

Annex 1 – Extended abstract for Contributed Paper session

Paper Title	Effects of using cover crops in the inter-rows of vineyards. An ex-ante evaluation in France.
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**Contributed Paper abstract prepared for presentation at the 91st Annual
Conference of the Agricultural Economics Society, Royal Dublin Society in
Dublin, Ireland**

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Abstract	200 words max
<p>The European Union is one of the world’s leading wine producers and exporters. European vineyards are smaller than in other wine producing countries and are cultivated more labour-intensively. However, this economic disadvantage can become a benefit supporting biodiversity and ecosystem services in vinicultural landscapes. Using cover crops in vineyards is a practice to reduce soil erosion and potentially enhance biodiversity. Field trials in VineDivers have shown this across a European transect (France, Austria, Spain and Romania).</p> <p>We analyzed the competitiveness of French wine on world markets with different field sites scenarios using a Policy Analysis Matrix (PAM). We take into account revenues and costs to compare the competitiveness of grape production in Layon (France). Our results show that viticulture in Layon is not competitive in the worldwide market despite regulations to protect the wine production in French wine-regions. Only regional value creation in producing high quality wine enables the vintners to earn profits. However, the analysis shows that it makes no difference for the competitiveness if the vintner use cover crops, spontaneous vegetation or bare soil in the inter rows.</p>	
Keywords	biodiversity, viticulture, Policy Analysis Matrix, use of pesticides
JEL Code	Q1 Agriculture see: www.aeaweb.org/jel/guide/jel.php?class=Q)
Introduction	100 – 250 words
<p>Based on its nature as a permanent crop and its capability of relative high profits per hectare, growing vines is a much more intensive cultivation system than commonly assumed. In many vineyards a variety of different herbicides and fungicides are used to achieve high quality grapes for excellent wine. The use of pesticides creates negative externalities. To limit these externalities there is a need for an effective, sustainable measurement that can be easily implemented from vintners. During the past two years, surveys in the vineyards in the region of Layon (Loire Valley; France) have been conducted in an interdisciplinary way to analyze the different effects of using cover crops or</p>	



spontaneous vegetation species in the inter rows. An analysis of the cost structure for viticulture as well as the implementation of focus groups and interviews with winegrowers and traders were implemented to create different scenarios modeled with the PAM. The question was whether an inter row management could provide ecosystem services to promote biodiversity. In addition, competitiveness had to be taken into account in order to compensate possible negative effects on the quality or yields of the grapes. This paper displays how viticulture could contribute to this goal by reducing the use of pesticides and the impact on the competitiveness of the vineries.

Methodology

100 – 250 words

To analyse the competitiveness and to show the economic effects of different inter-row management, we use the Policy Analysis Matrix (PAM) (MONKE and PEARSON, 1989, p. 11). The PAM, based on simplified partial equilibrium analysis, is often used to analyse competitiveness of agriculture in transition countries (Lakemeyer, 2007).

Possible price policies could change the costs of inputs or the value of output and thus the private profitability of the agricultural production system. With the PAM we compare the private profitability before and after policy changes and are able to show the influence of these changes on the competitiveness in market prices.

For domestic factors of production (land, labor and capital) we calculate the social (efficiency) prices by application of the social opportunity cost principle (PEARSON et al., 2003, p. 19 f). The domestic factors are characterized by the fact that they are not tradable and therefore have no world prices. Therefore, we estimate the social opportunity costs by observing the rural factor markets. The calculation of social profits enables the estimation of the efficiency of the system.

After modelling with the PAM there are some indicators and ratios available like the Private Cost Ratio (PCR) or the Domestic Resource Cost Ratio (DRC) to provide a closer focus on the policy and market analysis of the wine producing countries in different scenarios.

Results

100 – 250 words

The first results of three PAM scenarios (“basic”, “spontaneous vegetation” and “cover crops”) show, that with these environmentally friendly changes in the production system an increase in social and ecological status can be found. Our analysis shows that the competitiveness in both scenarios is not negatively affected in comparison to the basic

scenario. The analysed measures would lead to additional labour demand in the vineyard as well as to a more sustainable production system. This could have positive effects for the upcoming changes regarding climate change and adverse weather conditions. The DRC in all three scenarios is greater than one (1.74) which indicates that the production of grapes in France and especially in Layon is not competitive with the production in other countries. At first glance this is unexpected because France is well known for its high quality wine sold all over the world. But this fact is at the same time the answer: the wine produced and bottled in France is of high quality and sold in the high price segment. The calculated DRC indicates some comparative disadvantages of producing grapes in France. These disadvantages are due to small structures of the vineyards, a lot of manual work in spring and high cost for vintage without machinery.

Discussion and Conclusion

100 – 250 words

The first results of the field site experiments of the BiodivERsA-project VineDivers show, that with these environmentally friendly changes in the inter-row management an increase in social and ecological status can be achieved. With the PAM we analyse in our “scenario Cover Crops” that the production of French grapes for wine production in Layon is still competitive with using the environmental friendly tool of cover crops. The reduced cost for herbicides is opposed by additional labour demand in the vineyard for managing the cover crops. Nevertheless, the use of cover crops will lead to a more sustainable production system which is fit for the upcoming changes regarding climate change and adverse weather conditions.

A weakness of the DRC method as it is usually applied is that it is based on average or ‘typical’ data for a sector or industry. For this reason, statistical data is used and we use focus groups to get more detailed information about the different production structures for wine through the countries. Furthermore, we collect disaggregated farm-level data. Most PAM does not have this data, but in our case it is available and the PAM can be calculated for each observation (vineyard) and inferences drawn about the distribution of competitiveness. But with the hypothesis that France is competitive on the world wine market we calculate three different scenarios. Overall we assessed which changes to European regulations could be envisaged to ensure that viticulture has a sustainable future and that European viticulture

remains competitive on the world market.

