



**LEGUMINOSE**  
the way to a green transition

# Challenges of establishing wheat-legume intercropping in semi-arid regions



## Main results and practical implementation

Wheat-legume intercropping is a sustainable agricultural practice that promotes resource use efficiency, enhances soil fertility, optimises crop yields, and stabilises soil health. As a step towards advancing agricultural research and innovation in semi-arid regions, we have established 18 legume-cereal intercropping living labs across Pakistan under the LEGUMINOSE project. We successfully collected grain yield and total biomass data from 14 of these living labs; the remaining four living labs faced significant challenges that led to crop failure.



## Benefits and impact

Overall, our results indicate that intercropping wheat with legumes leads to more stable yields compared to growing wheat alone. In most cases, the intercropped legumes enriched the soil, which in turn benefited the wheat crops. Moreover, the rooting patterns of the two crops allowed for more efficient use of soil moisture, which is crucial in semiarid regions.

Intercropping not only increased productivity but could also improve soil fertility, as the diverse plant species efficiently complemented each other's nutrient needs. Farmers also benefited from increased profitability by cultivating appropriate varieties simultaneously.



## Challenges (and solutions)

Most farmers in Pakistan have limited experience with intercropping. Sowing methods and the lack of available farm-machinery are major challenges for local farmers. Additionally, managing weeds and pests in intercropped fields can be complex and challenging, which may lead to reduced crop yields. Irrigation problems, such as uneven water distribution and poor scheduling, may further impact crop productivity.

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### Get in touch for more support!

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