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**Climate Change and Agricultural Insurance**

**In the Wine Industry**

**Republic of Argentina**

**Republic of Chile**

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## **INTRODUCTION**

Once again we meet the 27th International Conference AIDV 2012 to feel united in a common desire to be part of the changes in the world. Time, space, distances, people, cultures performed on an idea mother "Climate change and crop insurance in the wine industry", issue within the international agenda is of relevance in the times of which we live .

We have received a message, now we own it to decode, to feed and to bring you another reading and project it into reality. We are aware of the potential for us to share, the dimensions of our ability grow uncontrollably, multiply, and become to appreciate new values born of us. As participants of the congress know there stuff and temper the participants to treat the issue before us today.

In this paper, we will discuss Climate change and crop insurance in the wine industry in Argentina and the Republic of Chile, in both countries is the impact of climate change, the legal framework, and adaptation measures against the phenomenon for the wine sector.

## **Executive Summary**

The research consists of three chapters through which develops issue of climate change and crop insurance in the wine industry.

### **Chapter I**

This chapter develops the theme of the impact of climate change on the wine industry, refers to the section of the IPCC report and the Stern and adaptation to the phenomenon.

### **Chapter II**

This section develops the theme of the wine industry in Argentina, describes the wine regions, the legal framework regulating the industry, the wine market and finally agricultural insurance for the wine industry.

### **Chapter III**

This chapter develops the theme of the wine industry in the Republic of Chile, describes the wine regions of the country, the legal framework regulating the industry, the wine market and crop insurance for the wine industry.

## **Acronyms**

<b>CCC</b>	Understanding by weather contingencies
<b>CH4</b>	Methane
<b>CO2</b>	Carbon Dioxide
<b>INIA</b>	Institute of Agricultural Research - Republic of Chile-
<b>INV</b>	National Wine Institute - Argentina-
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>N2O</b>	Nitrogen Dioxide
<b>NGO</b>	Nongovernmental
<b>UNFCC</b>	Framework Convention on Climate Change of the United Nations

## **CHAPTER I**

### **Climate Change**

Frequent use of fossil fuels and changes in land use, are factors that have given and continue to emit greenhouse gases - GHG-into the atmosphere, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrogen dioxide ( N<sub>2</sub>O).

The increase of these gases has caused the increase in global temperature of the atmosphere, called greenhouse expanded, increasing the capacity of the atmosphere to retain the radiant energy. This energy is converted into heat causing the phenomenon known as global warming.

Climate characteristics are:

- Changes in behavior des storm formations and rainfall.
- Melting ice caps and glaciers, reduction in snow cover
- Rising temperatures and ocean acidity

The report of the 4th assessment of the Intergovernmental Panel on Climate Change (IPCC) has validated much of the responsibility falls on GHG emissions as a result of anthropogenic activity

It is estimated that by 2100, the increase in global average temperatures range from a minimum of 1.8 ° C and a maximum of 4 ° C.

The Stern report, notes that the regions of Latin America, will be the most vulnerable to this phenomenon, looking at reducing future water resources, changes in mean temperature and rainfall on agriculture, the melting of glaciers.

### **Impact of Climate Change in the Wine Industry**

The Framework Convention on Climate Change (UNFCCC) predicts that in the coming decades thousands of people particularly those living in developing countries will face impacts such as lack of water, food, health risks and life as a result of climate change. Depending on the results, produce climate change impacts on the environment and socio-economic sectors of the wine industry.

It is likely to produce the following effects:

- Changes of space in relation to the viability of a growth zone of a given variety and change in the composition of the varietal. The impact on identification with a specific terroir.

- Changes in chemical composition and organoleptic characteristics of the grapes and wine. In a warmer environment will accelerate the growth of the vine and therefore sugar levels, thus losing the balance of acidity then (low acid) because it will cause an elevation of the levels of alcohol.

When looking phenolic maturity and aromatic skin and seeds, the pulp will excessive industrial maturity. Some varieties of reds, may be altered in the synthesis of pigments (color) and phenols.

