

OPERATING ON A DIFFERENT SCALE

to gain a better vantage point



A farm's cropping systems are groups of parcels with similar soil and weather characteristics, justifying identical crop management.

Nowadays, the manager of a farming business must operate with increasing flexibility, while regularly adapting his production tools in order to make them more resilient. This involves, among other things, thinking at cropping system level.

Only one thing is sure: we are operating in an increasingly uncertain context. Maintaining the level of performance of the production tools is a challenge. Many expectations are placed on farm businesses, such as those of the agro-ecologic project supported by the French Ministry of Agriculture. Each situation requires different solutions. The validity of the strategies and action levers that are being implemented must be reassessed regularly.

Solutions must be found both “in the office” and “in the field”

In view of those multiple challenges, economic management measures must be combined with financial, technical and agronomic ones. The choice of market, the machinery investment strategy and the use of insurance tools, for example, which involve the whole farm, are all means of improving or stabilising the economic performance of a farming business. The integrated conversion of farm yards and buildings, as well as

changes at field level help to effectively reduce environmental risks over the whole farm.

New solutions must be sought through cropping practices, to improve field productivity, reduce the farm's dependency on inputs and improve its environmental performance.

To do this, it is advisable to clearly identify the different cropping systems on the farm, i.e. the groups of parcels with very similar soil characteristics, crop rotations and practices.

The decisions on how to manage the cropping systems are based on several criteria: soil characteristics (depth and yield potential, drying speed, stones, etc.), access to irrigation, environmental aspects (distance from houses and watercourses, vulnerable zones, Natura 2000, etc.) as well as accessibility of the fields and their distance from the main farm buildings.

The farm manager may have decided to standardise field management over the whole farm. However, taking into account the diversity of a farm helps, first of all, to identify what part each system plays in the good, or not so good,

performance of the business, and secondly, to customise strategies and practices very precisely.

Three questions can help the decision-making process and the adaptation of cropping system management strategies. Are the technical choices appropriate for each group of parcels, given their characteristics? Is it justified to use similar cropping practices (species grown, cultivation, varieties, crop management) for all the parcels or cropping systems? What specific actions should be implemented, for each system, in order to improve its results and resilience?

For example, a parcel situated in a drinking water catchment area, justifies cultural choices focusing on reducing the impact of mineral fertiliser and pesticide inputs as a priority.

In addition, for each cropping system, the farmer needs to consider growing a more diverse array of species in order to improve or stabilise his farm's revenue and/or pest control.

Combining various action levers

In the majority of cases, the technical, agronomic and environmental issues encountered in fields that are part of the same cropping system require the implementation of several action levers as part of an integrated solution.

For example, with the systems used in the chalky soils of the Champagne region, farmers run the risk of obtaining lower cereal protein contents than required and stagnating cereal and oilseed rape yields, as well as of facing high fertiliser costs per tonne produced. The partners involved in the Syppre project (1) in that region have selected several action levers to be used in combination. To reduce the need for fertiliser inputs within the rotation, legumes have been introduced as main crops, covers and companion crops, as well as some undemanding crops. The efficiency of plant fertilisation is improved through varietal choice for cereals, the types of management tools used, and the incorporation of inputs depending on the form of fertiliser used. Soil fertility is improved through organic compost, covers during the intercropping season, and a reduction in cultivation.

Without losing sight of the need for profitability, this type of approach also applies to developing disease, weed and pest control strategies, to drawing up water management strategies for crops, and to integrating environmental objectives such as reducing soil erosion, feeding pollinators or reducing the consumption of natural resources.

(1) SYPPRE project's five new experimental sites, is to create cropping systems that meet both global and local challenges by 2025 (see also the paper "[SYPPRE EXPERIMENTAL SITES using local reference data to achieve multiperformance](#)")

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