



Intercropping of rice and legume *Stylosanthes guianensis* to investigate N and P dynamics in a rice-legume based crop rotation, Madagascar highlands, Oliver Zemek.

PLANT NUTRITION

Understand nutrient dynamics to develop nutrient management systems that preserve and enhance the natural resource base and contribute to food security.



Research Areas

- Role of abiotic processes in phosphorus (P) and heavy metals cycling; microbial functions in soil nutrient dynamics;
- Functional molecular ecology of arbuscular mycorrhizas and other soil microbes; use of ^{18}O to assess P fluxes and processes at ecosystem level;
- Phosphorus and nitrogen (re-)cycling in agro-ecosystems and development of integrated nutrient management schemes.

Regions

Switzerland, Burkina Faso, Colombia, Côte d'Ivoire, Iran, Madagascar and Sri Lanka.

Partners

CIRAD, CSRS Côte d'Ivoire, Deltares, CIAT, IITA, INERA, CAS, LRI, FOFIFA, U.C. Santa Cruz. University of Calgary, University of Jerusalem, University of Peradeniya, Isfahan University of Technology, Universities of Sydney and Adelaide.

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Contribution to the WFSC

Integrated nutrient management schemes are necessary to achieve food security. Crops and grasslands need to be provided with sufficient nutrients in appropriate forms to be productive. Also, nutrient management affects food quality as plant nutrition directly impacts the technological or nutritional value of the products. Furthermore, ecological stability is affected by nutrient management, as nutrient losses trigger environmental degradation, and resources such as soil or phosphorus are not renewable on the human time scale. These challenges meet the mission of the group of plant nutrition.



Prof. Emmanuel Frossard

