

Expert Workshop focused on soil protection

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SOIL PROTECTION IN ROMANIA

Legislation, practices, methods



- ▶ Soil is a unique natural resource, with at least the same importance to the air and water, which ensure the environment for terrestrial life, food, industrial plants and the forest and agricultural products necessary for the welfare, food security and environment conditions for Romania's population.
- ▶ Soil is essentially a nonrenewable resource in the sense that the degradation rates can be rapid whereas the formation and regeneration processes are extremely slow. It is a very dynamic system performing global, environmental, energy, economic, information functions and that is vital to human activities and ecosystems survival.
- ▶ Soil is a natural resource of national common interest, of the entire global and European Community, being under an increasing pressure of the natural and anthropogenic influences, therefore it must be protected from degradation.

SOIL PROTECTION IN ROMANIA

Legislation, practices, methods

- ▶ Enacting legislation on soil protection is considering the land potential of Romania, its time evolution in terms of expansion, soil diversification and pedoclimatic conditions, their favorability for plant crops and recently the danger for climatic transformation and the necessity of soil resources adaption to these.
- ▶ It must not be ignored another factor affecting the land, like diminutions of the agricultural land from one year to another. In the period 1990-2012 agricultural area decreased by 154 thousand hectares and the arable land decreased by 58 100 ha. In the 1965-2012 period the arable land decreased by 424 600 ha.



Agricultural land of Romania

Agricultural land		Year					
		1938	1965	1984	1990	2007	2012
Agricultural area	Thousand Ha	15005,9	14791,4	14992,5	14769,0	14709,3	14615,1
	↓ or ↑	-	↓	↑	↓	↓	↓
Arable	Thousand Ha	10092,8	9816,7	9934,8	9450,4	9423,3	9392,3
	↓ or ↑	-	↓	↑	↓	↓	↓
Pastures	Thousand Ha	2702,7	2945,2	3020,6	3265,5	3330,0	3270,6
	↓ or ↑	-	↑	↑	↑	↑	↓
Meadows	Thousand Ha	1714,2	1370,9	1397,8	1465,3	1531,4	1544,9
	↓ or ↑	-	↓	↑	↑	↑	↑
Vineyards and agricultural nurseries	Thousand Ha	249,2	312,4	295,2	277,4	218,0	210,5
	↓ or ↑	-	↑	↓	↓	↓	↓
Orchards and nurseries	Thousand Ha	247,0	346,2	344,1	313,4	206,6	196,8
	↓ or ↑	-	↑	↓	↓	↓	↓

SOIL PROTECTION IN ROMANIA

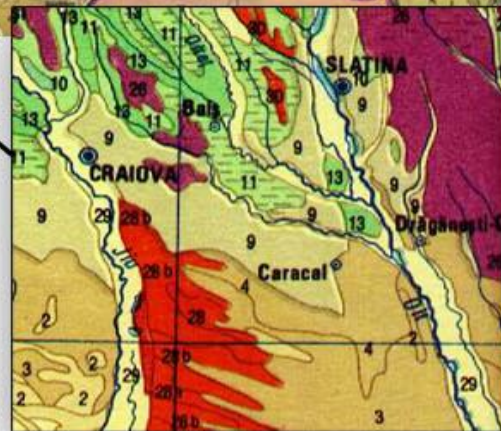


SOIL PROTECTION IN ROMANIA

- ▶ Thanks to geographical position of Romania, as:
 - ▶ in south-west of Central Europe;
 - ▶ also the relief generated by a concentric amphitheater by Carpathian Arch, with 4 major types: mountains, hills, plateaus, plains;
 - ▶ temperate climate with mountain specificity , hills and plateaus and plains;
 - ▶ hydrographic network rich and varied; land area is placed to landforms as follows:
 - ▶ mountains - 35%;
 - ▶ hills and plateaus - 35%;
 - ▶ plain - 30%.



