Research Institute of Organic Agriculture FiBL
info.suisse@fibl.org, www.fibl.org




What can organic agriculture contribute to sustainable development in the tropics?

Findings from a long-term farming systems comparison program (SysCom)

Dr. Gurbir S. Bhullar (Theme Leader- Sustainable Agriculture in the Tropics,)
gurbir.bhullar@fibl.org
08.11.2017
Archived at http://orgprints.org/32404

Implications of prevalent practices of industrialized agriculture:

- Polluted ecosystems
- Depleted natural resources
- Lost biodiversity
- Less diverse diets
- Lost soil fertility/ Soil Fertility Depletion
- Dependence on industrial inputs
- Diminishing economic returns for farmers




- Organic agriculture is a prominent alternative farming systems?

But how does it compare with conventional production system for:

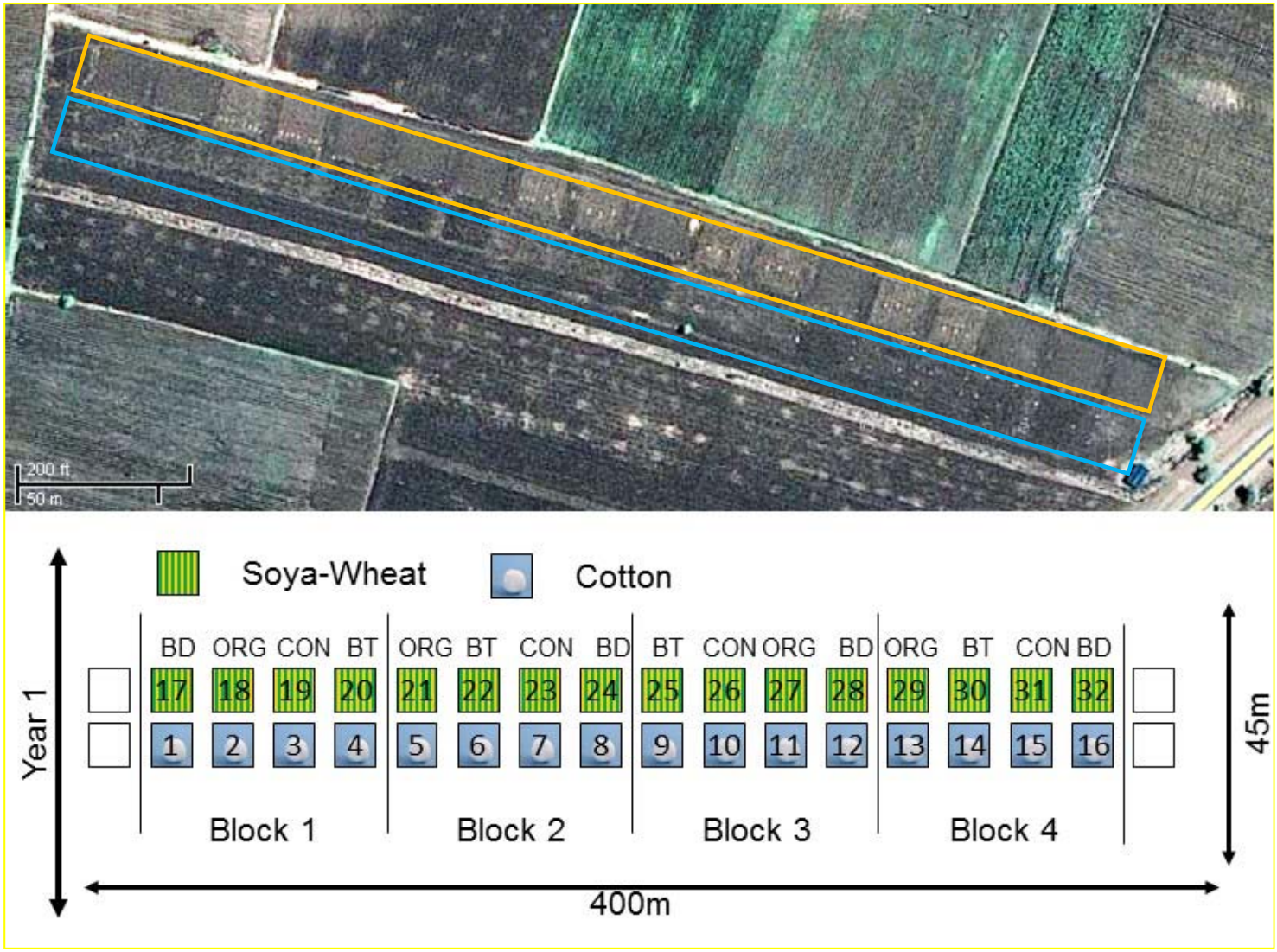
- Productivity
- Profitability
- Soil fertility
- Environmental sustainability
- Social aspects
- Market needs

