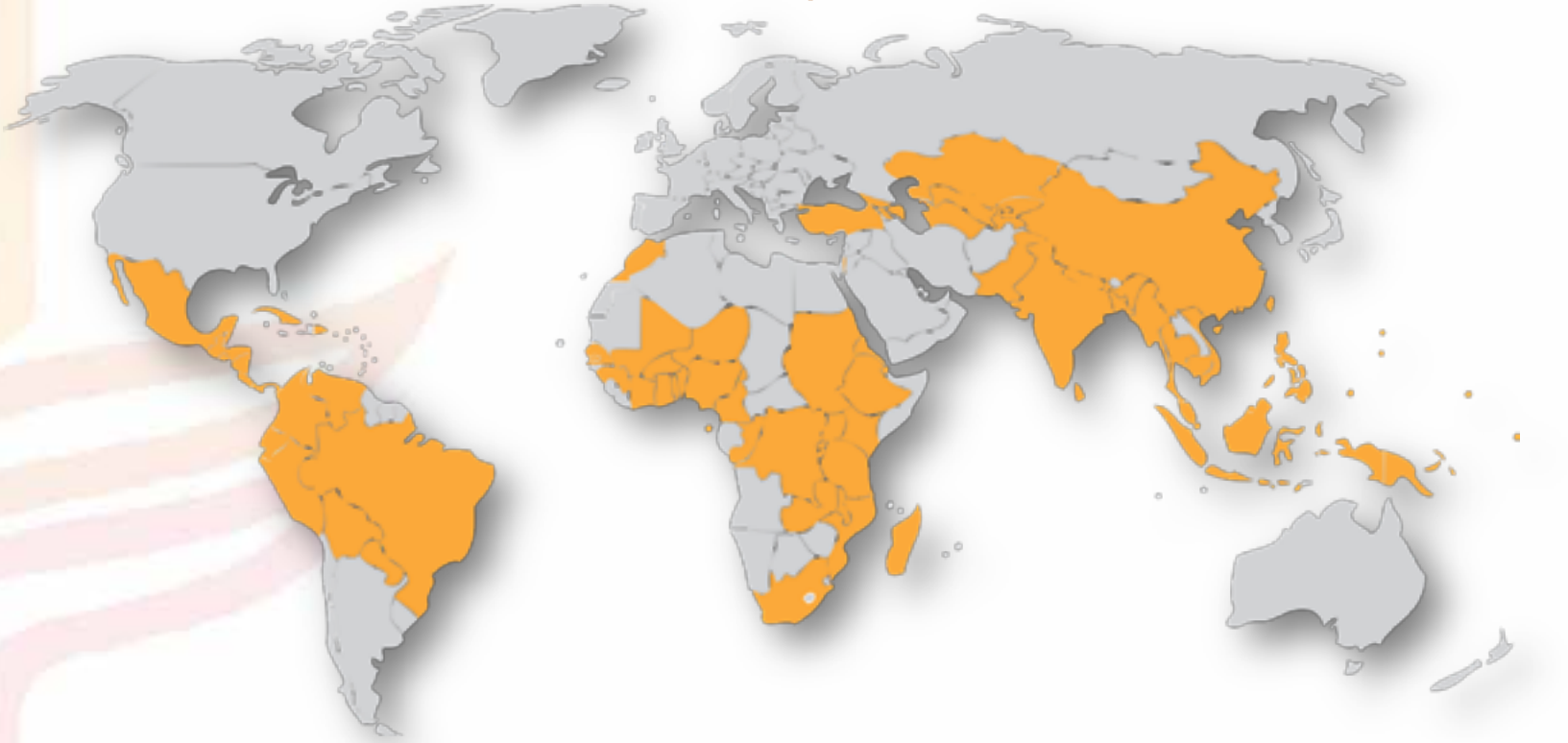
Our vision is a world in which smallholder farming communities in developing countries are thriving and sustainable.

Our purpose

Using and conserving agricultural and forest biodiversity for…

Our global reach

We work in areas of significant levels of rural poverty where very often the world's remaining biodiversity is found. We focus on rain-fed farming systems, primarily managed by **smallholder farmers**, in areas where large-scale monoculture is not a viable option.



What is Banana Fusarium Wilt?

