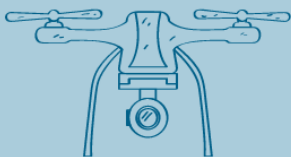


Summary report

LEVERAGING A TRANSITION



TOWARDS MORE



SUSTAINABLE

WINEGROWING

SYSTEMS

Anaïs Levoir

November 2021

Farm Europe is a multi-cultural think tank founded in 2014 that aims to stimulate reflection on the EU's rural economies. Among the different departments of the think tank, the Wine Institute focuses its work on the coherence between the evolutions taking place within the wine sector and the public policies implemented at the European level.

Executive summary

To address climate and environmental issues, the EU offers to establish a “Green Deal” for the European Union, with proposed measures targeting various economic sectors, including agriculture. To achieve climate neutrality by 2050, the Commission would like agriculture to be carbon neutral by 2035 and then compensate some of the emissions from other sectors.

In this context, the Farm 2 Fork and Biodiversity strategies encourage to reduce pesticide use by 50% and fertilizer use by 20% by 2030. They suggest that 25% of agricultural land should be farmed organically and that high-diversity landscape elements should cover 10% of agricultural land.

However, the strategies, as proposed by the Commission, would lead to an average drop in yields of 5%, a drop in European agricultural production of 10 to 15% depending on the sector, a reduction in exports of 20%, a drastic increase in imports and a drop in agricultural income of 8 to 16% (depending on the impact studies carried out). The study made by the Commission's research department (JRC) also confirms these results, even with the hypotheses of artificially limiting imports and 60% of farms using precision farming in 2030. The latter hypothesis suggests massive investments to be made by sectors that would see their revenues shrink. The estimated environmental benefits are tenuous or non-existent at the cost of socially and economically onerous decrease.

Such consequences could be dramatic for the European wine sector, which employs more than 2.5 million people and occupies 5.6% of European agricultural land, particularly in areas where few other economies can develop.

Not only are they likely to jeopardize Europe's place on the world market, but they would have a significant impact on the living conditions of winegrowers and the economy of these regions.

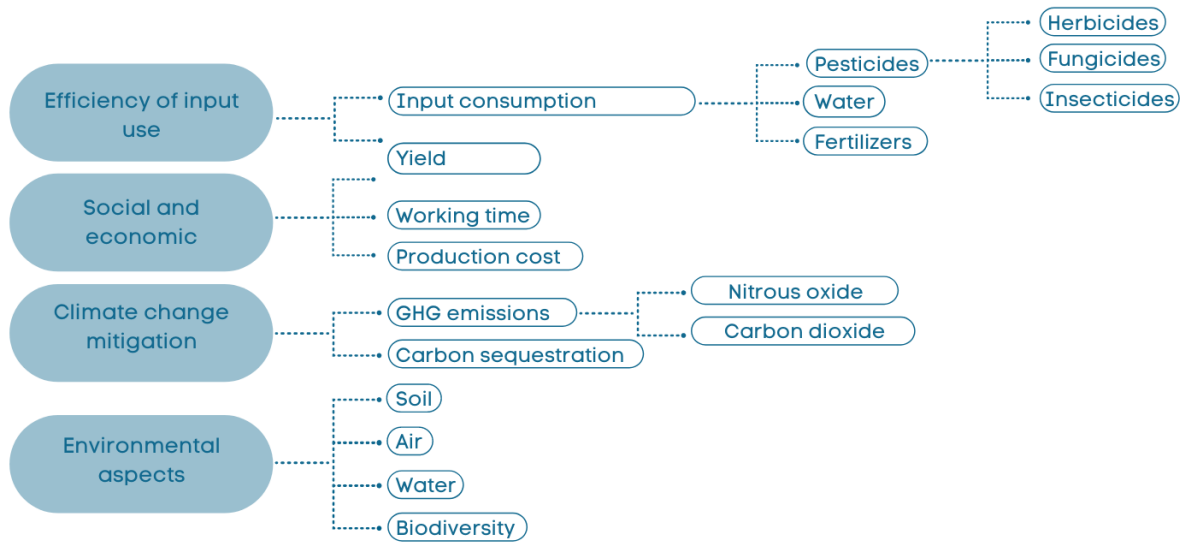
A wine sector restructuration scenario, including a reduction of the number of farms and an abandonment of land due to political decisions is not conceivable, especially as there is no real agricultural alternative for most of the wine-growing land.

These observations show the need to define another way to meet the principles of the European Green Pact and a responsible and effective ecological transition of agricultural sectors, including European viticulture.

