

Master thesis as part of "Farming Systems Comparison in the Tropics" (SysCom) program in India

Title Increasing nitrogen availability in organic cotton based cropping systems in central India

Context With an aim to establish scientific basis for discussions on the performance and potential of conventional and organic agricultural production systems in the tropics, the Research Institute of Organic Agriculture (FiBL) is running a "Long-Term Farming Systems Comparison (SysCom) Program in the Tropics". Starting in 2007, farming systems comparison field trials have been established in three tropical countries – Kenya, India and Bolivia – in concert with participatory on-farm research for technology development. The crop focus varies in each country depending upon local agro-climatic conditions.

Cotton, Soybean and Wheat are the focus crops at the SysCom field site located in the central Indian state of Madhya Pradesh. Enhancing nutrient availability (particularly nitrogen) at key crop growth stages is one of the major challenges faced by organic farmers in this region. We are exploring a number of options including different N enhancing green manures and inputs with efficient N release that are in synchrony with the intensive crop rotations practiced in this region. Within this work, opportunities are available for students interested in conducting research with an on-ground impact.

The work will involve a three-four month stay in India. Accommodation, supervision and logistical support at local level is available.

Objectives More than one student projects are possible, focussing broadly on the following objectives:

- Identification of viable options for integration of green manures in local crop rotations
 - Quantification of N supply and resource use by different green manures
 - Quantification of N supply at different crop growth stages through different input combinations
 - Analysis of agronomic and economic implications of different nutrient management practices
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Contact person	Harun Cicek (harun.cicek@fibl.org), Gurbir Bhullar (gurbir.bhullar@fibl.org)
Start date	Autumn 2018 (ideally 3-4 months stay in India between November 2018 and April 2019)
Website	http://systems-comparison.fibl.org/en/scp-home.html
References	Riar, A., Mandloi L. S., Messmer, M., Poswal, R. S., and Bhullar, G. S. (2017). A diagnosis of biophysical and socio-economic factors influencing farmers' choice to adopt organic or conventional farming systems for cotton production. <i>Frontiers in Plant Science – Agroecology and Land Use Systems</i> , 8: 1289. doi: 10.3389/fpls.2017.01289 Forster, D., Andres, C., Verma, R., Zundel, C., Messmer, M. and Mader, P. (2013). Yield and economic performance of organic and conventional cotton-based farming system - results from a field trial in India. <i>Plos one</i> 8(12)