- **Also known as “Panama Disease”**

- **Soilborne fungal disease caused by the fungus *Fusarium oxysporum* f. sp. *cubense***

- **It blocks the pass of nutrients from roots to the rest of the plant**

- **Fungus can persist in soil for decades and cannot be managed using chemical pesticides**

Source: ***ProMusa***
For mor information visit: www.promusa.org

Typical symptoms

Images: F. Haddad

Export Market - Monocrop

Shift from Gros Michel to Cavendish variety

Image: National Museum of Costa Rica

Consequences on Export Market

Changes in packing

Images: D. Brown

Local Markets (Smallholders)

Keep growing suceptible varieties

Image: D. Brown

Local Markets (Smallholders)

Consumers prefer Gros Michel

Image: F. Haddad

The study location

- District: San Luis de Shuaro
- Province: Chanchamayo
- Department: Junín
- Country: Peru

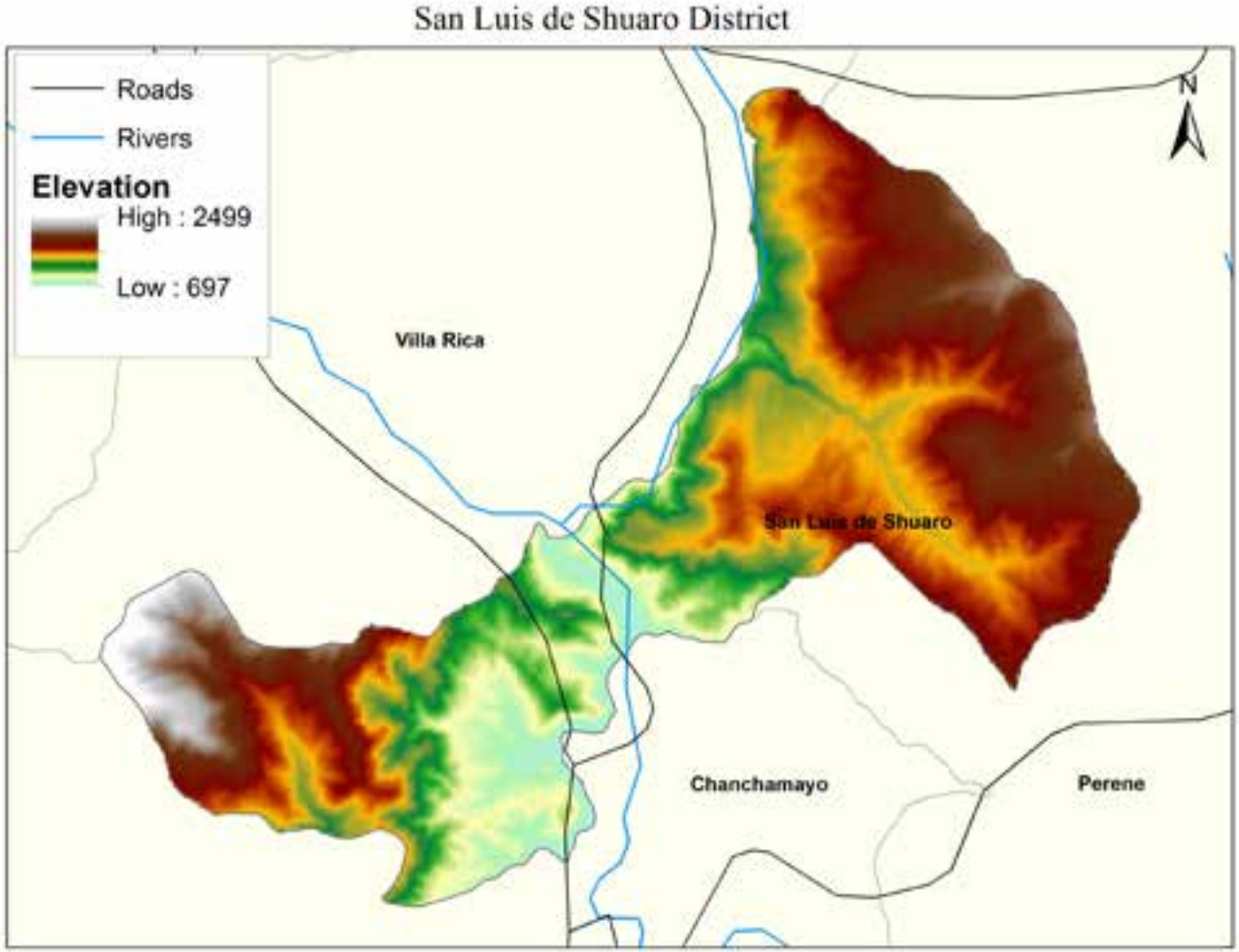
Study purpose

- **MSc Thesis:** Carlos Hugo Román Jerí. (2012). Consideraciones epidemiológicas para el manejo de la Marchitez por Fusarium (*Fusarium oxysporum* f. sp. *cubense*) del banano en la región central del Perú.