OUR LOCATIONS



SOILS MAP

TARGETED ON OUR FARMLANDS

LEGEND

MOLLISOLS		SPodosOLS	
1	White soils	18	Brown soils, Acid Brown soils and Podzol
2	Chernozems (2a Chernozems and Cambic Chernozem)	19	Podzol and Acid Brown soils (under meadows)
3	Cambic Chernozem (3a Cambic Chernozem and Chernozems)	UMBRISOLS	
4	Chernozem argillic	20	Andosols and Brown Feriluvial soils
5	Cernoziomoide soils	21	Humic silicatic soils
6	Gray soils	HYDROMORPHIC SOILS	
7	Rendzic soil (7a Rendzic soil, brown meso-basic soils, brown luvic soils)	22a 22b	Marsh soils (22a) and gleysols (22b) frequently drained
8	Pseudo-rendzinas soils, Cernoziomoide soils, brown meso-basic soils	23	Albeluvic Pseudogley soils
ALLUVIAL CLAY SOILS		HALOMORPHIC SOILS	
9	Reddish-Brown soil and Luvic Reddish-Brown soils	24	Solod and Solonetz
10	Brown Luvic soil and Brown soils (argillic soils)	25	Solonetz
11	Brown Luvic soil and Planosols	26	Vertisol
12	Albic Luvisols	UNDEVELOPED OR CROPPED SOILS	
CAMBISOLS		27	Lithosol
13	Brown Meso-basic soils	28	Psamo-soils(28a Psamo-soils and Cambic Chernozem; 28b Psamo-soils and brown soils)
14	Brown Meso-basic soils, Acid Brown soils, Brown Luvic soils	29	Erratic soil and Alluvial Protosols
15	Red soils, Brown Meso-basic soils, Brown Luvic soils	30	Erodosols and Regosol
16	Acid Brown soils	ORGANIC SOILS	
17	Acid Brown soils and Andosols	31	Peaty soils

The main soils of Romania

- Protection of the soil quality as part of the environment has become increasingly necessary due to human intervention in agricultural ecosystems for ensuring food requirements of the population and raw materials for socio-economic activities.
- Adequate soil protection for every aspect of the diversity of the natural and anthropogenic conditions where soils were developed and evolved.
- Soil protection can't be assured fragmentary, on different fields (climate, air quality, hydrology, water quality, soil, biodiversity, economic activities, population, natural resources), but integrated in a management system.

Soil variety (types)	%
Vertisoils	11,0
Cernisoils	25,4
Umbrisoils	0,1
Cambisoils	16,1
Luvisoils	25,5
Pelisoils	3,1
Andisoils	3,7
Spodosoils	5,6
Hidrisoils	3,3
Salsodisoils	0,9
Histisoils	+
Antrisoils	3,5
Lakes+ swamps	1,8

- ▶ The agricultural development in Romania has required and still needs soil knowledge and research, of its quality and agroproductive capacity, of limiting factors and agro-pedo-ameliorative measures, based on strong knowledge and research of soil characteristics to improve the capacity of land recovery.



National Program of the establishment of the National System of soil-land Monitoring for agriculture

- Evidence of the agricultural land by use;
- Soil types;
- Agricultural land by use in graded by quality index, to natural conditions (weighted average value of 0-100 points obtained by quantifying the characteristics of factors and environmental conditions through coefficients v_u value from 0-1 depending on the degree of satisfaction of the requirements of plants against 17 indicators taken into account);
- Solvency notes and favorability classes on crops in natural conditions for: farmland, orchards, vineyards, pastures, meadows;
- Table group on land suitability classes;
- Forms of macro and micro relief;
- Pedo-geo-climatic micro zones ;



- ▶ Pseudogleyed land soils;
- ▶ Gleyed land soils;
- ▶ Landslides;
- ▶ Wetlands;
- ▶ Land affected by erosion in depth;
- ▶ Land with polluted soils;
- ▶ The reaction of soil (0-20 cm in water or pH);
- ▶ Ensure the soil with humus (% H? Or 0-20 cm);
- ▶ Ensure the soil with nitrogen (after the index of nitrogen-IN or in Ap 0-20 cm);
- ▶ Providing mobile potassium soil (0-20 cm or Kppm in Ap);

Romania's obligations in the Treaty of Accession to the European Union and the CAP on support mechanisms have in mind the ecological component as an additional support aimed at agricultural practices beneficial for the climate and environment (indirect and given the soil protection), based on three key measures:

- ▶ crop diversification;
- ▶ maintenance of permanent pasture;
- ▶ establishment of ecological focus areas (green perimeters of plots, hedges, trees, fallow land crops for nitrogen fixation etc.) without introducing to this measure permanent pasture and perennial crops.

In this pastoral arrangement are required:

a) description of soil, respectively:

- topography and land configuration;
- altitude, exposition, slope;
- soil characteristics: types, morphological, physical, chemical characteristics, laboratory analyses, limiting factors (relief, erosion, landslides, acidity, impaired nutrition regime of vegetation, ununiformed terrain , etc.) on agro productive potential, agro-pedo-ameliorative measures;

b) the fertilization plan.

