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## Production of agronomic knowledge useful to aid rice growers with change: the case of organic rice growers in the Camargue (France)

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## ABSTRACT

**IRC14-0640 07d. Production systems and crop management/protection PRODUCTION OF AGRONOMIC KNOWLEDGE USEFUL TO AID RICE GROWERS WITH CHANGE: THE CASE OF ORGANIC RICE GROWERS IN THE CAMARGUE (FRANCE)** *J. Mouret*<sup>1</sup>, *R. Hammond*<sup>2</sup> : *Sciences pour l'Action et le Développement, Institut National de la Recherche Agronomique, Montpellier, France* *Sciences pour l'Action et le Développement, Institut National de la Recherche Agronomique, Montpellier, France*

In France, conventional rice growing is in a crisis situation with yield stagnation and unstable economic viability. In this context, organic rice growing is an alternative practiced by thirty-odd rice growers. In 2013 this represented 7% of the total surface under rice cultivation. Organic agriculture specifications impose technical and organisational changes that demand new agronomic knowledge and technical references. This communication presents how Inra partly answered these demands.

Approach and methods used:

The device for knowledge production depends on a research/action/development platform based on a network of rice-fields situated on organic farms. This platform federates interdisciplinary research teams and provides the framework for farmer and agronomic surveys and diagnosis, factorial experiments and student and professional training. These observations are complemented by exchanges between rice growers and scientists at regional, European and international level.

Key results:

At field level, weeds constitute the principal factor of rice yield variability. Results show a positive determining effect of crop rotation and of water level management. The introduction of ducks into rice-fields from tillering to flowering results in a significant decrease in weed biomass. Splitting applications of organic fertilizer constituted of guano and ground feather improves fertilizer efficiency compared to a single application before sowing. The constitution of a pilot group led to crop management sequence prototyping at the regional level and to the drawing up of five training modules at the international level. The first international conference on Organic Rice Production Systems in Montpellier brought together 127 participants from 17 rice producing countries. An assessment of knowledge and innovation concerning the functioning of organic rice production systems in different regions of the world has consequently been established.

Synthesis and Applications:

Amelioration of weed management and of fertilization management is a major technical lever to aid the increasing development of organic rice growing. Other obstacles, technical as well as economic and social, on both farm and territorial scales, have been identified. The research/action/development device that has been built up, based on a participative research platform can be easily mobilized to produce knowledge useful to rice growers in the transformation of their agricultural systems towards sustainable agriculture.