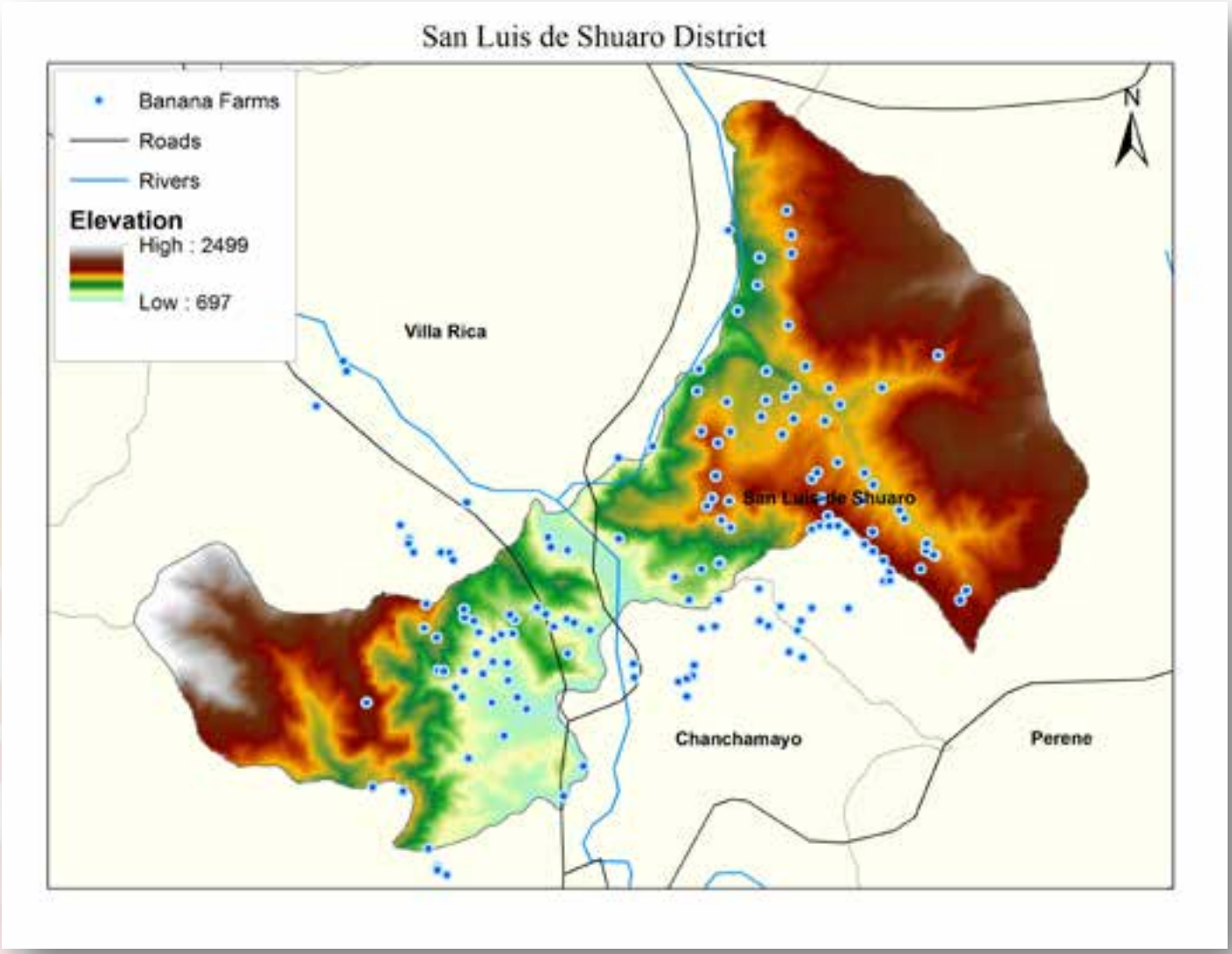
Image: C. Román

Epidemiological considerations for Banana Fusarium Wilt management in the central region of Peru

