

PANACEA value chain events in France: review and perspectives

As partner of the PANACEA thematic network, Arvalis has organized 5 regional events focusing on energy catch crops (ECC) in cropping systems for on-farm biogas use in France.

Organized in collaboration with GrDF, a French gas distribution company, the aims of these events were :

- To identify the practices and knowledge related to ECC in each region in order to understand the factors of uncertainty, success and failure of these crop systems
- To enhance and disseminate expertise resulting from recent research work led by Arvalis on ECC
- To identify further R&D needs

Each event reached 15 to 35 participants. Groups of 4 to 6 people have been set up in order to meet this dual objective of transferring knowledge and encourage feedbacks. They have brought together farmers growing ECC and project leaders or people interested in this production. A total of 86 people participated, among them 63 farmers.

These events were organised around 4 different workshops and have provided numerous valuable results:

- Workshop 1 : What are the stakes around ECC?

The exchanges showed that the issues surrounding ECC are well understood. An energy catch crop is real crop that brings both economic and agronomic potential. The ECC is placed between 2 primary crops, which seemed clear for everyone. However, there are still many questions remaining about the regulations which are still considered unclear and required additional explanations. A need for precision regarding future controls that will be specific to ECC emerged from the discussions. There is therefore still a need for further training and communication from regulatory authorities.

- Workshop 2 : Sharing ongoing R&D actions

The objective of the workshop was to enable farmers to conceptualise the technical requirements for growing ECC, taking into account possible adaptations to their current cropping system. The participants identified successions in which the insertion of a ECC is possible (see table below).

Succession \ Area	West	South West	Great East	Rhône Alpes
Summer ECC Successions	<p>*Winter barley - sorghum - rye - maize</p> <p>Winter barley - nyger/moha/sunflower - maize</p>	<p>*Winter barley - sorghum - oats- maize</p> <p>Winter barley - nyger/moha/sunflower - maize</p>	<p>Winter barley- moha + Egyptian clover - wheat</p> <p>Winter barley - sorghum - wheat/spring barley or beetroots</p> <p>Winter barley - oats + peas - soft wheat</p>	<p>Straw cereals - sorghum - straw cereals</p> <p>Soft wheat - sorghum/crimson clover - maize</p> <p>Winter barley - sorghum - wheat</p> <p>Winter barley - maize - winter cereal</p>
Winter ECC Successions	<p>Straw cereals - oats/phacelia - maize</p> <p>Maize - rye - maize</p>	<p>Maize - triticale</p>	<p>Soft wheat - rye - maize</p> <p>Wheat - rye - soybean or sunflower</p>	<p>Grain maize - rye - grain maize</p> <p>Silage maize - rye - silage maize</p> <p>Maize - rye - soybean</p>

*Specific case of a Summer ECC followed by a Winter ECC

- Workshop 3 : Production cost

The aim of this workshop was to discuss the composition of the production cost of an ECC.

Spontaneously, the calculation was envisaged according to the cash cost methodology, i.e. a calculation including seeds, fertilisation, sowing and harvesting costs.

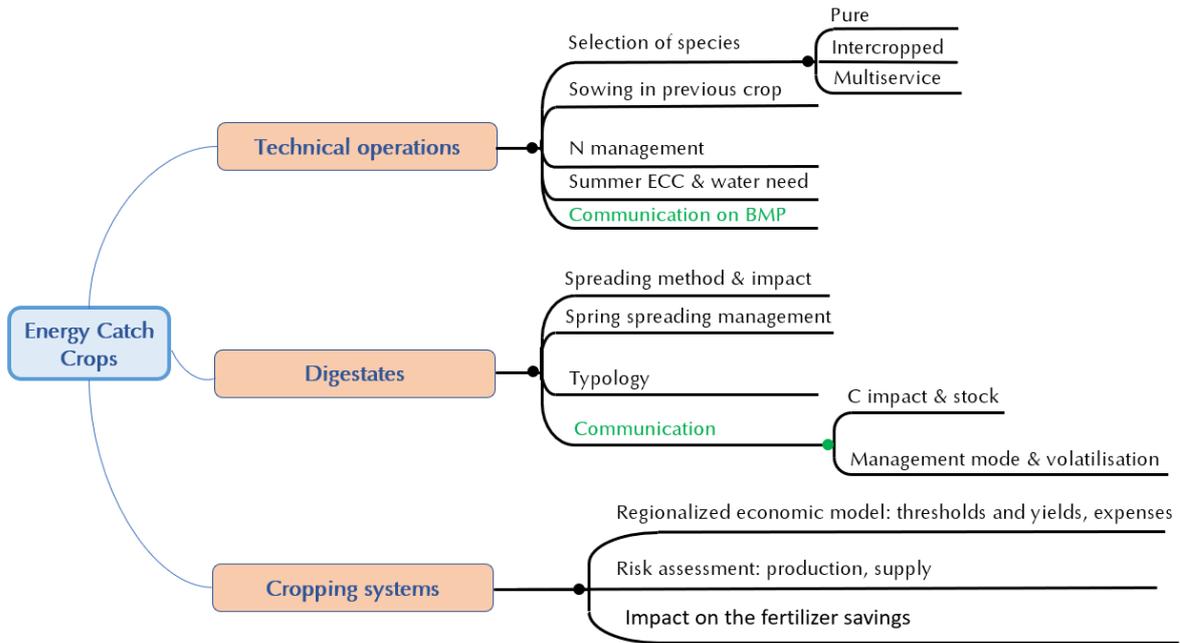
After brainstorming, it seemed relevant for the participants to also consider a division of fixed expenses between food crops and ECC. Thus the methodology of the complete production cost, i.e. a cost including inputs, production and associated labour costs as well as fixed costs such as land rent, social mutual funds and other fixed costs is applied. In addition, integrating in the production cost yield losses on a main crop due to a late ECC harvest was raised and seemed to be consistent for most participants.

Workshop 4 : Main lines of research identified

The majority of the participants asked for a better knowledge of the species suited to ECC growing, mainly winter species, alone or in a mixture, enforced with technical recommendations. In particular on sowing: when to sow, which species, with which tools?

Another need for further information was related to fertilisation strategy to adopt. When to apply nitrogen, which quantity and what is the impact on yield? Similarly, a certain number of farmers would like advice on crop protection against weed or pests specific to best suited ECC species and their soil and climate conditions.

According to participants, another aspect of research should focus on the use of digestates: which species make the best use of them in the autumn, which quantity and what are the associated risks? How can the impact on soil compaction be managed according to application periods and regulatory constraints?



These workshops made it possible to bring together the actors involved in the sector and to identify the lines of research for the future. This facilitated the setting up of a new national project: RECITAL which has started in 2020. RECITAL aims to help French farmers choose cropping systems adapted to their soil and climate context in order to optimise overall profitability (ecosystemic and economic), control production risks and gain resilience. This will be done by providing farmers with :

- Regionalised technical-economic and environmental recommendations
- Information sharing arrangements
- Training facilities