DOK Long-term field trial, Switzerland

Figure 1: since 1978, DOK Trial, Therwil (BL), Switzerland

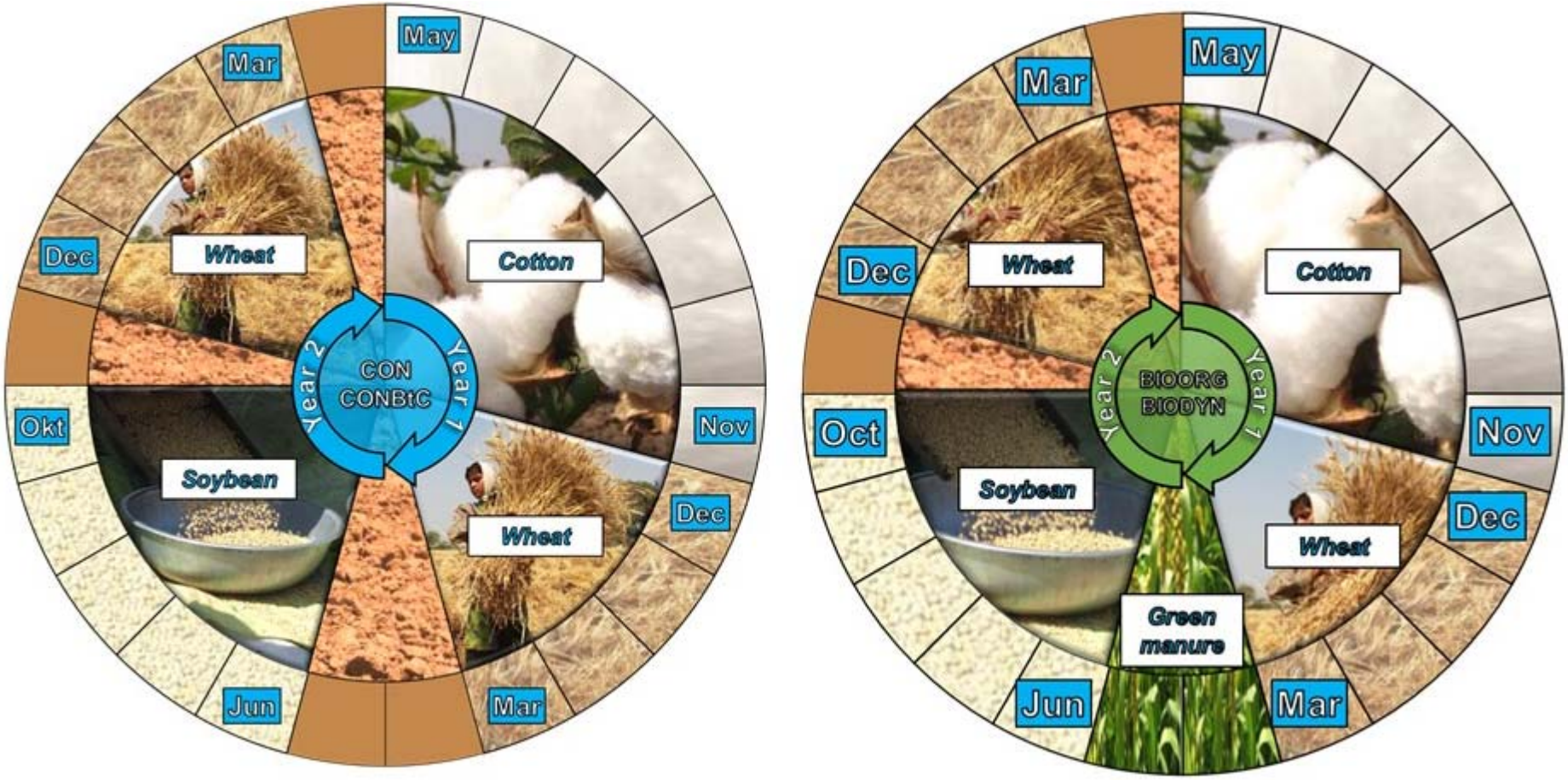
- 8 treatments
- 5 crops in a 7 years' rotation
- 4 replications
- 96 plots à 100m2
- In its 40th year now

How does organic perform under tropical environments?



