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## Life ADVICLIM project: final Evaluation report

Hervé QuénoI, Meslay Marlène, Etienne Neethling

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**ADVICLIM**



# Final Evaluation Report

# Final Evaluation report

## AUTHORS

Hervé Quénot<sup>1</sup>

Marlène Meslay<sup>2</sup>

Etienne Neethling<sup>3</sup>

<sup>1</sup> UMR6554 LETG-Rennes, CNRS, Université Rennes 2, Place du recteur Henri le Moal, 35043 Rennes (France)

<sup>2</sup> Pôle Europe – Direction de la Recherche et de la Valorisation, Université Rennes 2, Place du recteur Henri le Moal, 35043 Rennes (France)

<sup>3</sup> ESA, 55 Rue Rabelais, 49000 Angers (France)

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# FOREWORD

Across the earth, there is growing evidence that a global climate change is taking place. Observed regional changes include rising temperatures and shifts in rainfall patterns and extreme weather events. Over the next century, climate changes are expected to continue and have important consequences on viticulture. They vary from short-term impacts on wine quality and style, to long-term issues such as varietal suitability and the economic sustainability of traditional wine producing areas. As a result, the wine industry is facing many challenges, which includes adapting to these potential impacts, as well as reducing greenhouse gas emissions related to their activities.

In response to these challenges, the LIFE-ADVICLIM project has the objective to evaluate and develop local climate change

adaptation and mitigation strategies. The measurement network and web platform of this project seeks to inform and assist winegrowers on climate change impacts, on rational adaptation scenarios and on greenhouse gas emissions related to their practices at the scale of their vineyard plots. These technologies are evaluated in many European wine growing regions (Figure 1), namely Bordeaux and Loire Valley (France), Sussex (England), Rheingau (Germany), Cotnari (Romania) and Navarra/La Rioja (Spain). These six regions represent the climatic diversity of European wine, ranging from the Mediterranean to Oceanic and Continental climates.

For more information on this project, visit [www.adviclim.eu](http://www.adviclim.eu).



Figure 1: Position of the six European wine growing regions that are studied in the LIFE-ADVICLIM project.



# INTRODUCTION

The Final evaluation focuses on the results of the project (effectiveness, outputs, effects, information collected) by combining qualitative and quantitative data in order to measure the effectiveness of the innovative tools and methods created: degree of involvement of the target groups and stakeholders (visits to Life ADVICLIM website, participants number to project conferences, subscribers to project newsletters...), success of the dissemination tools created in the project.

This qualitative and quantitative approach has been applied to several actions and tools of the ADVICLIM project.

- (1) The quantitative approach aimed at assessing the level of participation of winegrowers and stakeholders in the LIFE-ADVICLIM project: e.g. statistics on social network profiles and website visits, number of participants in the national workshops, number of subscribers to the VIDAC online platform, number of people receiving the Life ADVICLIM newsletters, number of promotional materials distributed for the project, number of project publications disseminated;
- (2) The objective of the qualitative approach was to evaluate the success of the tools developed in Action B1 (adaptation of cultural practices to climate change) and B2 (greenhouse gas calculation tool) as well as the dissemination strategy towards the wine profession and stakeholders. The qualitative evaluation should be carried out with surveys of users, winegrowers, stakeholders and members of the Advisory Board of the LIFE-ADVICLIM project. But, the tools developed in actions B1 and B2 were operational too late to carry out the qualitative evaluation before the end of the project. However, the qualitative evaluation of the deliverables, synthesis brochures and tools is underway and will be completed as part of the After Life Plan;
- (3) The deliverable "*Adapting viticulture to climate change: guidance manual to support winegrower's decision-making*" has been very successful and has been disseminated by local, national and international wine professional organisations. At the initiative of the LIFE-ADVICLIM project, a survey entitled "*Understanding Winegrowers' Perceptions and Adaptation Attitudes to Climate Change*" was carried out among the stakeholders and winegrowers of each partner country in the project. The objective of this study was to explore the current and future state of the wine sector in an ever-changing climatic environment, in order to assess the perception and adaptive capacities of the winegrowers and stakeholders involved. As the main international viticultural organisations were interested in this study, we decided to carry it out in the world's main wine-producing countries. The survey was therefore carried out in 27 wine-producing countries and yielded more than 3750 responses, 1825 of which were obtained in the partner countries of the LIFE-ADVICLIM project. The results of this survey will help in the realisation of the directives of the international resolutions (OIV) for the adaptation of viticulture to climate change.