- Change in crop fenología. Be an increase of the phases of growth and maturation of the grapes.

- Changes in irrigation needs. Temperature increases can increase crop evapotranspiration demand, increasing irrigation needs in some cases (heat stress)

- Changes in the water regime. The retreat of glaciers and the subsequent modification of the flows, the possible increase in the availability of water in a shorter period than usual.

- Variations of the pressure of pests, diseases and weeds. Because decreasing the acidity (increasing the pH) will cause the risk of development of microorganisms and bacteria harmful to varietal.

- Changes in the cost structure and investment flows. Related investment flows associated with the public sector:

. Scaling up climate monitoring systems

. Improving public information network weather

. Information and improving climate models

. New strategies for locating vineyards and wineries

. Investment in the development of new vine varieties resistant to variations

weather.

- Changes in the country's GDP. GDP impacts depend on the speed that the vineyards have to adapt to climate change. Adaptation migration lie in vineyards, changes in the structure of production and technologies, with adequate training of the workforce. The participation of all sectors become more feasible adaptation with lower costs. Inactivity will entail an overall costs and risks of climate change to be equivalent to losing at least 5% of global GDP annually.

### **Climate Change Adaptation**

Adaptation to climate change is a process in which societies strengthen their ability to face an uncertain future. Adaptation to climate change is taking appropriate measures to reduce the negative effects of leveraging positive phenomenon.

The poorest countries are most vulnerable to this phenomenon, so it should be integrated development policy. International funding should support improved regional information on climate change impacts and to support the work of researchers on new crop varieties. The Latin America in a matter of adaptation is not fully developed, the lack of modern equipment, weather monitoring, makes it difficult to reliable forecasts. Stakeholders, governments, NGOs, sectoral chambers, private sector, should consider the concept of sustainable development as a framework.

### **Adaptation Measures for the Wine Sector**

The wine industry must adapt, be the responsibility of the private sector, public and shared between them.

The most important themes for adaptation are:

- Improved monitoring, consolidation of database and public access to information. The refinement of databases and improve climate models sector specific information as adaptation measures. The integration of meteorological, the topographic and soil aspects, monitoring of water resources will allow analyzing future environmental variability.

- Building capacity. Research and development of knowledge through scientific training. Collaboration with universities, colleges, business.

Further studies of the impact of climate change on the horizon Industry Vitivinícolas with 2100.

Collaboration between countries of the new and old world regarding how climate change affects the wine industry.

Increase training of professionals and scientists in climatology, climate change and viticulture through international exchange and participation in conferences.

- Formation of Public Policy

Mainstreaming adaptation actions within public planning strategies. Internalization of the theme of Climate Change and Viticulture, planning policies in general. Analysis of the regulation of the use of surface and ground water resources. Land use planning.

- Institutional Innovation

Institutions focused on the issue of climate change and viticulture. Review of the regulatory frameworks of irrigation and land use change versus Climate.

- Survey of the Public and private projects and programs intended for the wine industry.

- Workshops. Integration of work by the National Institutes agricultural research, agriculture etc secretariats.

- Extension of the study of climates and soils, climate scenarios to 2050/2100

- Emergence of new potential areas of vine cultivation, infrastructure design, Transport and logistics

Viticultural practices on wine production

In the area of primary production of wine, adaptation to climate change will be based on:

- Improved irrigation systems

- Ventilation of vines and the incorporation of new technologies

- Protection against hail
- Migration and varietal change
- Breeding climate resilient
- Improvement of phenological indicators for monitoring the achievement of optimum harvest
- Addition of anti-hail system with the implementation of the mesh hail

In the field of Industrial Production wine, adaptation to climate change will be based on.

- Changes in the cellar technology to reduce the alcohol content and / or sugar and balance the PH.
- Analysis of technologies such as computers osmosis to reduce the content of Sugar.

Case adaptation measures to climate change in the Republic of Argentina and Chile

In both countries there are actions to prepare for possible changes in climate, related to the wine industry.

