ORGANIC FARMING AND CLIMATIC CHANGE

AGRICULTURA ECOLOGICĂ ŞI SCHIMBĂRILE CLIMATICE

FLORENTINA SIMONA BARBU[1], EVA IULIANA BĂRA[1]

[1]"Aurel Vlaicu" University of Arad, Facultaty of Economics, Arad, Romania;
flore_sabau@yahoo.com

Abstract: *Day by day we can see nature systematicly fighting back, in a way that is more and more agressive(11th of March 2011, The 8.9 degree on the Richter Scale earthquake in Japan followed by a 10 meter tsunami). Probably the most serious issue is the global enviromental crisis: we can see Earth's ecosystem as it becomes unstable, with the risk of triggering non-linear, abrupt, large scale, even planetary enviromental changes. There are numerous research that show that ecosystem parameters: climate related, biodiversity and global nitrogen cycle, have gone over the safety thresholds. These values are fueled by many sources among wich we can find farming as well.*

Key words*: climatic change, organic farming, value, promotion*

INTRODUCTION

A great number of scientists believe that global warming is due to rising concentrations of greenhouse effect gases, generated by human activites.

The agricultural sector has its share of pollution, due to conventional farming practices. The alternative offered by researchers for the agricultural sector, organic production is responsible for EU policy objectives, it can and will contribute to the overall EU 2020 strategy for a smart, sustainable and inclusive growth towards a greener, more resource-efficient and more competitive economy. It will also contribute to the EU's Sustainable Development Strategy. [*]

[*] IFOAM EU GROUP, (2010), *Shaping Agriculture and Food Systems to Future Challenges- The Strategic Role of Organic Food and Farming,* Recommendations to the new European Commission and the European Parliament for a coherent framework of policies to support organic food and farming, Edited and published by IFOAM EU GROUP, BRUSSELS, 2010, p. , aviable at: www.ifoam-eu.org

MATERIALS AND METHODS

The Intergovernmental Commitee on Climate Change, a body of the UN which reunites hundreds of experts on climate change, estimates that ***until 2100, the average temperature of the planet will rise by ,8°C - 4°C , in the worst scenario it will rise by 6,4°C*** – if no measures is taken to limit the emission of greenhouse gases. Models foresee that the average global temperature will rise and it will come with a set of random changes(both temporal and geographical), in the rainfall model(Mendelsohn and Williams, 2006).

EU has reduced its greenhouse effect gases and is on way of fufiling its commitment stated in the Kyoto Protocol. However, global and european reductions of greenhouse effect gases are far from being sufficient to maintain the rise of average global temperature under 2 °C. Great efforts are needed to mitigate the effects of climate change and to enact adaptation measures to enhance Europe's adaptability.

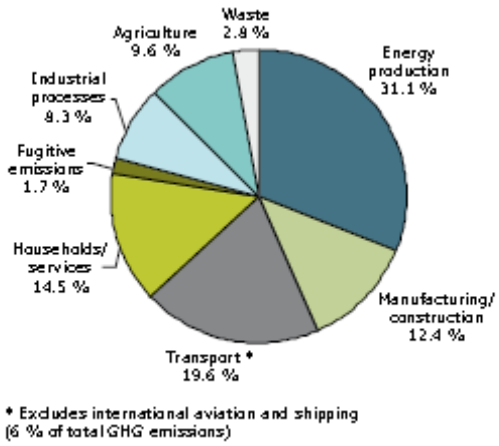
In the Report – European Environment: State and Perspecitve 2010 (SOER 2010, p.33), are emphasized the main sources of greenhouse effect gases in 2008. The main sources are: Energy production 31,1%, transport 19,6%, industrial processes 8,3%, and Households/ services 14,5% Manufacturing/ construction 12.4 % . Other sources include **agriculture *9,6%*,** Waste 2,8%, also the use of fluorinated industrial gases 1,7%, the data is presented in the figure below.(see Figure 1)

