UNRAVELLING THE MYSTERIES OF THE QUESUNGUAL SLASH AND MULCH AGROFORESTRY SYSTEM

WHAT IS THE QUESUNGUAL SYSTEM?

It is a management system that includes:

- No burning, no tillage and spot fertilization
- Selective pruning of native trees and mulching
- Planting of annual crops (maize, beans and sorghum)

Why focus on the Quesungual?

1. It contributed to warrant food security of poor farmers of the southern Lempira region in Honduras
2. It is highly resilient to extreme climatic events: droughts (El Niño, 1997) and excess water (Mitch, 1998)
3. Improved profitability due to increased crop production and reduced labour costs (i.e. weeding)
4. Adopted by more than 6,200 farmers
5. Drought is a major constraint

QSMAS Project is funded by CGIAR Challenge Program on Water and Food

Goal: improve livelihoods of rural poor through increased water resources and food security in sub-humid hillside areas

Main Hypothesis: Tree density, soil mulch, root distribution and biomass, soil organic matter quantity and quality, and soil biological activity contribute markedly to the resilience of QSMAS to environmental constraints while conserving the capacity to provide agricultural goods to local communities and clean water and other services to downstream users.

OUTPUTS AND ACTIVITIES

Output 1. Biophysical Context Assessed

- 60,000 ha under no burning; permanent soil cover and managed native tree regrowth
- 39% of total slope greater than 50%
- Shallow Entisols with a high proportion of stones
- Acids soils with low levels of available P

Output 2. Management Concepts, Principles and Tools Developed

Short-term soil losses in control plots with burning and under Quesungual system of increasing age

Output 3. Validating Principles Of The Qsmas In Nicaragua

- One watershed selected
- 12 farmers established
- Validation plots:
  1) control fallow: 3
  2) traditional systems: 3
  3) with cover crop: 3
  4) QSMAS

Exchange of experiences among farmers

Research on Progress

- Water fluxes at the soil-plant level and water productivity
- Nutrient dynamics and soil biological functioning
- Environmental services
- Validation of management principles in Nicaragua and Colombia
- User-friendly information sharing mechanisms