- Training on climate change for small wine producers

The National Wine Institute (INV) of Argentina is conducting computer presentations on climate change phenomenon, designed to the wine industry in general. The purpose of these presentations is to inform and channel the interest and awareness of the wine industry to climate change. At the same time, it seeks to give relevance to the carbon footprint in relation to the wine sector.

- Determination of the carbon footprint of agricultural production

The Republic of Chile, has a carbon footprint project of agricultural export products which aims to measure the volume of greenhouse gases that are generated during cultivation, transport packaging and fate of fruits, vegetables and cereals, within items involved are table grapes and wines.

- Provincial Agency climate change

In Argentina, the Climate Change Agency of the Province of Mendoza, the most important wine production is the first of its kind in the country. The aim of the organization is the networking between the scientific world and the productive sector, to agree later public policies related to climate change.

- Adapting to climate change

In the Republic of Chile, the National Agricultural Research Institute (INIA), under the Ministry of Agriculture, carried out a series of programs of study, such as the Breeding Program for the development of agricultural and forest varieties adaptable wing climate change between which is the grapevine.

## CHAPTER II

### WINE INDUSTRY IN ARGENTINA

The wine region in Argentina, is located between 22 ° and 42 ° south latitude. It stretches along the Andes comprising 2400 km from the province of Salta to the province of Chubut.

#### Wine Regions

The wine region in Argentina consists of:

- . Central Region - West (Mendoza and San Juan)
- . Northwest Region (Salta, La Rioja, Catamarca and Tucumán)
- . Southern Region (Neuquén, Chubut and River Black)



## West – West Region

The Central West Region, is subdivided into seven subregions with outstanding Mendoza, San Juan and Uco Valley



Mendoza, is the center of Argentina's wine industry, viticulture agglomerates around the mountain rivers. This region has a fine soil of alluvial features, rocky and sandy. The strains are the most planted white, Chenin Blanc, Rioja Torrontés, Chardonnay, Riesling and Sauvignon Blanc, among many. And the inks, Malbec, Cabernet Sauvignon, Merlot, Syrah, Pinot Noir, Barbera, Sangiovese, Tempranillo and Bonarda, among others.

San Juan, is located on both sides of the river of the same name, located in soils Left Bank are stony and partly covered with clay and sand, suitable for growing grapes. Those located on the right bank of great fertility are generally sandy, clayey and shallow. The predominant variety is pink, cherry, white and between plantings followed in the varieties Moscatel de Alexandria and Torrontes Riojano Pedro Gimenez.

Uco Valley, located south west of the city of Mendoza, cultivated land covers departments Tunuyán, Tupungato and San Carlos, on the Andean foothills. This area is dominated by red varieties include: Malbec, Tempranillo, Barbera, Merlot, Cabernet Sauvignon, Sangiovese and Bonarda. And among white for wine are Semillon (mainly in Tupungato) Riojano Torrontes, Pedro Gimenez, Chardonnay and Chenin.

## **Northwest Region,**

The Northwest Region is comprised of four sub-regions, among which Salta, Catamarca and La Rioja.



Salta, in the province of Salta stands Calchaquíes Valley and the town of Cafayate, is the most important region for the production of wine, which has the highest vineyards in the world (1,700 m), with a loamy deep sandy, gravel and loose stones. The Rioja Torrontés is the flagship grape, followed by Chardonnay, Chenin and Cabernet Sauvignon.

Catamarca, has deep, sandy loam or silt, where the cherry variety has a predominance generally accompanied lesser amount of Torrontés Riojano, Bonarda and Muscat of Alexandria.

La Rioja, has alluvial soils with loamy to sandy frankly, and consists of small valleys, between the Sierra de Velasco and Famatina. The ultimate strain of the area is the Rioja Torrontés.