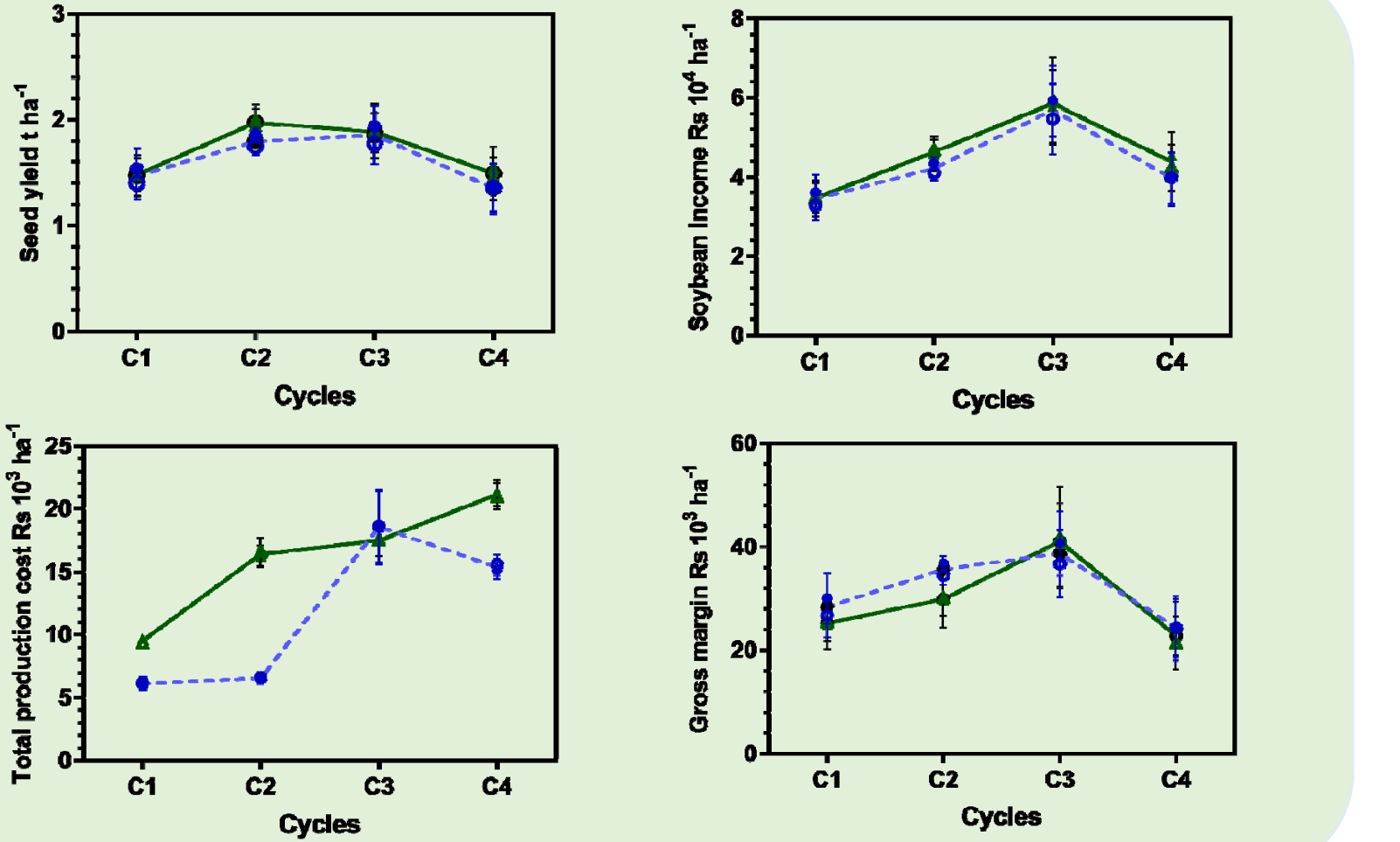
Long-term Experiment (LTE)

Crop Rotation Design



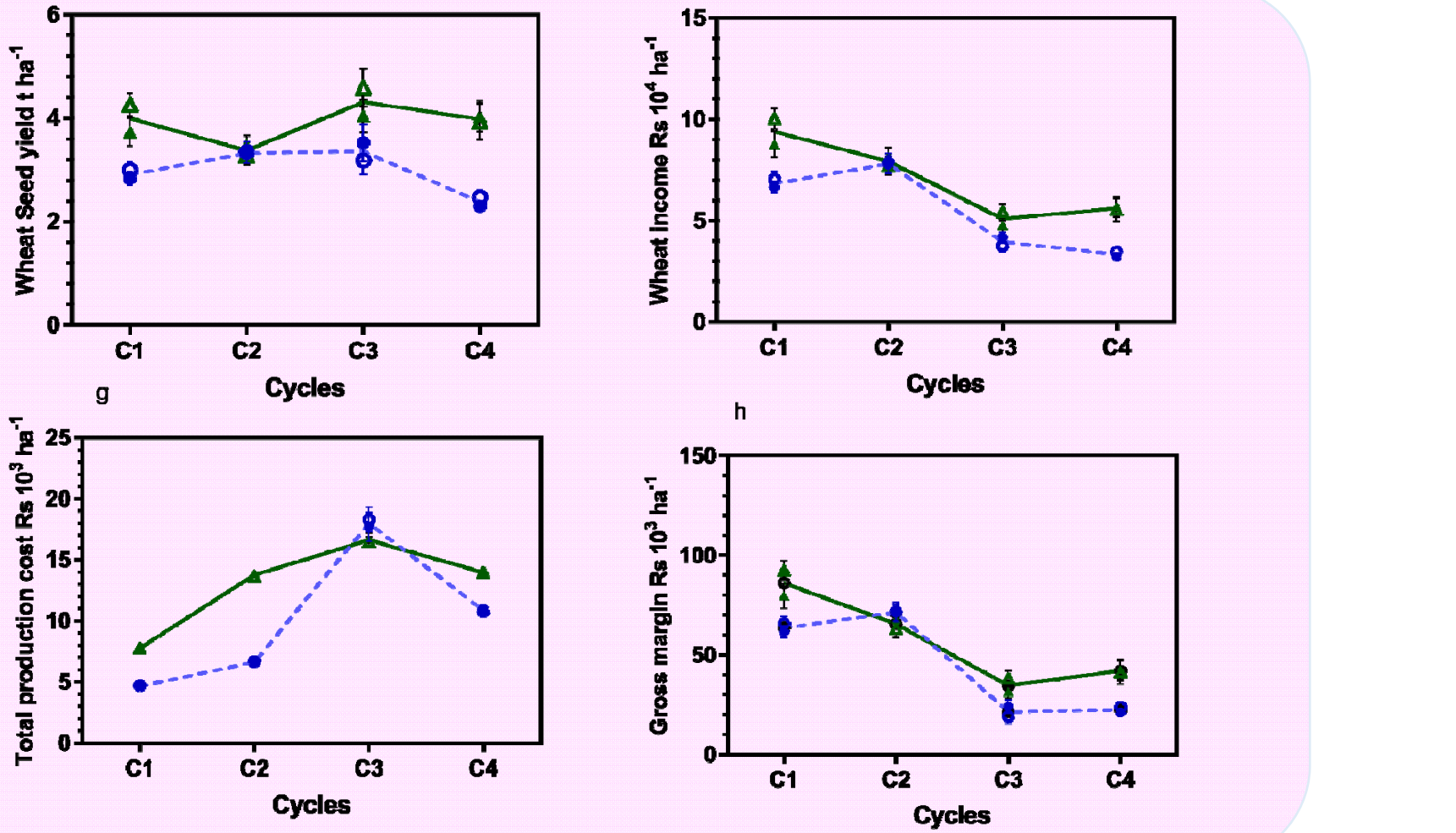
Long-term Experiment (LTE)

