



Tropentag, September 20-22, 2017, Bonn

“Future Agriculture:
Socio-ecological transitions and bio-cultural shifts”

Environmental Analysis of Peasant Resilience Practices to Climate Change and Variability in Ecological Farms on the Cundiboyacense High Plains — Colombia

GONZALO PRADILLA¹, TOMÁS E. LEÓN-SICARD²

¹*National University of Colombia (Universidad Nacional de Colombia), Institute of Environmental Studies (IDEA), Germany*

²*National University of Colombia, Institute of Environmental Studies,*

Abstract

There were studied 12 agroecological smallholder farms in the municipalities of Guasca (Cundinamarca), Paipa and Duitama (Boyacá), in order to: 1. identify potential impacts of climate variability on production, incidence of pests and diseases, and income; 2. analyse the capabilities, potentialities and limitations of each agroecosystem to mitigate, cope and adapt to climate change and variability (resilience). There were evaluated and scored 58 biophysical and cultural variables, grouped into 11 components: physical conditions; soil quality; soil, water and crop management; main agroecological structure (MAS); and social, economic, institutional, political, and technological aspects. The methodology included the review of secondary sources and field visits, in which semi-structured interviews, participant observation and social mapping were conducted, along with a description of biophysical, soil and agricultural characteristics of each farm. The results show that all farmers have faced negative impacts associated to climate variability, being water scarcity the most common cause, followed by frost and heavy rains and flooding, with marked differences between locations. The overall resilience level rated all farms at similar levels (between 3.74 and 2.83), being slightly higher in the Guasca locality (average 3.47) compared with Paipa - Duitama (average 3.11). Agroecological management of soils and crops, addition of organic matter to the soil, rain - water harvesting, construction of reservoirs, small-scale irrigation systems and greenhouses, coupled with social organisation and productive association, proved to be the most important strategies to increase the resilience of agroecosystems, while the main barriers to their adoption and scaling up were the limited access to capital, markets, financing and technical assistance.

Keywords: Adaptation, agroecology, Agroecosystems, Climate Variability, Rural Livelihoods, Socio-ecological Systems