The International Assessment of Agricultural Knowledge, Science and Technology for Development (2008)* drafted by over 400 scientists, signed by 54 Member States and supported by several institutions of the United Nations and the World Bank, reaches a dramatic conclusion regarding the ways in which agricultural knowledge, science and technology (AKST) need to address global challenges; its authors state that "*The way the world grows its food will have to change radically to better serve the poor and hungry if the world is to cope with a growing population and*

* International Assessment of Agricultural Knowledge, Science and Technology for Development **(IAASTD)** (2009), Synthesis Report: A Synthesis of the Global and Sub-Global IAASTD Reports available at: http://www.agassessment.org/reports/IAASTD/EN/Agriculture%20at%20a%20Crossroads_Synthesis%20Report%20(English).pdf

climate change while avoiding social breakdown and environmental collapse."[*].

Fig.1 nr. Total greenhouse gas emissions by sector in EU-27, 2008



Source: EEA, 2010. *The European environment — state and outlook 2010: synthesis.* European Environment Agency, Copenhagen. *p. 33 aviable at:* *http://www.eea.europa.eu/soer*

The Food and Agriculture Organisation of the United Nations (FAO) regards Organic Agricultural as an effective strategy for mitigating climate change and building robust soils that are better adapted to extreme weather conditions associated with climate change. [†] The IPCC's Fourth Assessment Report also recommends the use of practices which are standard in Organic Agriculture for mitigating climate change. Organic Agriculture optimally combines these different practices in a systematic manner and sustains agricultural production in resource-limited regions.

Climate change is the main priority domain in the framework of the 6th Environmental Action Program 2002-2012, established as a environmental objective of the EU, followed by:

[*] IAASTD Press release (15th April 2008), *Agriculture - The Need for Change*, Washington / London/ Nairobi / Delhi, available at http://www.agassessment.org/docs/Global_Press_Release_final.doc

[†] Niggli, U., A. Fliessbach, P. Hepperly and N. Scialabba. 2009. Low Greenhouse Gas Agriculture: Mitigation and Adaptation Potential of Sustainable Farming Systems. FAO, April 2009, Rev. 2 – 2009.

-Nature and Biodiversity – The Environment
-Health and Quality of Life
-Natural resources and Wastes.

EU's Common Agricultural Policy (CAP) guarantees the maintainance of a balance between farming and envrionmental protection, it contributes to the economic and social development of rural communities and it plays a essential role in adressing new challanges among wich we can find climate change, water management, bioenergy and biodiversity. But, although *from 1990 to 2008 in the farming sector emissions have been reduced by 20%, farming is stil a pollutant factor* (SOER, *2010, p.33).*

It is necessary that the development and implementing of the CAP respond completely to the climate changes so resistance and competitivity of european farming is maintained. The CAP can influence positively the environmental management of farming. Climate change push farmers to answer the global call for greenhouse gas emission reduction, as well as enhancing the environmental performances of farming.

Climate change will have complex effects on bio-phisical processes underlying farming systems. In some regions these changes can have positive or negativ effects. The rise of CO2 concentration in the atmosphere, higher temperature, changes in anual and seasonal rainfall, the frequency of extreme events(natural catastrophes caused by nature, floods, drouts, and wildfires etc.), will affect the volume, quantity and stability of food production, of the natural environment in wich agriculture is practiced. Climate variations will have consequences upon the availability of water resources, upon pests, upon soil, wich leads to significant changes in farming and animal production conditions.In some extreme cases, ecosystem degradation could mean desertification, resulting in a total loss of the production capacity of the terrain.

Agriculture is not the only one affected by the climate change, but is surely contributing to it.