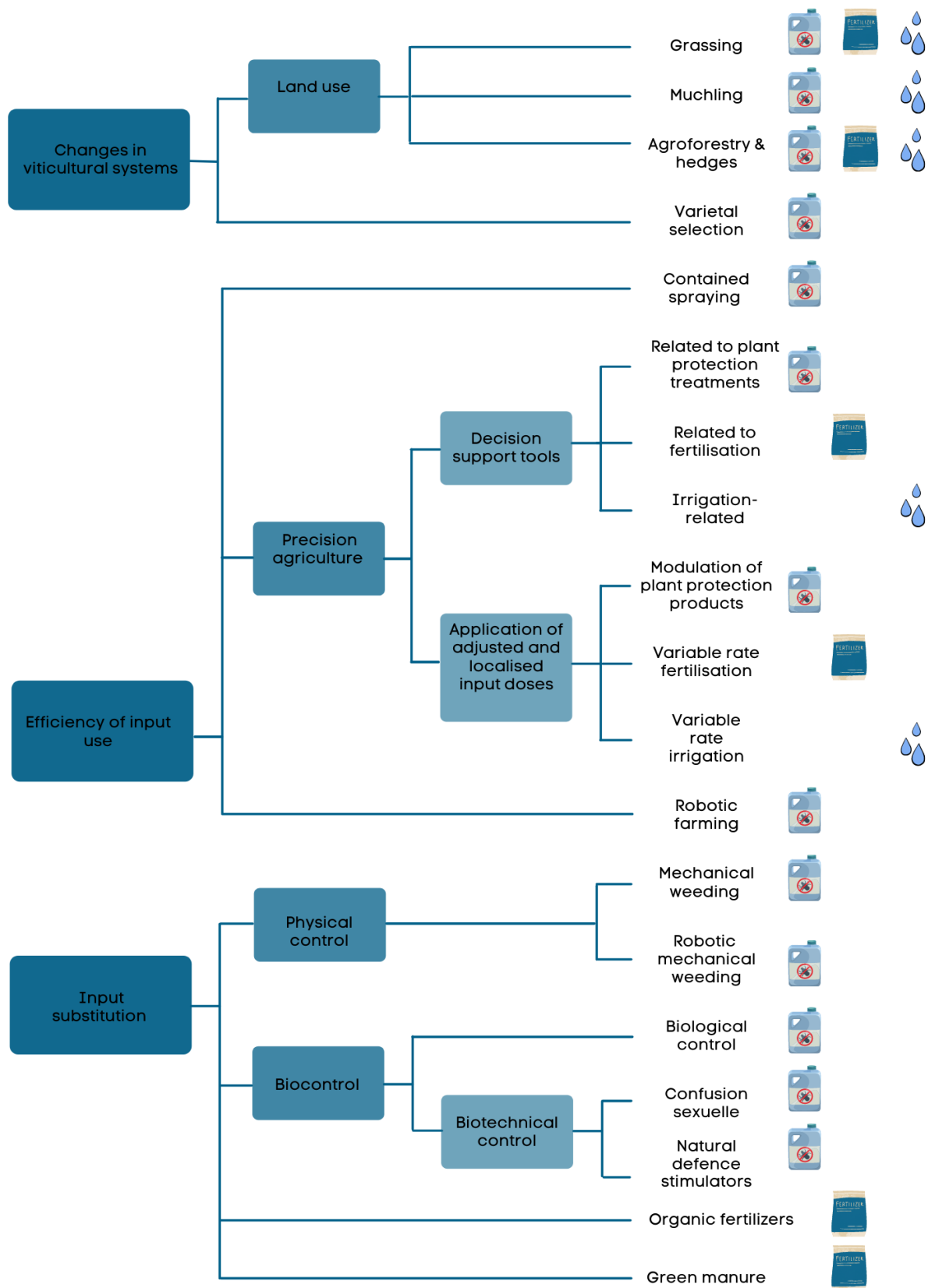
This report analyzes a set of practices that can be activated to reach the European objectives while fostering production capacities, revenues of the winegrowers and their working time.

Numerous European studies have evaluated and quantified the effect of various practices at the farm or plot level. Based on a review of this work, this study aims to quantify the effect of different practices to identify those with the best mix between environmental and climatic impact and economic and social impact.