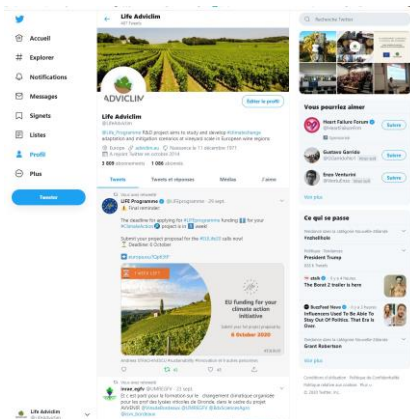
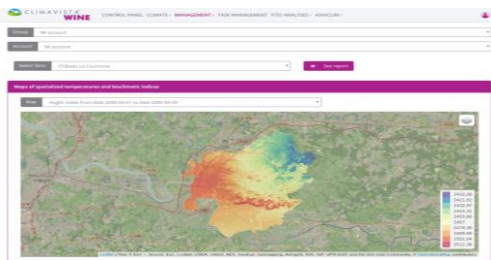
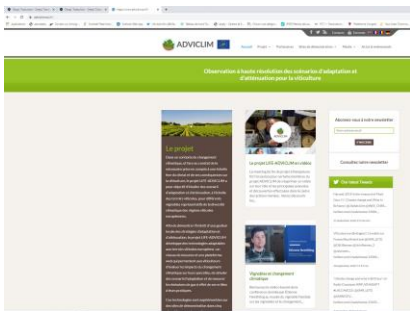
# QUANTITATIVE ASSESSMENT OF THE LIFE-ADVICLIM PROJECT

A quantitative analysis was carried out before the end of the project using data from the website, the VIDAC platform and the number of subscribers to the Twitter account and the newsletter. A quantitative evaluation was also carried out on the participation of winegrowers and stakeholders in local professional meetings and networking workshops.

The approach and the complete results of the LIFE-ADVICLIM project were presented in a specific deliverable for each pilot site (e.g. "*LIFE-ADVICLIM Project: Saint Emilion/Pomerol pilot site*"). A quantitative analysis of the dissemination of this document was carried out by the project partners in each pilot site.

Several deliverables aimed to produce information transfer documents designed to help winemakers develop adaptation strategies to ensure that wine quality is maintained and production is sustainable: (1) "*Adapting viticulture to climate change: guidance manual to support winegrower's decision-making*" (Action B1); (2) "*Greenhouse gases emissions assessment of viticulture technical itineraries: method and results* (Action B2)".

The videos made during the final meeting (at the end of January 2020 in Pamplona), the summary leaflets for each pilot site, the general leaflet of the project's results, the Layman's report and "The guidelines for professionals, scientific experts and local authorities" were produced belatedly. These documents are currently being disseminated. The quantitative analysis of these documents will be conducted in the "*After LIFE ADVICLIM*" communication plan. However, an initial quantitative analysis was made for the summary leaflets for Pomerol/Saint Emilion and the Val de Loire pilot sites.