## **Southern Region**

The South region is the country's southernmost province of Black River is the most outstanding in the wine industry



Black River, is the most important wine-growing area in the southern region. Due to climatic conditions this sub-region is very suitable for viticulture. In the region grows inks Malbec, Merlot, Syrah, Pinot Noir, Cabernet Sauvignon and Bonarda, and Torrontés White Rioja, Pedro Gimenez, Semillon, Sanjuanino Torrontés, Sauvignon Blanc, Chenin Torrontes Mendocino and

## **LEGAL FRAMEWORK**

### **LAW OF WINES**

The production, trade and wine industry in the territory of the Nation are subject to the provisions of the General Law No. 14,870 Wines and regulations, enacted on October 23, 1959 and promulgated on November 6, 1989.

The law in its Article 2, creates the National Wine Institute, linked to the executive branch through the Ministry of Economy, with autarky technical, functional and financial, and jurisdiction over the entire territory of the nation, as competent to hear the promotion and technical control of production, the wine industry and commerce.

The National Wine Institute will be a public institution, able to act privately and publicly, in accordance with the general and special laws of the nation and the regulations that govern it.

The legal body, established in articles of different categories of wines, oenological practices lawful and transitional provisions.

### **NATIONAL LAW ALCOHOLS**

The Act provides in its articles 24 566, Matter. Jurisdiction. Competition. Financing. Industrialization. Production, Circulation, Marketing Division and alcohols. Enrollment and Registration. Control. Offences, Crime and Punishment. Administrative procedures and remedies. Transitory Provisions.

The law was enacted on September 20, 1995 and promulgated: October 10, 1995.

### **LAW WINES AND SPIRITS OF WINE**

Law 25.163, establishes a framework for the description and presentation of wines and spirits from wine of Argentina. Origin and geographical indication. Aoc. Protection of IP, IG and DOC - Scope and obligations. Rights. Enforcement authority. National Council for the designation of origin of wines and spirits in nature vinous. Violations and penalties. Additional provisions.

The Act was enacted on September 15, 1999 and promulgated on October 6, 1999.

### **REGULATIONS**

Oenological practices lawful and regulatory resolutions

The standard establishes lawful oenological practices.

### **ANALYTICAL TOLERANCE AND STATUTORY RESOLUTIONS**

The standard sets the parameter limit and analytical tolerances.

### **CODING**

The rule states Container Code, Product Code, Country Code and the Code of grape varieties.

### **WINE MARKET**

The Argentine wine industry underwent profound changes since the 90s. The changes are related to the greater openness of Argentina, with the processes of transnationalization of companies, which led to the investment of foreign capital and technology innovation in the wine sector.

With respect to the varieties, Argentina is one of the most diverse countries in vitífera varietal offering. The climate and soil conditions have enabled the adaptation of the different varieties of grapes, red grape malbec is the most cultivated and most characteristic of the country.

The area cultivated according to data from 2011 is 217,750 hectares, 8.3% in 2000 and the number of processors is 952 wineries.

As grape harvests registered to May 2012 was 2238 million kilos, winemaking month of May 2012 was 1,137 million liters.

Domestic consumption in January / April 2012 was 281.9 million liters of wine exports and January / April 2012 was 116.5 million liters per U \$ S 277,600,000.

The province of Mendoza accounts for 70.8% of the country's cultivated hectares, followed by the province of San Juan with 21.7%, the province of La Rioja to 5.8%, the province of Catamarca in with 5.1%, Black River Province with 1.3%, the province of Salta to 0.98% and the province of Córdoba 0.54%.

The red grapes account for 47.6% of the national hectares, while 23.7% white and 28.6% pink.

Malbec represents 14.2% of total national acres. With respect to 2000, the growth of this strain was 89.9%.

Moreover, the National Institute of Agricultural Technology (INTA) and the University Mace, began experimenting in the finca, entrepreneurship Uco Valley Mendoza, developing high quality wines with herbs planted vines. Work began on surplus substances arising from the heat and stick to the wax layer around the grape, the bloom. The aromatic exalt the natural conditions that grape genotype their DNA.

