CHARACTERISATION OF THE MILPA SYSTEM MAINTENANCE OF CROP DIVERSITY IN EL TABLÓN, SOLOLÁ, GUATEMALA

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Introduction

- The Mayan milpa system is crucial for small-scale farmers, as it promotes crop genetic diversity, resilience to climate change, and food sovereignty through native seed cultivation and agroecological practices.

- However, a growing concern is emerging, as processes associated with modern agricultural practices and market forces may displace indigenous knowledge, that undermines the cultivation of crop genetic resources.

- The milpa system in El Tablón, Sololá, Guatemala was characterised and the decisions of farmers to maintain, incorporate or discard a variety and or landrace from his/her repertoire of varieties of crops species maize (Zea mays L.), beans (Phaseolus spp.) and squashes (Cucurbita spp.) and the different landraces was investigated.

Figure 1. Maize lanrdrace richness and cross polination and bean landraces

Methods and materials

Ethnographic fieldwork was carried out in El Tablón in February and March 2023.

- Semi-structured interview with key informants were performed to gain in depth information questions targeted specific informants, provided an overview of the agricultural and socio-economic background in El Tablón.

- Participatory observations of field preparation and seed selection.

- Focus group discussion on seasonal calender. Five milpa farmers participated in this activity.

- Household survey of 60 milpa farmers. Quantitative data on milpa attributes shown on Table 1. and farmers crop criteria was collected from household surveys through orally presented questionnaires.

Table 1**:** Milpa attributes and attribute levels used to classify milpa system based on Birol & Ryan (2008)

Milpa attribute	Definition	Attribute levels	Method
Crop species richness	Total number of crops cultivated in the milpa	1 (only maize), 2 (maize and beans or maize and squash/pumpkin) 3 (maize, beans and squash/pumpkin) (Bikol, 2009).	Survey with farmers Free listing
Landrace richness	Total number of genetic landraces cultivated in the milpa	1,2,3	Survey with farmers Free listing

Conclusions

Milpa is widespread in El Tablón, represents years of accumulated Mayan knowledge. Seeds have been passed down through generations and are stored at home, but socio economic changes in El Tablón is threatening the milpa system and thereby Mayan culture.

Farmers decisions of farmers to maintain, incorporate or discard a variety and or landrace of maize (Zea mays L.), beans (Phaseolus spp.) and squashes (Cucurbita spp.) was based on personal and cultural preferences which was expressed through color of the given landrace.

Results

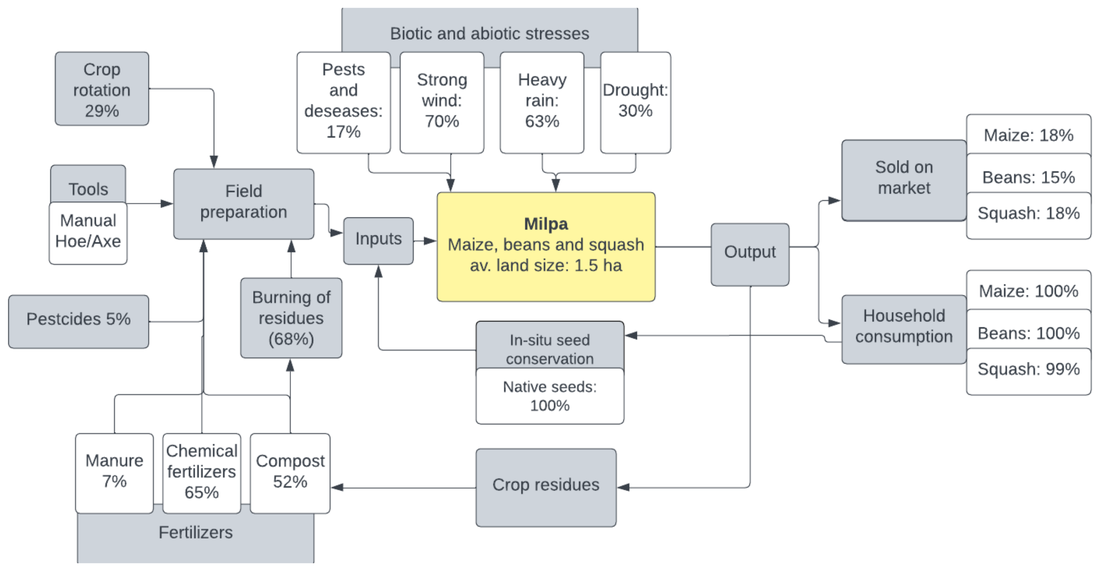

Figure 2:Flow chart of farm system with inputs and outputs with data from household surveys. The figure shows the share (%) of respondents of whom indicated the respective answer.