**Jornada de Networking con el LIFE ADVICLIM y LIFE PRIORAT+MONSANT**

JUNIO 4, 2018

El día 31 de mayo, tuvo lugar en Bullas

- ADVICLIM's website created in 2015 has registered more than 10,000 visitors. More than 30 links from partner and stakeholder websites to the ADVICLIM website have been listed (networking).
- 7 newsletters were published and sent to 220 recipients.
- 114 access accounts to the VIDAC platform have been created for the winegrowers participating in the project. A quantitative and qualitative analysis will be carried out after the end of the LIFE-ADVICLIM project in order to assess the feasibility of the VIDAC platform as a decision-making tool for the wine profession.
- ADVICLIM's Twitter account is very active and successful. With more than 1080 subscribers, the Twitter account is the main dissemination tool of the LIFE-ADVICLIM project.
- 9 workshops and meetings were held during the project. Local meetings with winegrowers and stakeholders brought together between 100 and 200 people (e.g. 186 people attended the meeting in Pomerol/Saint Emilion pilot site, including 61 % winegrowers, 12 % consultants, 16 % scientists and 5 % students).
- Dissemination toward scientific community: 26 scientific publications (scientific journal, book chapter, ...), 62 conferences, 39 papers in colloquia and seminars and 8 scientific workshops;
- Collaboration with 4 national and international scientific projects:
- 4 international projects in the continuity of the LIFE-ADVICLIM project (replicability, demonstration, transferability, cooperation) in New Zealand, Argentina and France.
- Dissemination to the public (media): communication in 10 TV/Radio report; 2 documentaries, 10 internet sites; 10 national and international magazines and 22 local, regional and national newspapers.

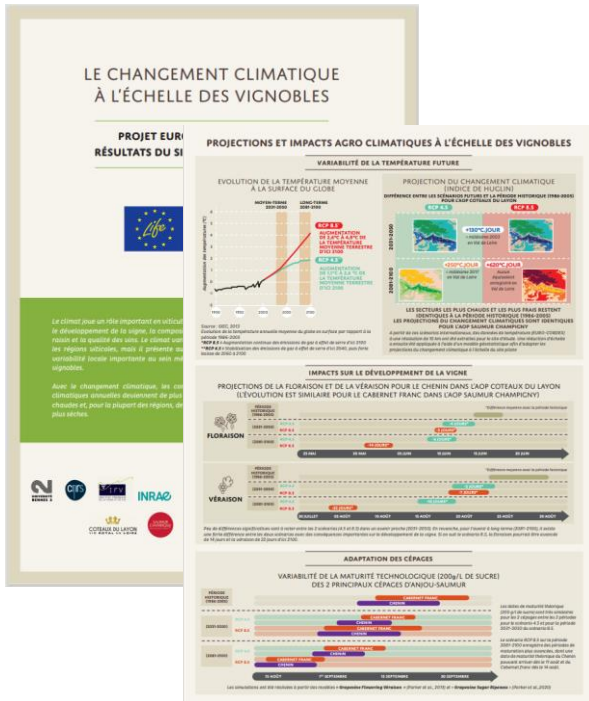


- The specific deliverables for each pilot site (Action B3) were disseminated via the different communication tools (e.g. internet, Twitter, ...) and stakeholders and collaborative projects. For example, concerning the Pomerol/Saint Emilion pilot site, the deliverable was disseminated by the *Comité Interprofessionnel des Vins de Bordeaux* (BIVB), the meta-programme LACCAVE.2.21, INRA, CNRS, the University of Rennes 2, IFV, the winegrower's association of Saint Emilion, and the Libourne agricultural high school. The quantitative analysis of the email listings evaluated a distribution of the deliverable to approximately 500 recipients. For the Val de Loire pilot site, the deliverable was disseminated to approximately 500 recipients by the same national partners (e.g. LACCAVE2.21, etc.) as well as local stakeholders (e.g. Interloire, the Saumur Champigny wine cooperative, etc.). Deliverables from the other pilot sites are currently being disseminated by the local partners. We hope to conduct a quantitative analysis of the dissemination in coming months.



- The "Guidance manuals to support winegrower's decision-making" ("adaptation to climate change" from Action B1 and the "greenhouse gas calculation tool" from Action B2) have been very successful with the international winegrowing profession. These guidance manuals have been distributed by scientific organisations (e.g. International Terroir Congress, GIESCO congress) and professional wine organisations (e.g. International Organisation of Vine and Wine). It is difficult to conduct a quantitative analysis, but it probably represents several thousand recipients. Several international stakeholders requested the transferability of the deliverable "Adapting viticulture to climate change: guidance manual to support winegrower's decision-making" to other winegrowing zones (e.g. New Zealand, Argentina).





