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Oral Communications

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Evaluating cereal-legume intercroops towards sole crops by combining argumentation and simulation

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Intercropping (IC) cereal and legume is a practice particularly suited in low nitrogen input systems where it optimizes the use of N resources leading to improved and stabilized yields and increased cereal protein content [1]. Nevertheless, IC is only slightly adopted by farmers. Indeed, their potential economic advantage remains questionable because it depends on many factors (crop prices, cost to separate the grains or input prices and subsidies).

In the context of decision support [2], our work aims at proposing a systematic approach to assess various options available to farmers combining: i) a qualitative model based on arguments expressed by actors and ii) a quantitative simulation technique based on systems to compare different scenarios.

Simulations were performed to assess and compare the direct margin expected using actual observations and then 3 independent scenarios under the following “what if” hypotheses: i) same subsidies, ii) increased cost of inputs and iii) decreased cost of sorting.

This study illustrates the interest of the proposed approach and opens new perspectives, such as including information about product price, fertilizer price and Life Cycle Assessment data in order to help for the support of these alternatives in a context of price volatility, environmental concerns and climate change.

[1] Bedoussac et al., 2015. *Agronomy for Sustainable Development* 35(3): 911-935

[2] Thomopoulos R., Croitoru M., Tamani N., 2015. *Ecological Informatics* 26(2): 182