Soybean



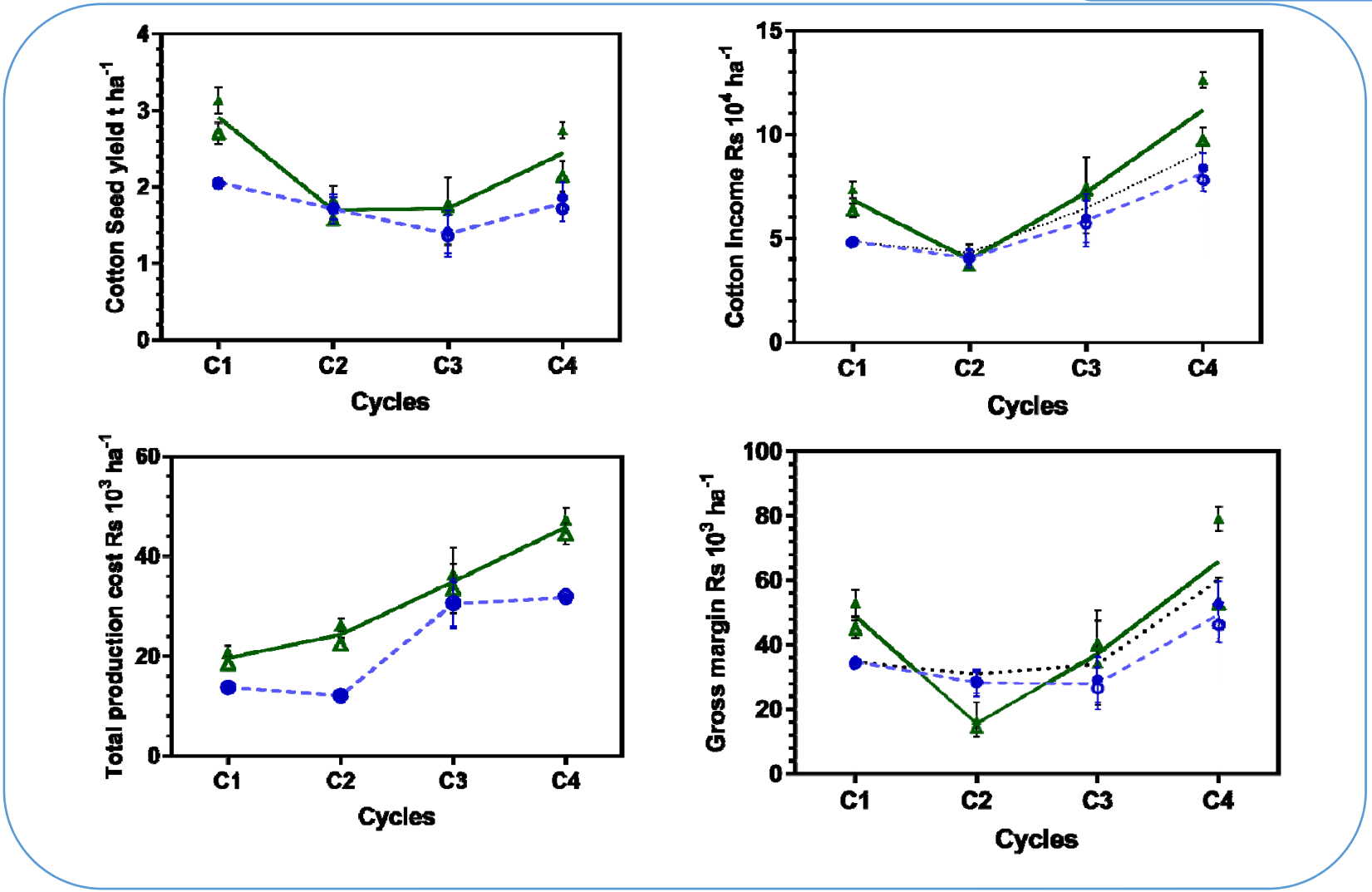
Long-term Experiment (LTE)