- Synthesis leaflet for each pilot site: the summary leaflets for each pilot site were produced late. Dissemination to stakeholders is currently in progress. The leaflet for the Pomerol/Saint Emilion pilot site was completed in March 2020. The document was disseminated by the same stakeholders and partners as for the deliverables. The quantitative analysis estimated a distribution of the document to approximately 500 recipients.
- Video documentary entitled “*The challenge of climate change for European viticulture: Adaptation tools*” was made during the final meeting in Pamplona (January 2020). It took several months to edit the video documentary. It will be disseminated in the coming months via the ADVICLIM website, Twitter and You-Tube;
- The quantitative analysis of the synthesis deliverables of the LIFE-ADVICLIM project (e.g. Project Synthesis Leaflet, Laymans's Report, ...) will be done within the After-Life Communication Plan”.

Adaptation of cultural practices to climate change  
Results synthesis

Layman's Report  
LIFE ADVICLIM (2014-2020)

After-LIFE  
Communication Plan



# QUALITATIVE ASSESSMENT OF THE LIFE-ADVICLIM PROJECT

The objective of the qualitative analysis is to evaluate the success of the tools developed in the framework of actions B1 (adaptation of cultural practices to climate change) and B2 (greenhouse gas calculation tool). A first qualitative analysis was carried out during workshops and meetings organised on the pilot sites with members of the LIFE-ADVICLIM project, winegrowers and stakeholders. Indeed, the construction of the SEVE model required the involvement of winegrowers in order to build the cropping itineraries on the test plots. Future scenarios for adapting cultivation practices to climate change with the assessment of the carbon footprint were also validated by winegrowers before being disseminated.

The qualitative assessment of the LIFE-ADVICLIM project through surveys of users, winegrowers, stakeholders and members of the advisory board could not be carried out before the end of the project. The qualitative analysis of the results of the LIFE-ADVICLIM project is in progress and will be finalized within the framework of the Life-After Communication Plan.

However, as a result of the strong interest of the international wine profession in the deliverable "Adapting viticulture to climate change", a qualitative survey entitled "Understanding the perceptions and attitudes of winegrowers to adapt to climate change" was conducted among stakeholders and winegrowers in each project partner country. The objective of this study was to explore the current and future state of the wine sector in a changing climate environment, in order to assess the perceptions and adaptation capacities of winegrowers and stakeholders involved. As the main international wine organisations were interested in this study, we decided to carry it out in the main wine producing countries of the world. The survey was therefore conducted by Etienne Neethling (ESA/INRA) in 27 wine-producing countries and yielded more than 3,750 responses, including 1,825 in the partner countries of the LIFE-ADVICLIM project. The results of this survey will help to achieve the guidelines of the International Resolutions (OIV) for the adaptation of viticulture to climate change.

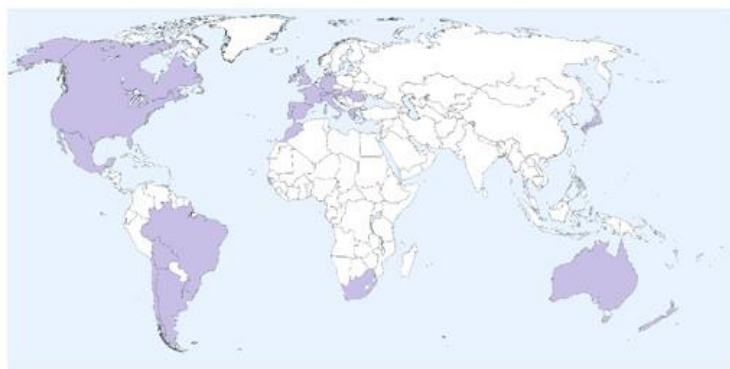
# UNDERSTANDING WINEGROWERS' PERCEPTIONS AND ADAPTATION ATTITUDES TO CLIMATE CHANGE

This qualitative analysis was conducted by sending a survey to stakeholders and winegrowers in the different wine-producing countries. One of the objectives of this survey was to provide a qualitative analysis of the methods of adaptation to climate change defined in Action B1. This analysis was conducted in the countries and regions of the ADVICLIM project pilot sites (except in Romania because of insufficient answers to the questionnaire). Then, this analysis was extended to other wine producing countries within the framework of the collaboration with the International Organisation of Vine and Wine (OIV). This study is an example of transferability and replicability of the LIFE-ADVICLIM project.

