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The impact of nitrogen resources on the potential of legume species and their integration into agricultural systems at different scales

Coordination

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The expansion of organic agriculture (OA) may find itself confronted with a significant lack of nitrogen resources necessary to fertilize crops. This gap could be filled by increasing the area planted with nitrogen (N) fixing crops.

However, the development of N-fixing crops is only viable if they have outlets on the market.

Keywords

Nitrogen
Symbiotic
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Legumes
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Crops

This project has brought together a panel of experts to:

- Identify the levers and the spatial and temporal conditions for the enhanced integration of N-fixing crops into agricultural systems at different scales;
- Examine the consequences of this integration on nitrogen supply, crop behavior and sector organization;
- Mobilize the tools and databases available to assess the contribution of N-fixing crops to the development of OA.



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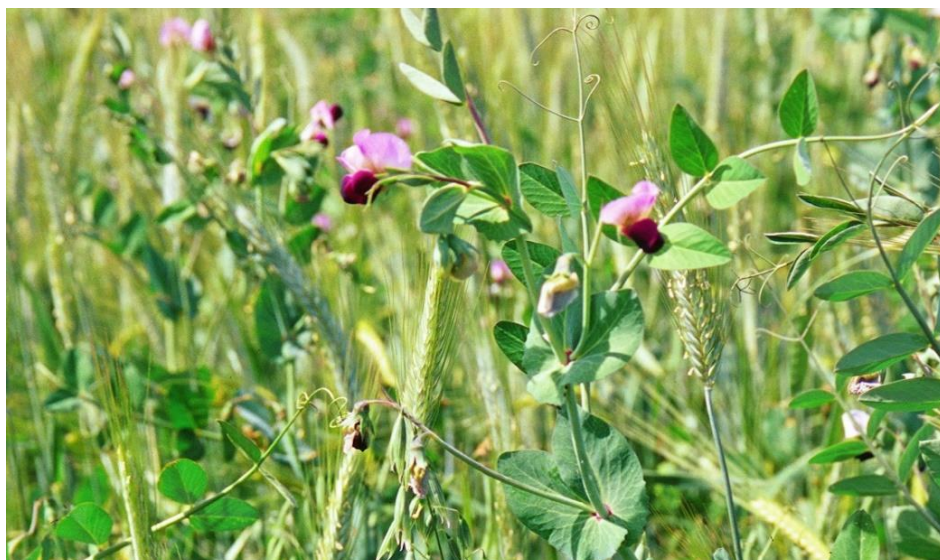
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A scientific synthesis in the form of a meta-analysis¹ has shown that there are significant differences in biological nitrogen fixation (BNF) rates between geographical locations, crop types and cropping practices. The best performances were found for forage crop species and those characterized by long growth periods. The results also showed a strong positive relationship between BNF and above-ground biomass production.

Questions remain as to how these N-fixing crops can be integrated into an agricultural system and their impact on the organization of supply chains, particularly in the context of a change in scale. Nevertheless, this initial BNF assessment is essential for exploring strategies to improve the nitrogen supply of organic cropping systems.

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