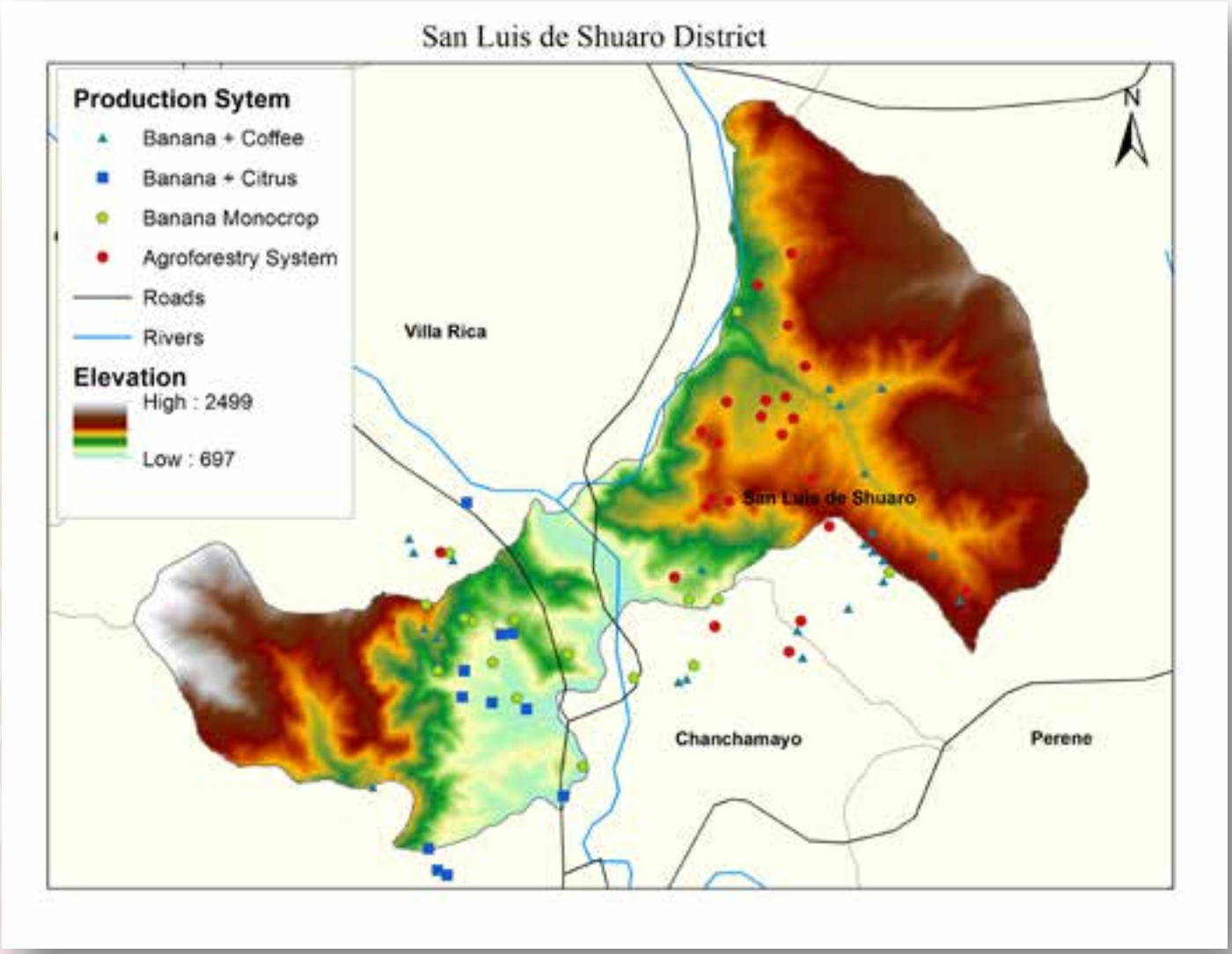
Defining the target



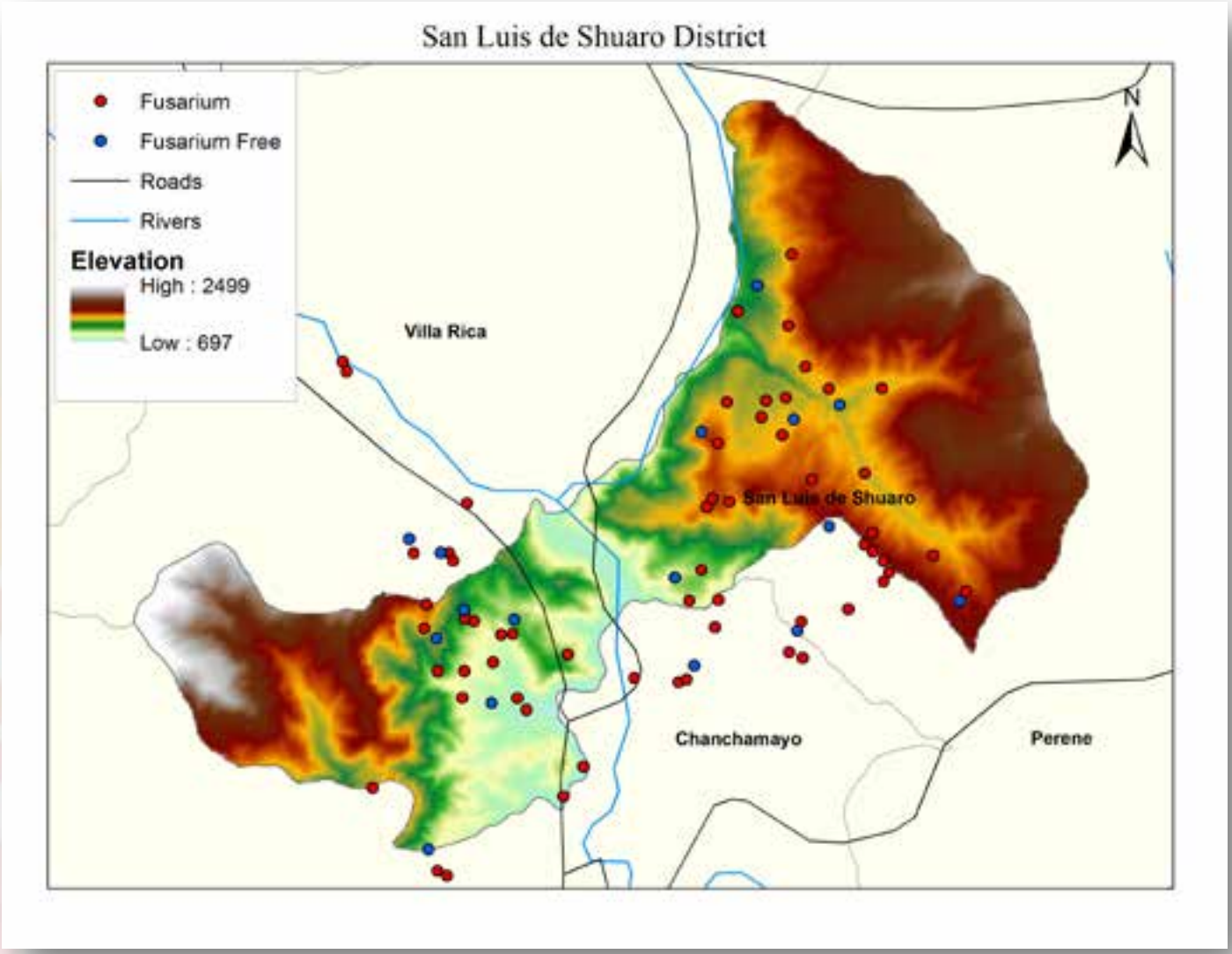
Farmers Survey – 149 Farms



Farms characterization



Fusarium Wilt presence



Results

- 76 Farms selected (Total)
- 60 Farms with Fusarium Wilt presence
- 16 Farms without Fusarium Wilt
- Visualization of Spatial Distribution
  - *Fusarium Wilt*
  - *Production System*

Conclusions

- ArcGIS Desktop was a key tool defining the target farms

- Farms targeting was traduced into a more efficient resource allocation

- Visualization of the spatial distribution allows to outline study hypothesis

Many thanks

Image: D. Brown