

# USING LOCAL REFERENCE DATA to achieve multiperformance



*Experts and innovative farmers worked together to design cropping systems that help farmers meet current and future challenges.*

**The aim of the collaborative design workshops, led by the technical institutes in order to guide the work carried out on the SYPPRE project's five new experimental sites, is to create cropping systems that meet both global and local challenges by 2025.**

Combining productivity, profitability and respect for the environment requires innovative cropping systems that utilise biological processes and technological innovations. The experimental sites established as part of the SYPPRE project led by ARVALIS, ITB and Terres Inovia are helping to fulfil that objective. Since 2015, they have been hosting "experimental systems" in order to generate information and acquire knowledge on innovative systems in five contrasting agricultural environments. Some regional experts and farmers designed promising system prototypes that meet global and local challenges. Their implementation and analysis will provide technical resources that can be used by farmers and their advisors.

### **An ambitious project**

The SYPPRE project's primary aim is multiperformance, i.e. improving the productivity of arable farming systems while meeting the quality criteria required by the markets, improving their profitability and robustness to cope with meteorological and economic fluctuations, and aiming for environmental excellence by reducing the TFI (Treatment Frequency Index) by 50% compared to the 2012 regional reference figure and by 20% for mineral nitrogen inputs, greenhouse gas emissions and energy consumption, as well as by increasing the level of stored organic matter. Other objectives have been added to this national "road map", in consultation with local partners, to target the specific challenges inherent to each environment.

### **Profound changes to be expected**

For each situation, the design workshops helped to identify two major common working themes: the need to increase soil fertility, and the need to limit bio-aggressor development. The prototypes produced involve making changes to the rotation (some more radical than others), and reviewing agro-ecological strategies.

The prototypes' performance was assessed a priori, based on cropping practices, yield and price hypotheses. This helped to select the best prototypes for experimentation. They are promising but highlight the difficulty in achieving all the objectives simultaneously. Indeed, none of the short-term systems reaches the TFI reduction objective, especially not with regard to the herbicide TFI, but this indicator should see some improvement as biological regulation gets established. In Picardie (northern France), the reduction in value-added crop frequency, added to diversification leads to poorer economic performance compared with that of the control system.

### **The proof of the pudding is in the field**

The testing process in field conditions will help to check the feasibility of those collaboratively designed systems, to assess their performance in real conditions, and to adjust strategies. They are not meant to be implemented on a large scale; they are examples and useful knowledge sources, to redesign cropping systems taking into account each particular situation. Those

experimental sites also support knowledge and experience sharing, including with the innovative farmers of the SYPPRE

networks networks organised by the project's regional partners.

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