

Some examples of Agroecological No-Tillage based (ANT) Systems in Laos

Landscape unit on the south of Xayabury



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Global context in the south of Xayabury province

Average regional rainfall is 1200 mm.year⁻¹. A short dry season occurs from end of June to beginning of August.

Intensive agricultural development depends on local market accessibility and financial capacities of the local enterprises.

Main dryland crops are: maize, rice-bean, job's tears, peanut, rice and sesame.

Land allocation process started in 1996. Cropping systems are largely opportunistic, no particular crop rotation is followed and usually no fallow period can be observed.



Ploughing on steep slope and soil erosion

Environnemental costs of present agriculture development

Land preparation is mainly based on ploughing on steep slopes and pre-sowing herbicide application. Land erosion, roads and paddy fields destruction, pollution by chemicals and loss of agricultural land are common.

A participative multiscale co-design method

New agroecological no-tillage based cropping systems are developed in a strong collaboration between researchers and farmers. Different kind of constraints at field, farm or regional level are taken into account in the design process. Then new systems are adapted by farmers through a step by step evaluation and modification process.



Farmer' field visit and evaluation in ANT fields

Main pathways for Agroecological No-Tillage (ANT) Systems

A first pathway is based on direct seeded grain crops on former crop residues (rice-bean or job's tears straws). This system allows:

- to decrease weeds pressure and soil erosion ;
- to increase soil fertility and biological activity ;
- to decrease pollution by trapping chemicals in the vegetal cover.

A second pathway is based on cropping system and livestock production integration. Two mains systems have been developed :

- rotations with direct-seeded grain crops (maize, Job's tears) followed by forage production for grazing (2-3 years). The forage can be sowed within the main crop ;
- grain production system based on two crop sequences. A main crop (peanut, sesame) followed by a crop for small animal feeding (sorghum, finger millet).



Brachiaria ruziziensis sown 30 days after Job's tears emergence



Sesame crop on rice-bean mulch

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