The results are currently being analysed. The first analyses are presented below.

## **Explore the current and future state of the wine sector in the context of climate change**

Assessing perceptions and adaptations in 27 wine producing countries  
Timeline : June 1, 2019 to May 31, 2020



<http://www.adviclim.eu/fr/>

The survey begins with general information on viticulture in the country where the winegrower surveyed resides. After a general analysis of the current climate and future climate change, the questionnaire discusses the adaptation methods envisaged according to climate change scenarios, cultivation practices and local climate variability.

Figure 1 shows the distribution of the number of survey responses by country. Except for 4 countries (Romania, Mexico, Brazil and Uruguay), the number of respondents is sufficient for a qualitative statistical analysis.

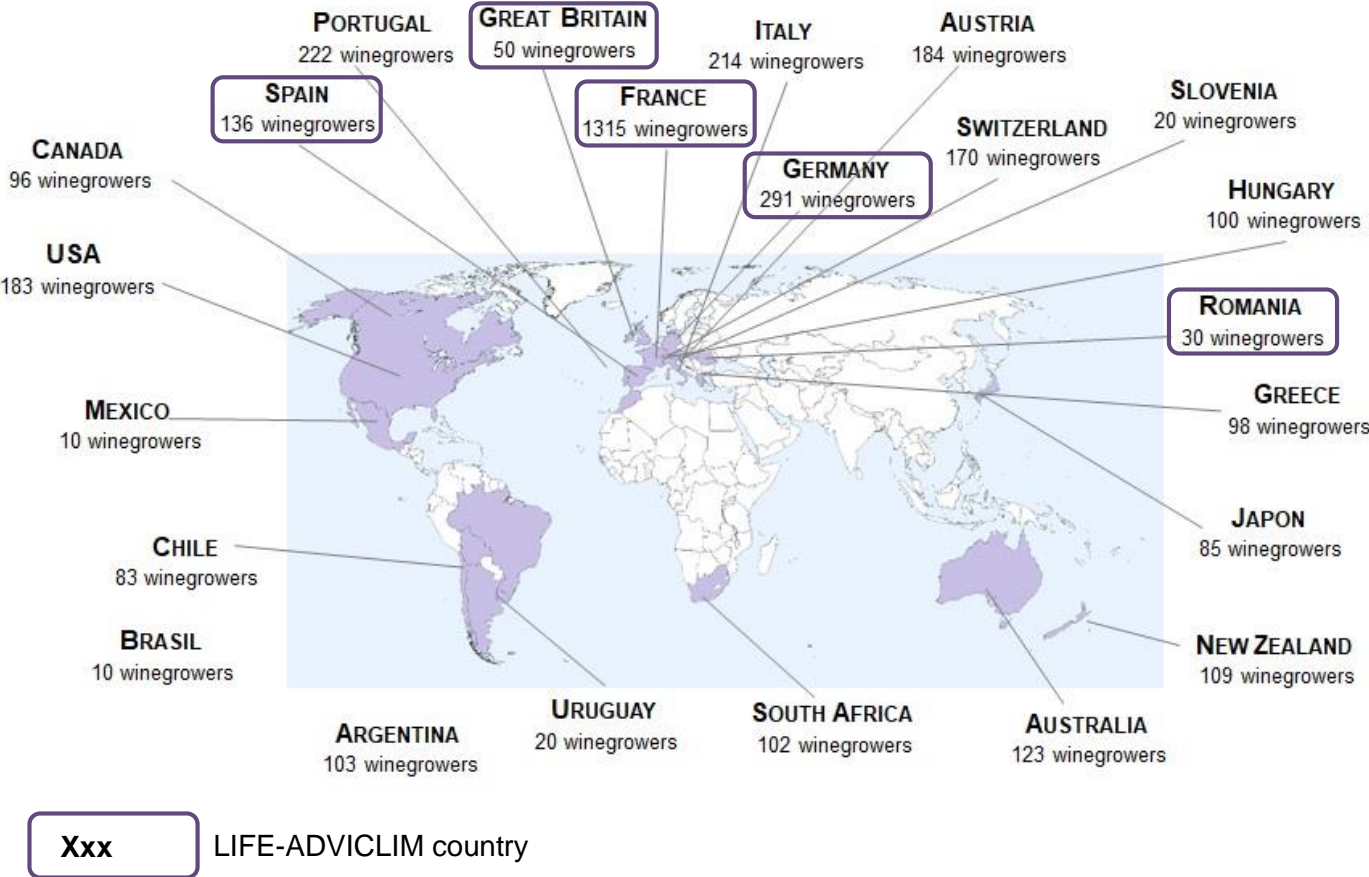


Figure 1: Number of survey responses by country.