## **AGRICULTURAL INSURANCE IN THE WINE INDUSTRY**

The Risk Management Program Agricultural Mendoza develops over compensation system Contingencies Climate (CCC), developed with the participation of the ORA and other agencies of the national administration. For the CCC provincial government hires a collective farm insurance beneficiaries designated Mendoza producers to complement active defense program and a loan scheme to fund the placement of mesh hail.

## Program Features

- It began with the campaign of 2004, and since then it expands coverage and the number of producers.
- Intervention of six insurance companies in the form of coinsurance (Sancor, Second, San Cristobal, Mapfre, Mercantil Andina and Triumph).
- Support international reinsurance assumed more than 70% of the risk.
- 100% coverage subsidized by the province, to a fixed amount (originally \$ 550 per ha.)
- Covers up to 50 hectares producers.
- Part of a program of active defense (monitoring storms and cloud seeding) and supplemented with credit scheme to finance the placement of mesh hail.
- Covers hail damage in cultured vine, olive and fruit trees.
- To access compensation, the total damage in a farm must exceed 50%.
- Currently the system achieves more than 90% of the crops in the province covers the risk of hail in grapes, olives, fruit and vegetables of summer, for all strata of producers, and the risk of late frosts to producers horticultural less than 10 hectares. Also fixed a scale of compensatory damages differentiated by farm size of less than 5 to more than 50 hectares.
- Sum insured, began in U \$ S 190 p / ha. without discriminating farm size, until last season to U \$ S 480 for up to 5 hectares producers., with a sum insured by decreasing surface layer.
- Offer complementary private coverage, particularly by hiring producer.

Moreover, the insurance company Mapfre Argentina, launched a comprehensive product Wineries. The insurance covers damage by accident or spill wine and other liquids in buildings, containers, equipment, raw materials. Also covers the transfer of wine in bottles and / or bulk. Coverage can be completed with temporary guarantees if the operation requires.

## CHAPTER III

### VITIVINICOLA INDUSTRY IN THE REPUBLIC OF CHILE

The wine industry in the Republic of Chile, is located in a vast area stretching from the Atacama region in the 26 ° south latitude to the Valley Malleco Araucania region in the 39 ° S latitude, with the highest area plantations in the region of Maule.

#### Wine Regions

The wine regions, according to Chile's viticultural zoning, within which are the valleys and production areas are:

- . Coquimbo Region: Elqui Valley, Limarí and Choapa
- . Aconcagua Region: Valleys Aconcagua, Casablanca and San Antonio
- . Central Valley Region: Maipo Valley, Cachapoal, Colchagua, Curico and Maule
- . South Region: Valleys of Itata, Bio Bio and Malleco



### **Elqui Valley**

The Elqui Valley is the northernmost region of the Republic of Chile, is located south of the Atacama Desert. The valley is characterized by cristatinos valleys, with a long dry season growing:



The temperatures are very low on the coast and warmer inside. Registration annual rainfall is 70 mm., With no risk of frost.

In the region grows Cabernet Sauvignon, Chardonnay, Syrah, Merlot, Carmenere, Sauvignon Blanc.

### **Limarí and Choapa Valley**

The region's grape production started in the 90s and since then has outstanding production of fine wines. Registration rainfall of 94 mm per year with no frost risk.



The combination of cool weather from the coast and calcium deposits in the ground with sharp edges allows the production of white wine.

The rocky foothills Choapa Valley produces large quantities of red wine with high acidity. The varieties grown in this region are Cabernet Sauvignon, Chardonnay, Syrah, Merlot, Pinot Noir.

### **Acongagua Valley**

The region is characterized by high Aconcagua peak which rises to 23,000 feet above sea level. Red grapes have been grown for 150 years, recent exploration has resulted in new biodynamic vineyards.



Rainfall records indicate annual rainfall of 214 mm, with a risk of frost 8%.

The varieties grown in the region are: Cabernet Sauvignon, Merlot, Syrah, Carmenere, Chardonnay, Sauvignon Blanc.

