

## **P.49 - Omega3: ecologically intensive approach for sustainable crop pest management in tropical agrosystems**

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In the tropics, farmers are facing very important plant protection issues such as adverse impacts of pesticides on human health and on the environment in intensive agrosystems (particularly in island ecosystems). Food insecurity and low-income generation due to pest and disease damage in low-input traditional agrosystems, particularly in sub-Saharan Africa, are also problematic. To tackle these issues, Cirad is developing an IPM component for its “ecological intensification” paradigm through an institute-commissioned and core budget-supported project titled “Omega3”. We intend to study the effects of the planned introduction of plant species diversity (PSD) in agrosystems as a possible alternative to conventional pesticide-based practices by addressing three major research questions: 1) Which PSD effects to mobilize to control crop pests and diseases at the field level, according to PSD and pests typologies? 2) How to optimize/generalize pest regulation by assisting « push-pull » processes? 3) How to balance conflicting effects of field and landscape assemblages in some agrosystems for optimal regulation of whole crop pest and disease spectrums? The project expects the following outputs at its completion in 2011: 1) Improved scientific knowledge on PSD-associated pest and disease regulation mechanisms; 2) Tools & methods (e.g. models) for evaluating and undertaking innovative cropping systems based on agroecological principles; 3) Capacity building of scientists, students, development agents and farmers from tropical countries.