Figure 2a and 2b shows the perception of current and future climate change by winegrowers in different countries. The most winegrowers have noticed climate change over the last two to three decades. Most winegrowers believe that the climate will continue to change.

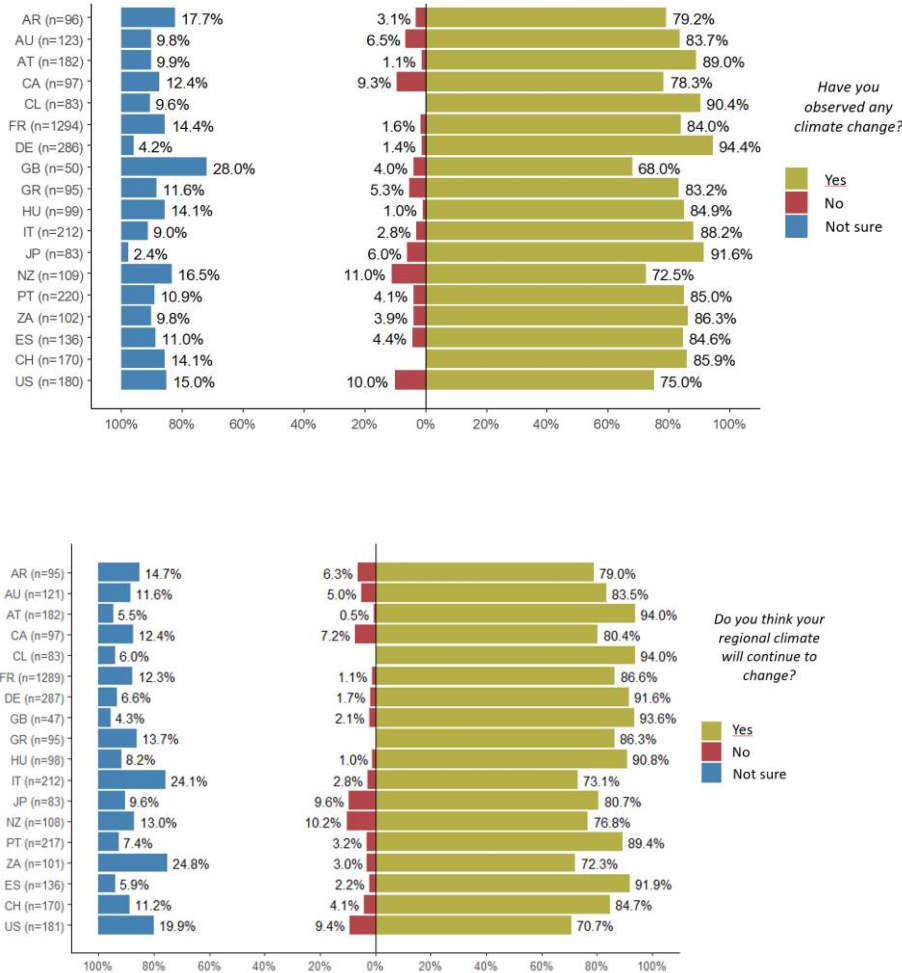


Figure 2: Perception of current (a) and future (b) climate change (%)

Figure 3 shows the perception of the effects of climate change on vines and wine. The majority of winegrowers observe an advance in the phenological stages (except in Canada). The majority of winegrowers observe negative effects on yields except in the United Kingdom. The majority of winegrowers observe an increase in sugar levels (except in Canada, Japan, New Zealand, South Africa and USA). The impact on diseases is perceived differently in each country. All countries believe that climate change has an impact on disease (except Argentina). The percentage with an increase in diseases is higher in countries with a cool and humid climate.