Wheat



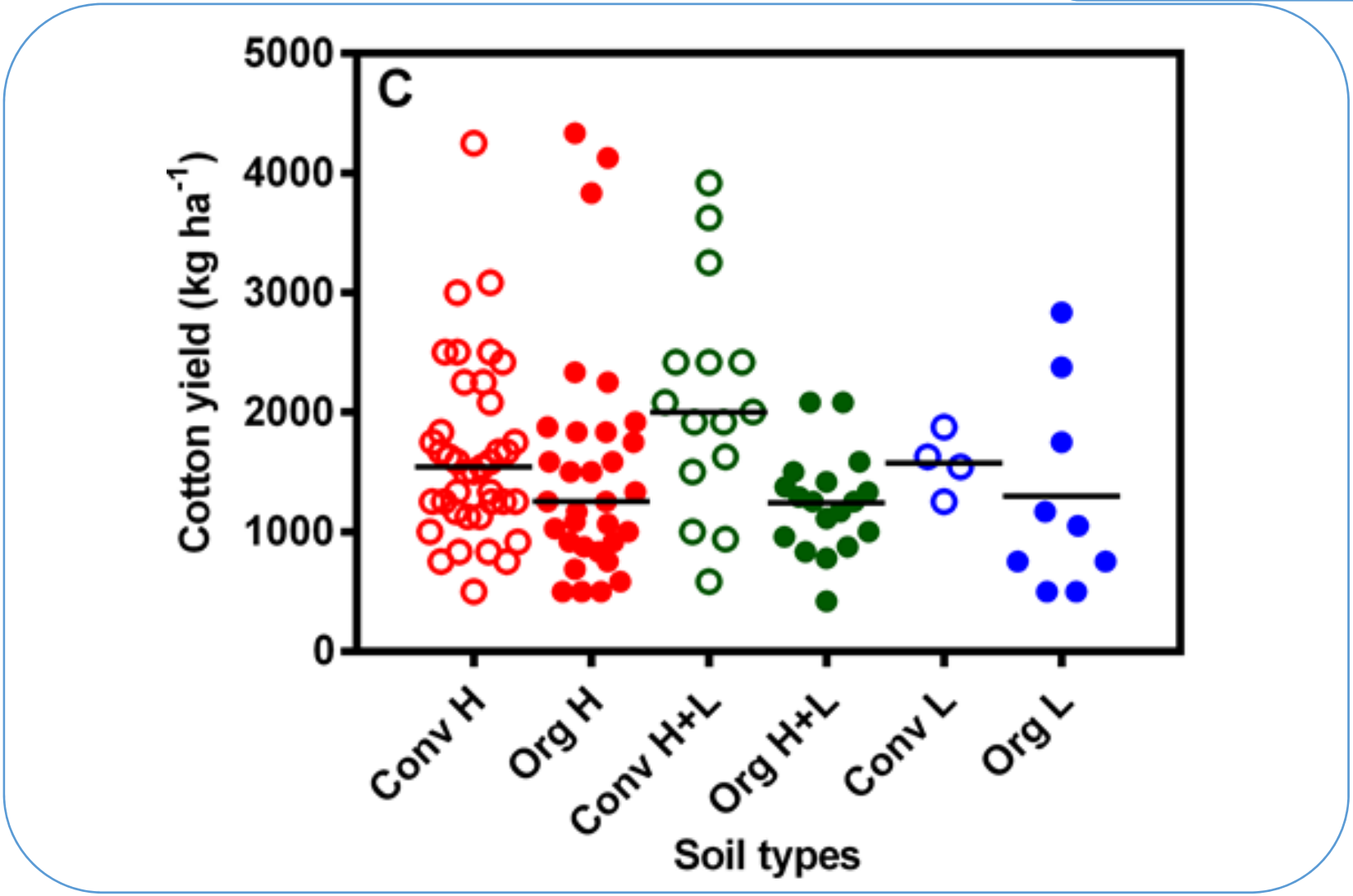
Long-term Experiment (LTE)

Cotton

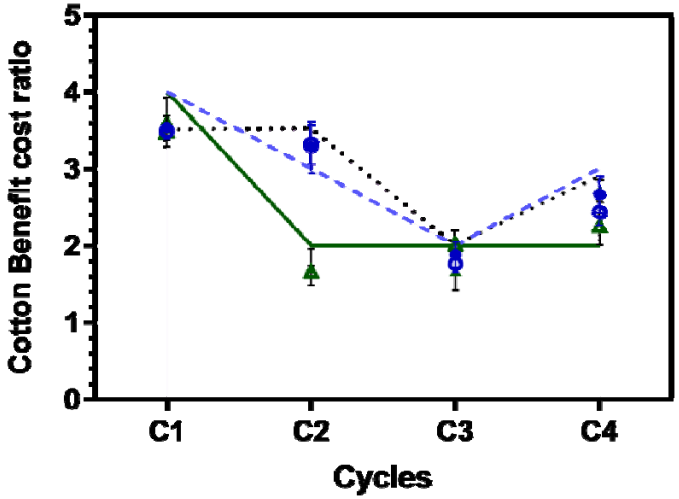


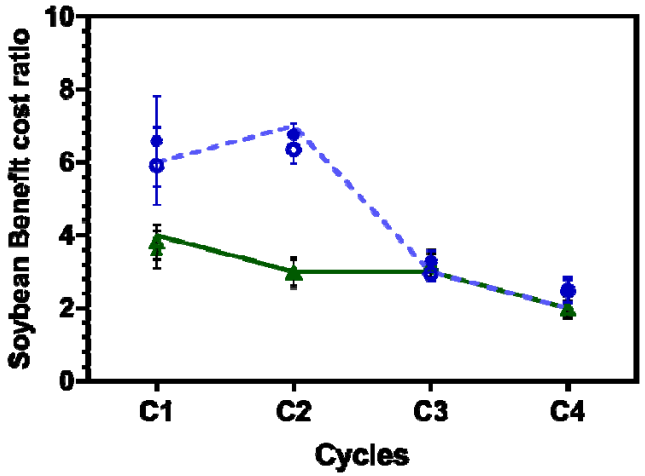
Long-term Experiment (LTE)