The Intergovernmental Panel on Climate Change (IPPC) defines adaptation to climate change as 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities'. [*]

[*] Citat în „Gateway to the UN System's Work on Climate Change" aviable at http://www.un.org/climatechange/background/living.shtml accesed at 28.02.2011

This definition puts emphasis on the importance of farmer knowledge for adaptation to climate change, especially as its impact is very site specific (local) and all scenarios are very complex and unpredictable in many aspects. Therefore, Borron (2006) looked specifically into farm "***community knowledge as a form of adaptive management***." (Borron, S. 2006).Building resilience for an unpredictable future: how organic agriculture can help farmers adapt to climate change. (Food and Agriculture Organization of the United Nations, Rome).

The ideal solution is using organic farming at a large scale.

Organic agriculture not only enables agro-ecosystems to better adapt to the effects of climate change but also has high potential to reduce the emissions of agricultural greenhouse gases.

The main benefits of organic farming are:

- „Pesticides: *research show that organic farming, on average, has a better effect on enhancing the environment, fauna and flora preservation and diversity compared to the non-organic systems. Restricting the use of pesticides, as in organic farming, also enhances the quality of water and less pesticide residue is found in food produce.*
- *Plant based nutrients: farming organicly usualy results in lower rates of nitrogen leaks than average results they got from integrated or non-organic farming, as the studies on autumn nitrogen residues of almost all relevant crops.*
- *Soil protection: management practices generally used by organic farmers, such as successive crops to reduce nitrate leaks, more varied and wider crop rotation, and mixed grazing to reduce mono-specifical overgrazing, all help in protecting the soil.Although the soil's content of organic matter is pretty specific to each area, it is usualy higher in organic farms rather than in conventional ones.*
- *Biodiversity and nature protection: organic farming contributes to the preservation of species and natural habitats through it's low level of inputs, through the great area covered with grass and thorugh the intensive use of indigen species and variety of plants.*

- *Animal welfare: organic farming can have a positive impact on animal welfare since organic farming standards inlcude more requirements regarding it, wich go further than statutory provisions".* (ECC, 2004)

RESULTS AND DISCUTIONS

Environmental and ecological benefits are foremost among the strengths of organic farming. It has a very high potential to improve the EU's overall performance with respect to biodiversity protection, climate change mitigation and adaptation, soil protection, and sustainable use of pesticides and water.

We quote from the statement of the president Traian Basescu during the meeting with the investors in the Golf on the 09.03.2011: "Romania has now 4 million hectars of organic soil, on which can be raised animals, and can be set up plantations so the production can be organic. In the UE, our country is on second place after France which has 4.5 million hectar of organic soil"[*].

Romania has a significant areea of high value farmland. Approximately 16% of the country respresents natural grassland.

Table no.1 Operators and surface dynamics in organic farming[†]

Indicator	2006	2007	2008	2009	2010*
Number of registered organic operators	3409	3834	4191	3228	4322
The total organic area (ha)	143.194	190.129	221.411	240.000	260.000
Share of cultivated land in organic farming in total agricultural area (%)	1	1	1,5	1,7	1,86
The area cultivated in organic farming crops on arable land (ha)	45605	65112	86454	110014,4	129336
The area cultivated in organic farming permanent crops (ha) grassland and meadow	51200	57600	46006,5	39232,8	46000
Certified organic farming area, permanent crops (ha) of orchards and vineyards	294	954	1518	1869,4	3600
Collection of spontaneous (ha)	38700	58728	81279	88883,4	81064

Source: MADR * Registration data operators being finalized,

[*] http://www.recolta.eu/basescu-romania-are-potentialul-de-a-deveni-un-mare-exportator-de-alimente-verdele-este-de-la-dumnezeu/ accesed at 09.03.2011

[†] MADR, 2011, Operators and surface dynamics in organic farming, aviable at: http://www.madr.ro/pages/page.php?self=01&sub=0107&tz=010710, accesed at 20.02.2011

Although there can be remarked an increase of the surfaces cultivated in ecological systems , in 2006 the total organic soil areea was 143.194 ha and in 2010 it reached 260.000 ha. The cultivated organic areeas represent only 1.86% from the cultivated land in 2010 although Romania has a great potential.