	AR	AU	AT	CA	CL	FR	DE	GB	GR	HU	IT	JP	NZ	PT	ZA	ES	CH	US
No	12%	7%	7%	28%	8%	5%	2%	21%	8%	2%	9%	21%	15%	6%	14%	1%	7%	26%
Yes, late phenology	26%	12%	3%	36%	8%	10%	5%	6%	27%	6%	13%	1%	12%	10%	19%	11%	4%	19%
Yes, early phenology	<b>62%</b>	<b>81%</b>	<b>90%</b>	37%	<b>84%</b>	<b>84%</b>	<b>93%</b>	<b>73%</b>	<b>66%</b>	<b>92%</b>	<b>78%</b>	<b>78%</b>	<b>73%</b>	<b>84%</b>	<b>67%</b>	<b>88%</b>	<b>89%</b>	<b>55%</b>

a) phenology

	AR	AU	AT	CA	CL	FR	DE	GB	GR	HU	IT	JP	NZ	PT	ZA	ES	CH	US
No	28%	32%	<b>53%</b>	49%	12%	29%	37%	27%	43%	<b>55%</b>	40%	<b>64%</b>	<b>55%</b>	28%	15%	33%	<b>50%</b>	48%
Yes, lower yield	<b>64%</b>	<b>64%</b>	42%	38%	<b>81%</b>	<b>61%</b>	<b>55%</b>	6%	<b>51%</b>	38%	<b>57%</b>	32%	25%	<b>65%</b>	<b>82%</b>	<b>62%</b>	42%	27%
Yes, higher yield	8%	4%	5%	13%	7%	10%	8%	<b>67%</b>	6%	7%	3%	4%	21%	6%	3%	5%	8%	25%

b) Yield

	AR	AU	AT	CA	CL	FR	DE	GB	GR	HU	IT	JP	NZ	PT	ZA	ES	CH	US
No	19%	23%	14%	31%	13%	7%	4%	15%	20%	13%	20%	47%	49%	18%	24%	4%	10%	31%
Yes, lower sugar content	20%	8%	1%	36%	11%	2%	2%	9%	15%	5%	14%	34%	10%	20%	27%	6%	3%	25%
Yes, higher sugar content	<b>61%</b>	<b>68%</b>	<b>84%</b>	33%	<b>76%</b>	<b>90%</b>	<b>94%</b>	<b>76%</b>	<b>65%</b>	<b>82%</b>	<b>66%</b>	18%	41%	<b>62%</b>	49%	<b>89%</b>	<b>87%</b>	44%

c) Maturity

	AR	AU	AT	CA	CL	FR	DE	GB	GR	HU	IT	JP	NZ	PT	ZA	ES	CH	US
No	<b>57%</b>	38%	45%	31%	43%	43%	42%	36%	28%	20%	36%	22%	18%	26%	33%	38%	43%	41%
Yes, less disease	20%	45%	28%	9%	24%	27%	23%	21%	9%	8%	15%	4%	8%	17%	24%	30%	14%	7%
Yes, more disease	23%	17%	27%	<b>60%</b>	33%	30%	34%	42%	<b>63%</b>	<b>71%</b>	49%	<b>74%</b>	<b>75%</b>	<b>57%</b>	43%	32%	43%	<b>52%</b>

d) Disease

Figure 3: Effects of climate change on vines and wine

Figure 4 shows the wine-making practices that have been ranked with the highest priority in each country in response to future climate change

Viticultural practices	
Disease management	CA GB GR JP NZ
Choice of grape variety	DE PT ZA CH
Clonal choice	
Harvest management	HU
Planting density	
Soil maintenance management	FR IT
Row orientation	
Pruning management	
Choice of the type of rootstock	
Vigour management	
Planting sites	AT ES US
Irrigation systems	AR AU CL

Figure 4: Effects of climate change on vines and wine

The complete analysis of this survey is ongoing and will be presented in the After Life Communication Plan.



With the contribution of the LIFE financial instrument of the European Union

<http://www.adviclim.eu/>

