

INTEGRATING THE TERRITORIAL DIMENSION



Even though long term financial viability remains the most important factor, the social acceptability of a farm's environmental management is now part of the components to include in a farming business review exercise.

The efficacy of agro-ecologic measures and their benefit for crops must imperatively be viewed in a wider context. The long-term viability of farming businesses, of the production systems of a production area and of the different agricultural sectors, are intrinsically connected. This fact must be taken into account by farmers and advisors when developing farming strategies.

In order to identify which measures should be implemented to optimise a specific production system, taking account of the farmer's priorities and objectives, the initial situation must first be totally reviewed.

The first step is to properly characterise the farm in question by describing precisely its situation and practices. For example, the collection of topographic and soil data provides information on the useful reserve of each parcel, as well as its potential vulnerability to different types of runoff, to erosion and to nitrate leaching.

A complete review of practices is also necessary in order to identify which improvement measures should be implemented at field, crop and farm level. This applies to all cropping techniques, from the types of fertilisers used to the array of varieties chosen and the way interventions are managed.

The second step is to calculate quantifiable indicators to ascertain the farm's economic, environmental, social and societal performance.

Fulfilling demand in an uncertain environment

CASSIOPEE Performance (*see insert*), a diagnostic tool developed by ARVALIS, Terres Inovia and Agrosolutions, uses five groups of calculated indicators. The performance of those indicators can be measured against regulatory standards or local, regional or farmers' network reference data, and serves to inform the work of various groups.

The first group of indicators focuses on "safeguarding production and product quality". It is designed to ascertain the lever of productivity of the crops (quantity) and to check that the harvest fits the demand (quality). There are different ways of improving those indicators (yields and protein content): choosing an array of varieties providing the best possible compromise is one of them, adapting crop management depending on the season's potential is another, or even considering modifying the crop rotation in order to improve the fields' productivity potential. The second group of

technical and economic performance indicators focusses on "safeguarding current and future economic results". The increasing lack of visibility, both in terms of market prices and input costs, added to shrinking safety nets (CAP, etc.) mean that indicators must be considered in light of the farm's weaknesses and susceptibility to economic risks. The selected indicators focus on the farming business's cost-effectiveness, competitive strength and robustness.

Reducing the environmental impact

Even though the long-term financial viability of a farm remains its top priority, the social acceptability of its environmental management now forms an integral part of the non-financial components that need to be included in a farming business review exercise. This group of indicators covers aspects such as water, soil and air quality, as well as biodiversity. This diagnosis is innovative because it goes beyond analysing the pressures deriving from inputs (fertilisers, plant protection products, etc.), and measures the impact practices have on the production system's sustainability and on global warming. With this approach, water quality is examined through assessing the impact that agricultural practices have on plant protection product, phosphorus and nitrate transfers into water, as well as through assessing which good practices should be implemented in order to avoid point and non-point-source pollution. Soil quality is assessed, for instance, by calculating the humus balance, which helps to predict the long-term evolution of the soil's organic matter (fertility) depending on the rotation and cropping practices. Air quality is measured by indicators such as emissions of ammonia (NH₃) in the field, or of greenhouse gas (GHG). Finally, biodiversity is evaluated using indicators that focus on practices that help to diversify production both in time and space, and to minimise pressures on the ecosystem (protecting biological control agents present in the crops).

There is no "ready-made" solution, the farmer draws up an action plan in conjunction with his/her advisor.



Contributing to collective development

Agricultural development is intrinsically linked to resource preservation, especially water and energetic resources. The "preserving natural resources" aspect of the diagnosis focusses on reducing agricultural consumption of natural resources over one or more renewal cycles if the resource in question is renewable (water) and even on stopping it completely for resources that are

not renewable (phosphorus, oil...). It involves, for example, measuring the energetic performance at production level, and assessing water usage.

But since a farm operates within a wider production area, the farmer's contribution to the local environment and social context must also be taken into account. This is split into three areas: assessment of good practices in order to limit professional risks, the farmer's and his/her employees' quality of life (job satisfaction, strenuousness, social engagement at local level), as well as contribution at production area level by calculating the number of people the farm can potentially support (1). This aspect is rarely taken into account in a diagnosis, as it is often based on qualitative and unstandardized indicators.

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A global approach

This comprehensive diagnosis is a valuable tool that helps identify which agronomic and ecologic action levers a farmer is already using. It is used as a starting point to prepare an action plan adapted to the farm's local conditions, setting short, medium and long term improvement objectives. It must be drawn up jointly by the farmer and his/her agricultural advisor, to make sure that all issues have been taken into account without setting them against each other, and that there will not be any negative or uncontrolled effects in the medium and long terms. It takes into consideration the farmer's approach, as well as the industry's opportunities and constraints.

To reach the objectives that have been set, solutions will need to involve agronomic practices that are included in established frames of reference (those of the arable crop institutes, Agropéps, etc.). In addition to decision support tools (DSTs), solutions will focus on prophylactic measures, including modifying the rotation, if necessary, capitalising on genetics, and introducing alternative techniques. The choice of measures will obviously be dictated by their effectiveness and feasibility. Those that will be implemented will need to be reviewed regularly in order to adjust or complement them in light of, for instance, new agronomic knowledge and technical advances.

« This approach takes all the different issues into consideration without setting them against each other. »

Finding solutions to the challenges faced by farms and production areas

CASSIOPEE is a service born of an ARVALIS, Terres Inovia and Agrosolutions partnership, intended for economic and development organisations. Offering four versions, it consists of a farm diagnosis carried out as part of a multi-annual advisory service, or of a 10-year prospective study designed to predict the way production conditions will evolve, to quantify their economic impact (from the farm to the production area) and to draw up a business strategy. A training programme is also offered to agricultural advisors with a view to adapting their advice in order to optimise the technical, economic, social, societal and environmental management of farms, by activating, among other things, agro-ecological levers. An indicator calculation carried out at field level, followed by their combination at different levels is also offered to manage and objectify the efficacy of this approach beyond the farm.

(1) Theoretical number of people that the farm can support for one year (energy and protein).

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April 2016