The different data compared are given below:



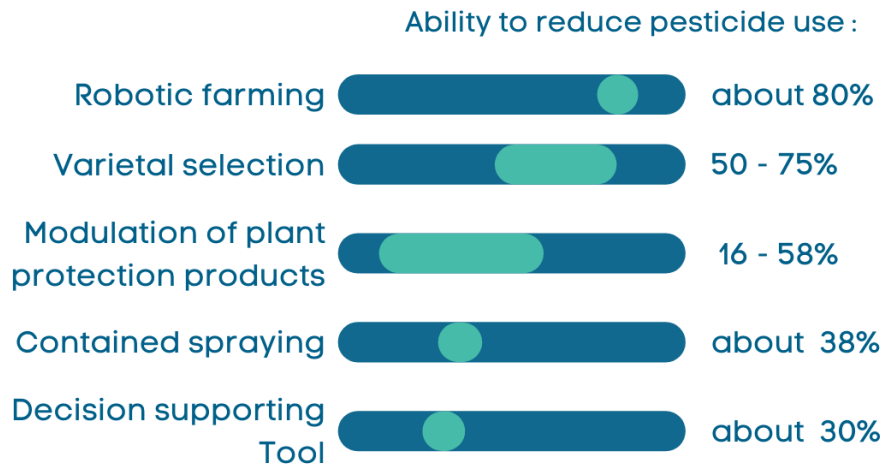
The practices studied and the inputs they affect are:



Results can be summarized as follows:

Effects of practices on pesticide use efficiency

Selected practices having beneficial effects on pesticide management generate the following results:



Effects of practices on fertilizer use efficiency

The use of decision supporting tools and variable rate fertilization seem the most interesting to promote. If most practices influence the quality of the musts, grassing, vitiforestry or green manures can lead to a quantitative decrease in yield. The difference in the type of fertilizer (synthetic, organic) has no impact on the efficiency of their use.

Effects of practices on water use efficiency

Practices such as grassing, organic and synthetic mulching and vitiforestry concern the efficiency of the use of water available in the soil and have effects that are observed according to the pedoclimatic contexts. They differ from practices related to the strategy of water use efficiency in irrigation, which include decision supporting tools, variable rate irrigation and fertigation. The latter seem to maintain or increase yields.

Effects of practices on socio-economic conditions

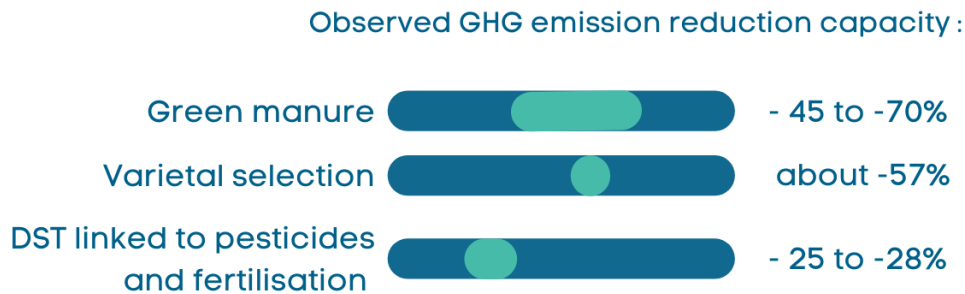
Varietal selection and the use of organic fertilizers are the practices that have a positive impact on yield, working time and production cost.

Decision supporting tools, adjustment of phytosanitary treatments, variable rate fertilization and variable rate irrigation may induce a slight increase in work time when learning how to use the tool but can generate positive returns in terms of economic profitability. Spontaneous weeding seems to be another interesting practice from a socio-economic point of view, as well as robotic mechanical weeding, whose investment is less than 40 000€.

The robotization of viticulture seems to be a promising technique in terms of work time, but it does not seem profitable today and is still in the experimental phase.

Effects of practices on environmental and climatic performance

Among the practices studied, only grassing and agroforestry influence carbon sequestration. Practices that have a positive action on the different environmental components and whose capacity to reduce GHG emissions seems interesting are:



No practice is a silver bullet solution as they all have advantages and disadvantages. **Nevertheless, the most interesting to promote, whatever the input, seem to be the use of decision supporting tools, confined spraying, and varietal selection.**

Grassing, green manures, mixed mechanical weeding and biocontrol methods may compromise one of the social or economic dimensions. However, they remain interesting options for small vineyards or vineyards with low yield objectives.

Precision viticulture and robotization are the futures' solutions. To take full advantage of these technologies and decision supporting tools, training, support, and soil analysis are necessary.

Finally, the effectiveness of certain practices only occurs if the quantities of agricultural inputs are adapted to the sanitary pressure and the water and nitrogen requirements.

These conclusions are sometimes partial, particularly concerning carbon sequestration. The effects of the practices are in fact the result of the interaction of all the practices carried out on the plot and according to its pedoclimatic conditions. They cannot all be generalized on a European scale. Therefore, it seems necessary to compare these results with the feedback from winegrowers from different European regions and different types of farms.