- ▶ Drawing fertilization plan and the establishment of agropedoameliorative measures are made by OSPA county, thus ensuring the adoption of real security measures, scientific and professional set leading to soil-land protection system of the permanent grassland.

- ▶ The Ministry of Agriculture considers increasingly necessary to set all the required measures for soil protection through conservation and sustainable management. In the same time, it makes efforts for institutional strengthening and efficient local and national organization, having the guarantee of the value and professionalism of the Romanian experts and researchers in the soil science.
- ▶ Romania considers necessary an European directive that soil to be legislated as environment factor (synthesis of soil protection from European directives governing the environment, especially air and water) and in terms of the means of production which ensures food security of the population.



- ▶ In the thematic strategy for soil protection, the Commission considers the necessity of soil protection, as follows:
- ▶ Soil is generally defined as the superior layer of the earth crust. It is a very dynamic system, which accomplishes different functions* and plays a crucial role for human activity and for ecosystem survival. The processes that permit the soil formation and regeneration are extremely slow, for this reason the soil being considered an unrenovable resource.”
- ▶ The main degradation processes that European soil are exposed to are the erosion, the decreasing of the content of the organic materials, contamination, salinity, subsidence, biodiversity decline, impermeability, and the foods and land slides.
- ▶ Soil degradation represents a major concern in Europe. It is generated or worsen by human activity, as the unappropriated agricultural and forestry practices, industrial activities, tourism, urban and industrial expansion, as well as land arrangement.
- ▶ Among its consequences we count the loss of the soil fertility, of carbon and of biodiversity, the decrease of the capacity of water supply, the pertubation of gases circle and of the nutritive elements and reduction of the degradation of the contamination agents. In the same time, it may affect the health of the population and to threat the security of the feed and food products.”

- ▶ The necessity of settling a framing directive for soil protection and the amendment of the EC/35/2004 Directive appears in the next context, determined through the thematic Strategy for soil protection:
- ▶ “Until present days, soils haven’t made the subject of specific protective measures at community level. Soil protection is included in different documents, regarding either the environment protection or other public fields, as agriculture or rural development. However, these provisions don’t permit the ensure of a sufficient soil protection, because of the diversity of the targets and of their field of application.”
- ▶ It is necessary a coordinated action at European level, considering the influence of soil condition over another aspects that imply the environment or food security and regulations at community level, the risks of domestic market misrepresentation providing the reconstruction of the polluted soils, the impact and the international dimension of this concern.
- ▶ The present strategy is one of the seven thematic strategy from the sixth action programme on environment approved in 2002. It is based on a deep study and on a enormous public consulting and of the interested partners.

PROPOSAL SOLUTION

- ▶ Romanian Ministry of Agriculture considers a major need to take all measures to protect the soil through conservation and sustainable management.
- ▶ In this context, at European level, Romania proposes and it's completely agreed with the suggestions of the other EU member states which are part as well of the V4+4 Group, regarding the necessity of the "European Framework Directive on soil protection" as environmental factor (the synthesis of the soil protection from the European directives that regulate the environment, especially air and water and less the soil) and in terms of the means of production which ensure the food safety of the population.
- ▶ **ROMANIAN PROPOSAL SOLUTION**
 - the modernization of the structure with responsibilities in soil protection;
 - the development of the law "soil protection" necessary to regulate the measures and the compulsory actions regarding administration, utilization, conservation, improvement, the evaluation of the agro-bio-productive and economic capacity, soil protection and integrated monitoring of soil quality;
 - Implement programs dedicated to the growth and maintain soil fertility, carbon sequestration, maintaining biodiversity, improving water retention capacity, improvement of the gas and nutrients;

PROPOSAL SOLUTION

- ▶ development of methodological application norms in terms of definition of the obligations and technical measures applied by the lessor to maintain the potential of production and the prevention of leaseholds degradation;
- ▶ measures to increase efficiency on the implementation of the Directive 91/676/EEC on water protection against nitrates pollution from agricultural sources.
- ▶ possibility to offer the farmers incentives for leading actions in soil protection (windbreaks in areas at risk of wind erosion and / or other climatic impact, afforestation of degraded lands, reduced income when adopting more stringent measures on the ground drained soil protection which on short and medium term results in reduced production, etc.) to agree CAP schemes transitional national direct payments and aid.



Thank you for attention!

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