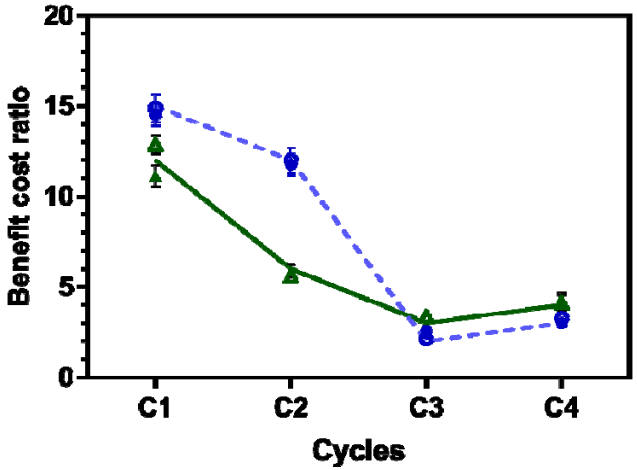
Cotton



Benefit Cost ratio







Long-term Experiment (LTE)

OPEN ACCESS Freely available online

PLOS | ONE

Yield and Economic Performance of Organic and Conventional Cotton-Based Farming Systems – Results from a Field Trial in India

Dionys Forster[1], Christian Andres[1]*, Rajeev Verma[2], Christine Zundel[1,3], Monika M. Messmer[4], Paul Mäder[4]

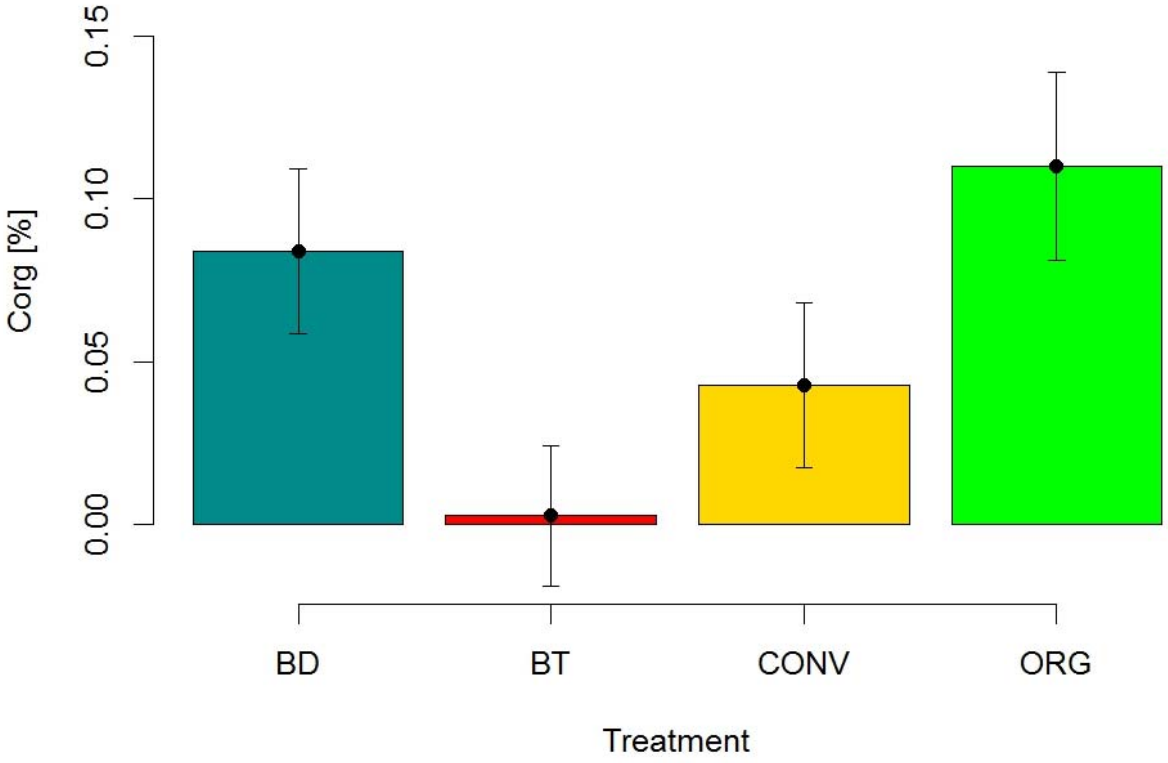
- Lower, but less weather-dependent yields in ORG
- Lower production costs in ORG