### **Casablanca Valley**

Casablanca Valley, has planted 4,100 hectares. In the morning, thick fog covers, creating a cool climate in the region.



The record annual rainfall is 542mm and a risk of frost 20%. The varieties planted in the area are Chardonnay, Sauvignon Blanc, Merlot, Pinot Noir, Carmenere, Syrah

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### **San Antonio Valley**

San Antonio is one of the major port cities of Chile, is a new wine region within the map, as the proximity to the sea was a challenge to the conditions required by the sector



The technologies have lead to excellent wines with high natural acidity and an attractive mineral character. Registration annual rainfall is 350 mm, with a risk of frost 20%. The varieties grown in the region are: Chardonnay, Sauvignon Blanc, Pinot Noir, Merlot, Syrah, Gewürztraminer.

### **Maipo Valley**

In the Maipo Valley, the Cabernet is the most representative with over 60% of the 10,800 hectares of the valley below. The climate temperature extremes between day and night, allowing the grapes to ripen slowly and develop an excellent balance of exquisite flavors, hard tannins color depth t.

The Maipo Valley high-end production dates from the 19th century, most of the premium Chilean wines come from this region.



The record rainfall is 313 mm per year, with a risk of frost 26%. The most important varieties planted are: Merlot, Cabernet Sauvignon, Chardonnay, Camenere, Sauvignon Blanc, Syrah, Malbec.

### **Cachapoal Valley**

The region is divided into two zones viticultural area of western Peumo around is great for the variety of Cachapoal Camanere and is known for the production of fine wines.



Registration annual rainfall is 340 mm and the risk of frost is 32%. The most important varieties planted are Cabernet Sauvignon, Merlot, Camenere, Chardonnay, Sauvignon

Blanc, Syrah.

### **Colchagua Valley**

It is the southernmost region, with an outstanding production of red wines. Most wineries follow the narrow east and west of the river running through the mountains. Newer plantations are located in the valley of the Andes, Alto Colchagua



Records of rainfall is 592 mm and a frost risk by 33%. The most important varieties planted are Cabernet Sauvignon, Merlot, Carmenere, Chadonnay, Syrah, Cabernet Franc, Malbec, Viognier.

### **Curico Valley**

Curico Valley is one of the main industries in the area with more than 19,000 hectares of vines planted, Chile is the region that produces more wine



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### **Curico Valley**

Curico Valley is one of the main industries in the area with more than 19,000 hectares of vines planted, Chile is the region that produces more wine



Registration annual rainfall is 702 mm with a risk of frost 43%. The most outstanding varieties planted are Cabernet Sauvignon, Merlot, Chardonnay, Carmenere, Cabernet Franc.

### **Maule Valley**

The Maule Valley region dates back centuries, with characteristic thick trunks occur in the region of high quality wines. The varieties grown in valley and have excellent natural acidity.



Records of rainfall is 1107 mm, with a risk of frost of 21%. The most important varieties planted are: Moscazo of Alexandria, Country, Suvignon Cabernet, Semillon.

### **Bio Bio and Malleco Valley**

The region is 400 miles from the city of Santiago de Chile, the area is characterized by winds and extreme temperatures.



The records of annual rainfall is 1276mm, with a risk of frost 64%. The most important varieties planted are: Country, Cabernet Sauvignon, Chardonnay, Sauvignon Blanc, Riesling.

### **LEGAL FRAMEWORK**

Law No. 18,455 and its regulations, sets the standards for production, processing and marketing of ethyl alcohol, alcoholic beverages and vinegars. The Act was published in the Official Gazette on November 11, 1985. Agriculture Decree No. 464 of December 14, 1994, which establishes the zoning wine and sets standards for use. Published in the Official Gazette on May 20, 1995. Agriculture Decree No. 521 of December 30, 1995, fixed the rules of origin denomination pisco. Published in the Official Gazette on May 27, 2000.

