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Mirescu, Livia; Ciotec, Alexandra Cristina

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# ROMANIAN WINE SECTOR IN THE CONTEXT OF CLIMATE CHANGE

**MIRESCU LIVIA[1], CIOTEC ALEXANDRA CRISTINA[2]**

**Abstract**
*Climate change is one of the major challenges of our century - a complex area in which to improve our knowledge and understanding to take immediate measures to effectively address and correct, in terms of the challenges of climate change, respecting precautionary principle. (Romanian National Strategy on Climate Change). In this paper we discussed the main issues facing the wine and measures to mitigate possible negative effects.*

**Key words:** *Viticulture, Climate changes, Agriculture, Food safety*

## INTRODUCTION

Climate change – and their impact on the way in which we produce and consume – are becoming increasingly at the Centre of sustainable development policy. They are therefore at the Centre of regional development, representing an unprecedented challenge, but also an opportunity for the European regions in terms of their ability to innovate and create new jobs [10, 11].

During the last century, the average temperature in Europe has increased to 0.95 ° C warming which meant a more accelerated than the global average of outer space, which was 0.4 ° C. Climatic conditions have become much more variable. Economic losses caused by weather-related disasters have increased substantially in recent decades [16].

In fact, climate change poses a double challenge: how might reduce the emission of gases responsible for global warming, and how it can adapt to present and future climate change [7].

## MATERIAL AND METHOD

The Intergovernmental Group of experts on the evolution of Climate – the GIEC (Intergovernmental Panel on Climate Change-IPCC) in its fourth assessment report (2007) presented the schematic of the factors responsible for the formation of antropogeni climate change effects and responses to climate change and the links between them. This scheme is actually a framework for research relating to climate change. Connections on the schema (clockwise) provides information on the assessment of climate change and the effects thereof. For the purposes of vice versa it is estimated that the possible development paths and global constraints on emissions which would reduce the risk of future effects that society would like to avoid them [17].

Considering its dependence on climatic conditions, agriculture remains, without indoaiala, the most vulnerable sector of the economy than climate change. Climate instability is one of the main causes of unstable harvests, representing a risk for agriculture ţăriii. Moreover, the disastrous condition of agriculture is determined and a series of macroeconomic and structural changes. Among these factors are the most important: increasing the share of Agriculture of subsistence agriculture to commercial, agricultural subsidising inefficient, lack of capital investment, excessive fragmentation of agricultural land and destroyed the irrigation system.

As shown in recent research in the field of climate change, these phenomena are largely associated with global warming. In Romania, the extreme temperatures have affected, primarily rural areas, where the majority of the inhabitants practiced agriculture least productive and almost entirely dependent on climatic conditions.

Subsistence agriculture combined with limited access to markets is not a productive model for future perspective in modern society, integrated in the european context. In addition, the specific effects of climate change are all subsistence farming less feasible.

[1] PhD student, Academy of Economic Studies Bucharest, livia_mir@yahoo.com
[2] PhD student, Academy of Economic Studies Bucharest

The biggest impact of climate change on agriculture will come through the water. Climate change may cause a decrease in the availability of many parts of Europe as a result of the reduction in the amount of rainfall during the various areas – mainly in the South and in parts of Central Europe. In Western Europe and Atlantic regions, the summers are likely to be dry and warmer, with reduced water resources during this season. Many EU countries, especially in southern States, have practiced irrigation of hundred years-that being part of the tradition, but this sector will need revisions of irrigation technique in light of climate change. For more regions may be necessary to increase irrigated area to ensure a continuous production. But there is no doubt that agriculture must make further efforts to improve the efficiency of water use to reduce losses, and irrigation plans will have to be based on a careful planning and detailed assessment of their impact [6].

## RESULTS AND DISCUTIONS

The impact of climate change on cultivation of vines is an issue of major importance for researchers from different fields. These climate changes concern the greatest specialists in viticulture, given the fact that the vineyards producing high-quality wines are extremely sensitive to any change in the pedo-climatic conditions. An important issue to be considered is that relating to the possibility of human adaptation to climate change. In regions with a strong tradition of vine growing, people could watch the substantial reluctance for any suggestion to replace the traditional varieties of vines or moving them to areas more suitable for the climate.