  → Same gross margin at plot level

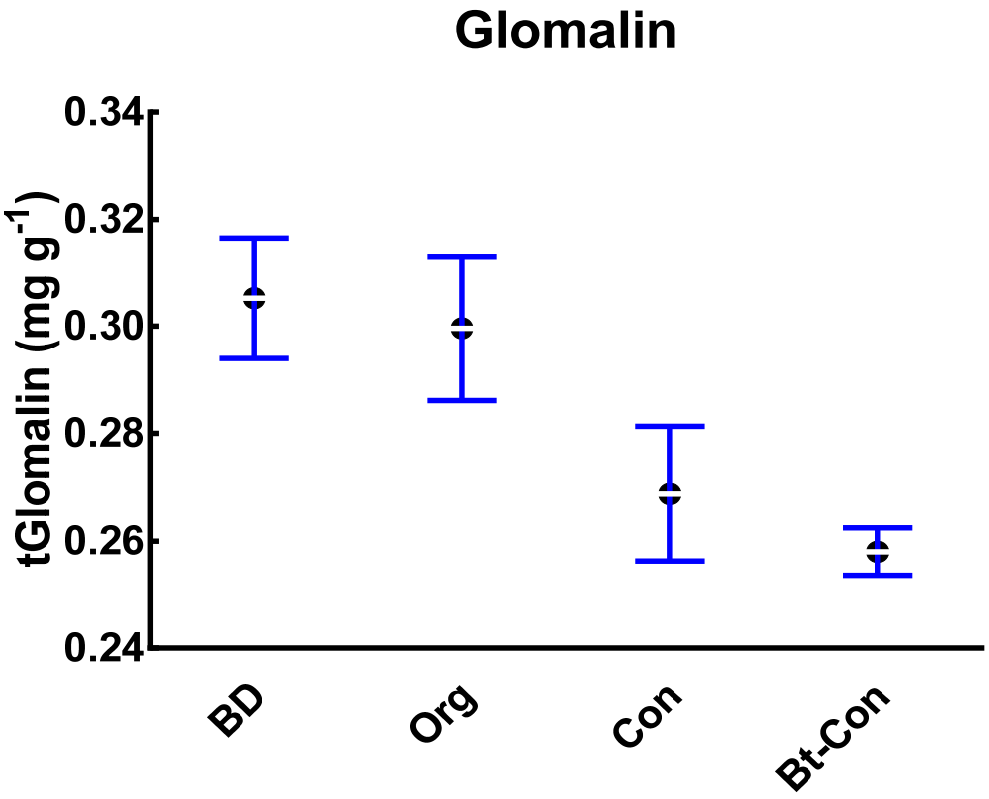
- Less capital intensive → Less financial risk

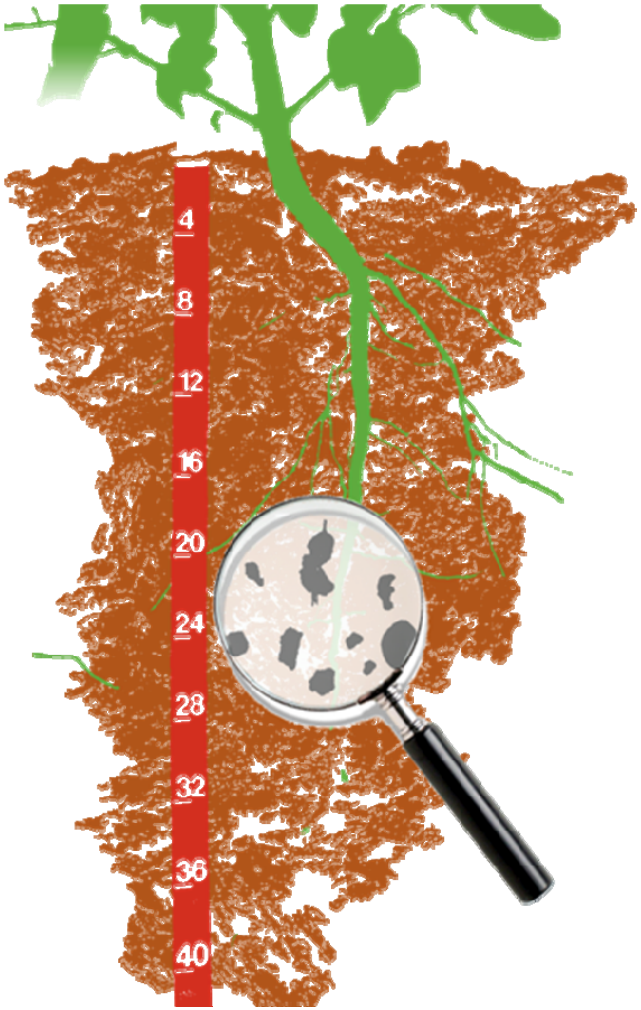
Long-term Experiment (LTE)