### **WINE MARKET**

Some varieties of vines in Chile, called the Spanish, correspond to the variety known as country or mission that quickly adapted to the local soil conditions and still populates the fields of the central area, representing 13.6% of the surface of various varieties planted and consumers, both domestic and foreign markets. These varieties have large vineyards and have been pioneers in the opening and expansion of the export market. They have significant levels of production and sales, and are major players in the domestic and foreign markets. In recent decades, have emerged boutique vineyards, medium sized export-oriented fine wine, with great capacity for innovation, where a significant percentage of older stems

producing fine grapes that became independent, forming high-tech wineries come to compete aggressively on trade.

The area planted with vines reached 182,661 hectares (ha), with 117,559 hectares for winemaking, 55,119 ha for table grapes and 9982 ha for development of pisco. Wine exports in 2008 suffered a slight overall decline of 3.5% compared to the previous year, although the trend is increasing plantings. The overseas sales volume was 5,885,130 hectoliters, valued at 1,375,837,000 dollars. While bottled wine exports saw a rise in both export volume and price, bulk wine exported was less, but with a higher price. The average prices of bottled wine exports rose from U.S. \$ 3.06 / liter to U.S. \$ 3.22 / liter. The bulk wine, meanwhile was up 21 cents from U.S. \$ 0.54 to U.S. \$ 0.75 / liter. The Chilean industry is mainly oriented to the production of red wine, especially Cabernet Sauvignon and Merlot. Strains and varieties Carmenere and Syrah are relatively new in the país. Estas four varieties grown in importance in recent years, especially Carménère since totally disappeared in Europe due to wars and plagues, and currently is a classic Chilean brand .

The national wine production in 2009 was 8,682,970.00 hectoliters. Most wine production in Chile is located in the valleys of the Central Valley region, with a total of 93.2% of the total, accounting for 48.6% of all wine produced in the country in the region of Maule . In terms of production compared to the strains, the Cabernet Sauvignon reached 40.9% of total production of wine with designation of origin, followed by Sauvignon Blanc with 14.1%, with 13.2% Merlot, Chardonnay with 9.3%, with 9.2% Carmenere and Syrah with 4.5%.

The musts production in 2008 reached a value of 300 586 hectoliters, 45% lower than in 2007. In terms of regional distribution, 45% of the production is concentrated in the Maule Valley.

## **AGRICULTURAL INSURANCE**

The insurance market in the Republic of Chile has a contract of insurance that covers all risks of Viñas de Chile prepared by Chubb General Insurance Company SA The insurance contract includes clauses of special coverage for covered vineyards which

are:

Loss of grapes harvested unprocessed or not

Loss of grape must or wine in transit

-Care expenses and restocking

-Filtration, contamination of wine, broken pots

#### Deductibles

Quake 2% of the insured amount, minimum 50 UF insured event and location.

Failure of machines 10% with a minimum loss of UF 30 in each and every loss

Other risks covered UF 15 in each and every loss

Terrorist 10% with minimal loss of UF 250 each and every loss

Special coverage for UF 100 vines in each and every loss

## **CONCLUSION**

Research carried out in this study on the effects of climate change on the wine industry, allows us to conclude that climate change is perceived as a threat to the future of the wine industry, causing negative impacts on primary production. The most important themes for the adaptation to the stage 2050/2100, are summarized in the application of anti-hail nets, improved monitoring, database consolidation, science, research and development of scientific, quality weather reports included early warning systems and crop insurance as a risk transfer instruments. In Argentina, the insurance market provides a product made by a pool of insurers in conjunction with the government of the province of Mendoza, but not yet installed the insurance awareness among producers. Different picture is seen in the Republic of Chile, where the insurer Chubb has a specific product for all risk of vineyards, with a contract for the sector coverage.

In this framework at the conference of the American Association for the Development of Agricultural Insurance (ALASA) held in Quebec, Munich Re conducted a workshop looking to answer the question how a sustainable agricultural insurance system can adapt to the needs of countries Southern Cone.? It was the conclusion that all risks should be shared between the government, the insurance industry and farmers.

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