This aspects show insufficient support and promotion of this sector by the State autorities on which we can add the fragmentation of agricultural proprieties and the lack of appetite for association. The issues of public pollicies in Romania stay the same but the last two are more the effects of a much bigger problem that is perfectly identified in the next quote from a book of Alan Greenspan: The premise of individual ownership of property and the legality of it s transfer must have deep roots in the culture of a society so the economical mechanism and the free market can function effectively. The attitude for the quality of the owner is transmited from a generation to the other, through family values and education.

Promoting organic agriculture should be included as a primary agricultural policy in Romania.

Through the pan european promovation campain of the new EU logo at the end of 2010, was intended the recognition of the organic EU logo and to inform the interested parts and consumers of the benefits in buying the products that wear this logo.

Participation in agricultural fairs and events is a major part of this campaign: Czech Republic, Slovenia, Italy, Ireland, UK, Sweden, Spain, Romania and Germany.

In November 2010 during the Indagra Farm Fair organised at ROMEXPO in Bucharest was an international exhibition of agricultural equipment , livestock and agricultural products.

Under the slogan *'Organic Farming Good for nature, good for you*", during the promotional campaign of the Eu for organic farming were used posters, banners, brochures, product sheets, a shopping guide and a recipe book, spreaded to target groups such as farmers, processors, traders, professionals in gastronomy.

Another support offered to the farmers that are registered at the Romanian Ministrz of Agriculture and Rulal Development as producers of organic faming systems, are specific european aid funds (amounting 3 million euros in 2011), granted to improve the quality of agricultural

products in organic farming sectors (MARD, 2011). Farmers in our country, get a subsidy much lower than the EU producers. The average value of farm subsidy is 219 euros per hectare, according to estimates, and farmers in Romania receive at present, one third of this amount.[*] (Rareş Niculescu, First Vice-Chairman of the Committee on Agriculture and Sustainable Development) These data reflects the need to ensure equity and fairness in the future of the Common Agricultural Policy Framework.

However, the figures recorded in organic agriculture in Romania, speaks for themselves requiring a more aggressive promotion to the Romanian farmers and all aspects of benefits derived from practicing this system.

CONCLUSIONS

Adopting an organic agriculture at a large scale cand be considered an investment in the natural capital, as a vital necesity for stoping the polution , the loss of biodiversity and the actuall consume of natural resources.

The organic agriculture is the best solution for keeping the balance between the integrity of the ecosystems and the productivity in long term. The efficient addapting and adoption of new tehnologies that contribue to the atenuation and viability in long term of agriculture will need investments and efforts sustaind by the state policies.

The priority of agricultural pollicies in Romania must move to the organic agricultural sector, and the public authorities must play an important role in supporting the adapting pollicies for the climatic changes.

We also consider that a better information of the effects from practicing a conventional agriculture on the enviorement would be necessary.

[*] http://www.recolta.eu/dupa-2014-fermierii-romani-ar-putea-beneficia-de-subventii-egale-cu-ale-fermierilor-din-alte-state-ue/

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*** http://www.ccja.ro/(3 March 2011)

*** http://www.media-awareness.ca (3 March 2011)

*** http://www.fao.org/docrep/w0073e/w0073e07.htm (accesed at 20 February 2011)

*** http://www.organic-farming.europa.eu (accesed at 10 February 2011)

***http://www.recolta.eu/dupa-2014-fermierii-romani-ar-putea-beneficia-de-subventii-egale-cu-ale-fermierilor-din-alte-state-ue/

***http://www.madr.ro/pages/page.php?self=01&sub=0107&tz=010710,- accesed at 20.02.2011

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***http://www.recolta.eu/basescu-romania-are-potentialul-de-a-deveni-un-mare-exportator-de-alimente-verdele-este-de-la-dumnezeu/- accesed at 09.03.2011