Changes in Soil Organic Carbon



Changes in Soil Organic Carbon



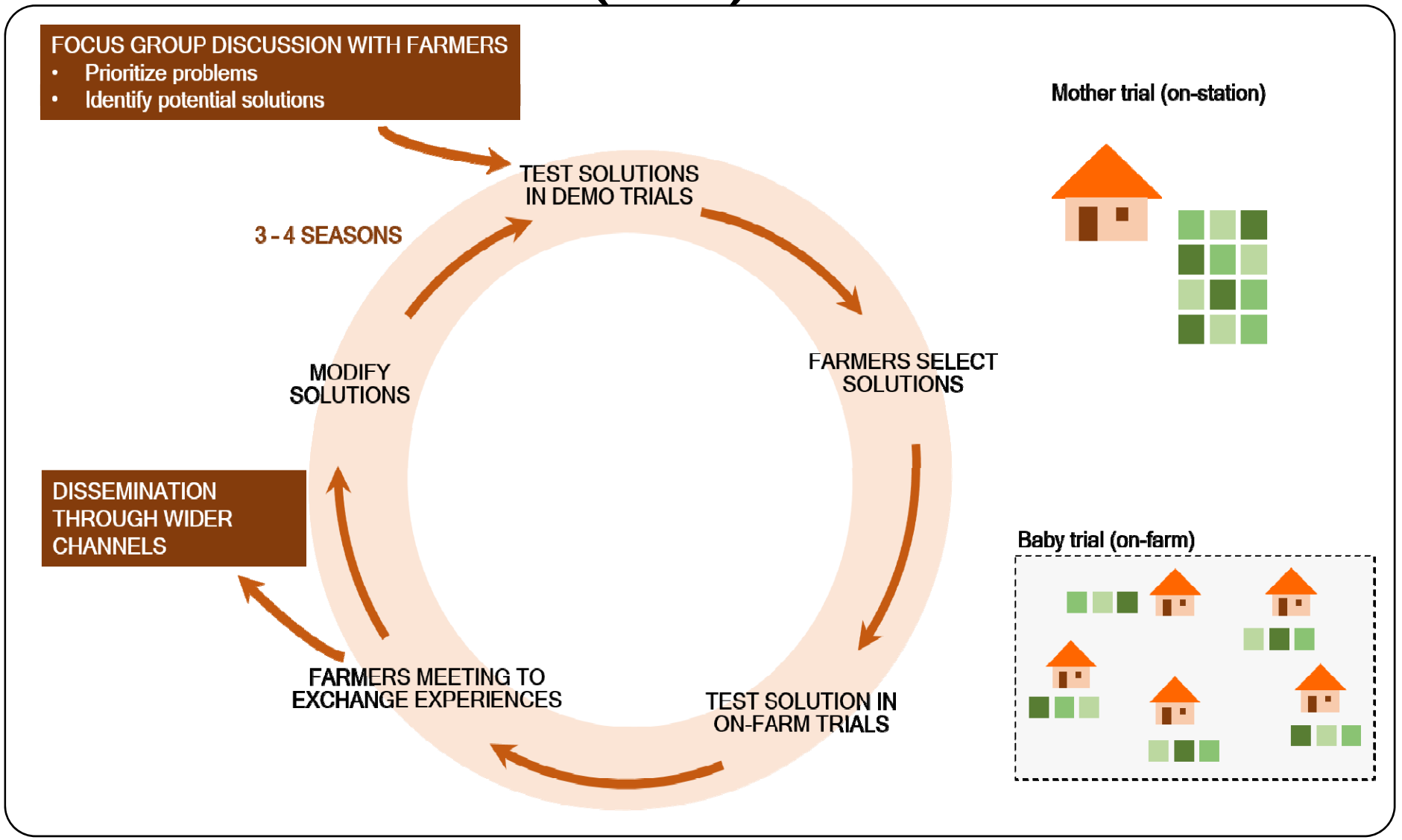


In conclusion

- Considerable yield variation across organic and conventional farms
- Soybean yields are similar across systems
- Cotton and wheat yields are slightly lower
- Benefit / cost ratio is higher in organic
- Organic practices increase soil organic matter
- Higher soil biological activity contributes to higher P supply in organic soils

- Policy brief

Innovation platform: Participatory on-farm research (POR)



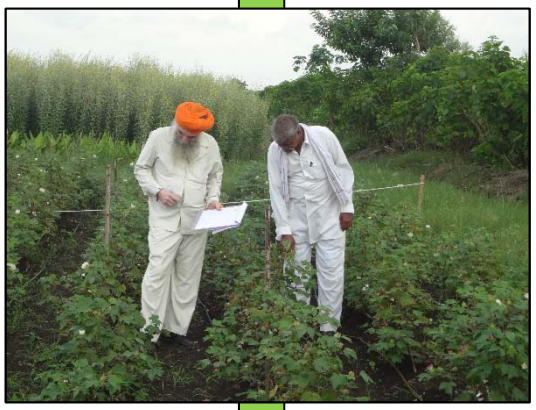
With the farmer, for the farmer, by the farmer

Current Topics in Participatory On-farm Research

Pest Management

- Standardization of preparation methods for home-made organic pesticides
- Leaflets and brochures
- On-farm testing

Seed for organic Cotton



- Participatory Breeding of Non-GM varieties
- Associated project "Green Cotton"

Nutrient Management

- Increase of P-availability
- Acidulated RP using local products: Buttermilk, Mahua vinegar (*Madhuca longifolia*), PSB

Thank you for your attention!

We gratefully acknowledge the sustained support from our Donors:

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Direktion für Entwicklung und Zusammenarbeit DEZA

LIECHTENSTEINISCHER ENTWICKLUNGS-DIENST

coop Sustainability fund

biovision

www.systems-comparison.fibl.org