Inputs vary depending on agricultural farming preferences and economic leeway.

- The milpa system is characterised by manual labour and are highly influenced by the amount of time a given farmer has.

- Many respondents use management practices that decrease work load, which also indicates that the system is influenced by modern practices.

Outputs mainly consisted of the yield and residues of the milpa system

- All respondents produce maize, beans and squash for auto-consumption, and only sell surplus production.

- 60% of the respondents (Fig. 4) had a crop species richness of 3 of the researched crops, while only 5% produced maize solely.

Figure 3. Semi-structured interview conducted in El Tablón

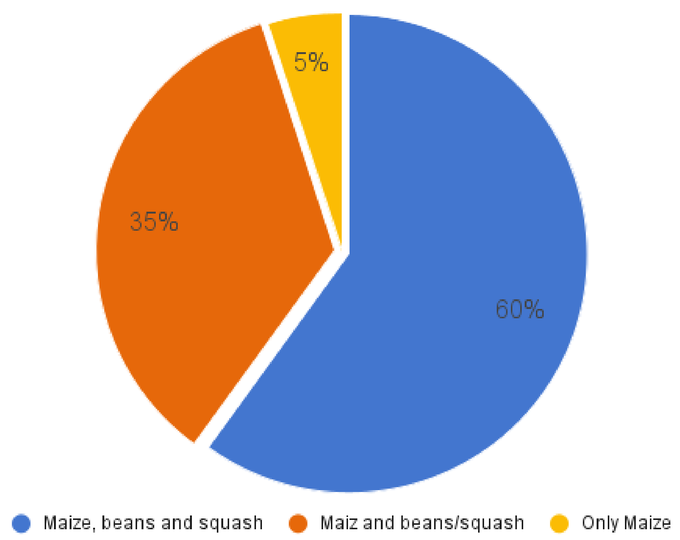

Figure 4. Crop species richness in the milpa system across different small scale farms in El Tablón, Sololá.

Criteria for incorporating species and landraces

- Taste and color were the main reasons for farmers to maintain or incorporate a given landrace of maize and beans, while.

- Seeds selection of maize, beans, and squash was based on agronomic traits, such as seed size, yield performance and resilience towards abiotic stressors.

Figure 5. Maize seed selection

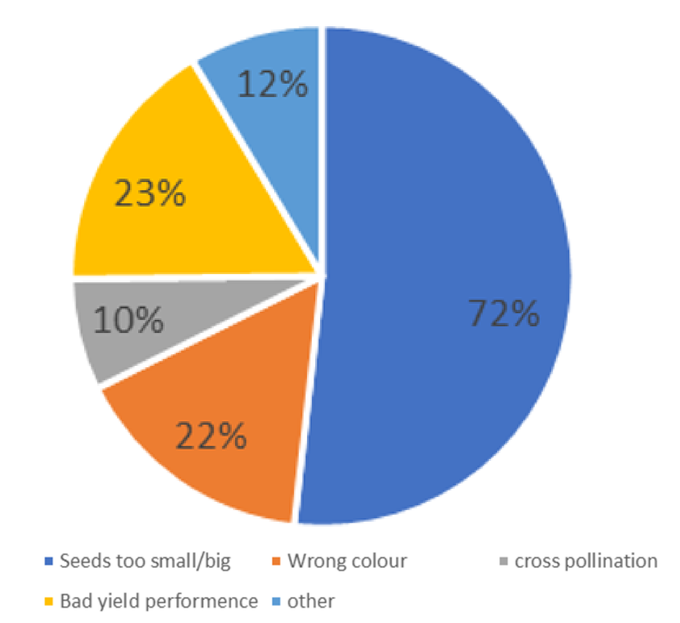

Figure 6. The criteria for discarding a seed landrace for all three crops.

Bibliography: Birol, E., Rayn, E., 2008. Estimating the value of milpa diversity and genetically modified maize to farmers in Mexico: a choice experiment approach. Agrobiodiversity Conserv. Econ. Dev., Routledge Explorations in Environmental Economics 247–266.