Global temperature increase due to a series of changes in electing of vine varieties resistant to prolonged drought conditions. In addition, the provision of additional quantities of water for keeping moisture in the soil is required. The introduction of special techniques of land management should be taken if the heating observed trends will remain. The possible proliferation of diseases and pests as a result of maintaining high temperatures is another unknown to be taken into account when choosing varieties of vine. Given that global warming affects the normal conduct of vine at continental and regional level should be a re-evaluation of the use of land in these areas on the basis of a detailed study pedo-climatic features, and implementation of a viable strategy-growing in front of future climate change.

Effects of temperature on the growth of vines led to bringing the right moment for blossom, as well as shortening the duration of these phases of vegetative development. At the same time, it was found and a trend of forced ripening of the grapes, which are undesirable repercussions on the quantitative and qualitative production of vine. Maturation of the grapes is triggered suddenly, with repercussions on the process of growth has grains characteristic of each variety in size and thus the decline in yields in the mash, because they lack the turgidity of grains.

The excessively high temperatures, coupled with prolonged drought and atmospheric pedologic, varieties have tended to get very early in “pârgă” (late July-early august), a phenomenon caused by very high temperatures of the air and of the extreme values that exceed 30 ° C frequently. The phenomenon is accentuated when there is scarcity and hydric.

At the beginning of forced ripening red varieties are manifested by the grains before they reach the size of typical of the variety. If hydric deficit in the short term, it slows the restore and colorize the beans continues increasing. Otherwise, the grapes, the leaves are fading partially or totally dry and fall one by one, the grape production is thus make Spiramycin less dramatically. The present severe burns with foliar appearance of dryness, which affects the major process of photosynthesis and accumulation of the active substances that encourage the maturation of the grapes.

## CONCLUSIONS

In recent years, there is a tendency to decrease in rainfall regime. Also, there is an uneven distribution of rainfall throughout the year with dry intervals within short periods with heavy rains and, often, a downpour. Although vines has a great capacity for adaptation to extreme conditions (excess or shortage of water) in the dry, they disturb the plant and main physiological processes.

Water scarcity has severe effects, and when it is accompanied by high temperatures, causing the closure of stomatelor, reducing spraying area, wilting of tendrils and leaves and even premature drying, changing the color of the leaves, vegetative downturn.

High concentrations of CO2 in association with extremely high temperatures during the period of flowering, may in fact lead to an opposite effect. Also, although the increase productivity, high concentrations of CO2 results in a lower quality of crops. The high temperatures associated with a low level of rainfall increases the concentration of sugar in grapes, but at the same time, reduced productivity overall, net result being very little predictable.

Possible measures that could be taken to counter the effects of climate change are [6]:

- improving weather forecasting ability, protection of soil fertility, irrigation systems, efficient use of rainfall through the application of management measures that preserve the water in the soil during drought;
- harnessing the potential of soils under climate conditions characteristic of the area;
- limiting the use of chemical treatments;
- a new focus on varietal structure and species with high tolerance to high temperatures and stress generated by water shortages hydric;
- the adaptation of technologies of cultivation to the effects of climate change;
- fenoclimatic simulation of damage in vineyards wine under the action of climate change, in order to determine the probability of the occurrence of the damage precisely;
- whereas the technology of planting and upkeep the vineyards young with heat stress and hydric over 50% may occur, requiring irrigation goals.

According to the study prepared by Metroeconomica (2004), the estimate of the economic impact of climate change and global value benefit of adaptation strategies must be carried out according to the scheme shown below.

**Figure 1 Scheme of economic estimation of climate change and of global value benefit of adaptation strategies**

| **Economic value estimation of climate change impact** | **Global value benefict estimation of adaptation strategy** |
|---|---|
| Economic value of climate change impact (value units) | Global value benefit of adaptation strategy (value units) |
| = | = |
| Estimated impact of climate change (phisycal units) | Effciency of adaptation strategy in attenuation of receptor exposure at climate change risks (phisycal units) |
| X | X |
| Economic value on impact unit (value units on pshysical unit) | Economic value on deviated impact unit (value units on pshysical unit) |

Source: MetroEconomica 2004 8-9

Global warming could have a remarkable influence on the vineyards producing high quality wines for the cultivation of vines. Northern vineyards, this will be a beneficial warming, while the southern part it will be disadvantageous because the climate too hot [18].

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