

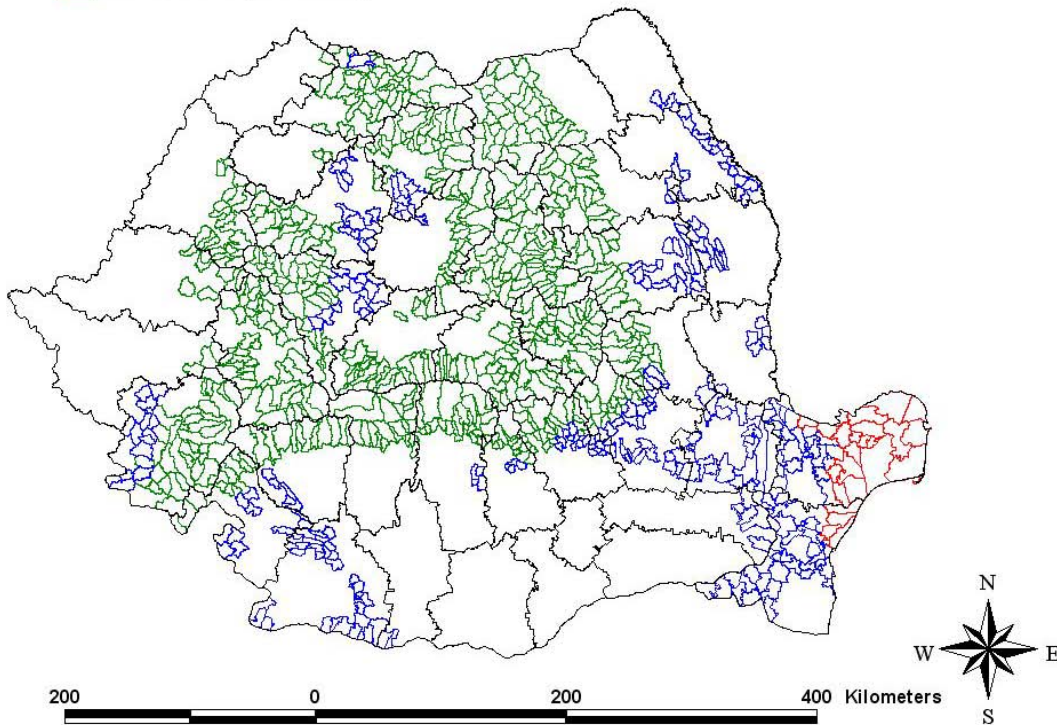
Future **LFA Other** in Romania
– simulation based on
biophysical criteria provided
by DG Agri

Mihai CONSTANTINESCU,
Tirana, March 21, 2011

From where do we start?

Current map of Romanian LFA

- County (Limite_judete.shp)
- Art 19 - significant handicap (Lfa_semnificativ2008.shp)
- Art. 19 - specific handicap (Lfa_specific2008.shp)
- Mountain Area (Zm2008.shp)



Biophysical criteria, as all Member States agreed (?!)

Table 1: Overview of diagnostic criteria and critical limits

	Criterion	Definition	Threshold value separating non limiting from severely limiting	Threshold value separating severely limiting from very severely limiting
CLIMATE	Low Temperature	. Length of Growing Period (number of days) defined by number of days with daily average temperature > 5°C (LGP ₅) . Temperature sum (degree-days) for Growing Period defined by accumulated daily average temperature > 5°C	180 days or 1500 degree-days	150 days or 1200 degree-days
	Heat Stress	Number and length of continuous periods (number of days) within the growing period for which daily maximum temperature (T _{max}) exceeds the threshold	One or more periods of at least 10 consecutive days with daily T _{max} > 35°C	One or more periods of at least 10 consecutive days with daily T _{max} > 40°C
SOIL	Drainage	Areas which are water logged for significant duration of the year (lack of gaseous oxygen in soil for root growth or land not accessible for tillage).	Poorly drained ¹ OR	Very poorly drained ¹ OR
	Texture and Stoniness	Relative abundance of clay, silt, sand, organic matter (weight %) and coarse material (volumetric %) fractions in top soil material.	Soils classified as unsorted or coarse or medium sand, loamy coarse sand or organic; or 15% of topsoil volume is coarse material or Heavy clay (>60% clay) or Vertisol, clay, silty clay or sandy clay with vertic properties	40% of topsoil volume is coarse material or Rock outcrop, boulder within 15cm of the surface
	Rooting depth	Depth (cm) from soil surface to coherent hard rock or hard pan	30 cm	15 cm
	Chemical properties (Salinity, sodicity, toxicity)	Presence of salts, exchangeable sodium and gypsum in the topsoil	Salinity : 4 dS/m Sodicity: 6 ESP Gypsum: 15%	Salinity : 16 dS/m Sodicity: 15 ESP Gypsum: 40%
Integrated soil and climate criterion	Soil Moisture Balance	Number of days within growing period as defined by temperature > 5°C (LGP ₅), for which the amount of precipitation and water available in the soil profile exceeds half of potential evapotranspiration	90 days	60 days
TERRAIN	Slope	Change of elevation with respect to planimetric distance (%)	15%	30%

Who is doing the job?

- A special ministry department composed of specialists in:
 - Environment
 - Geography
 - Agronomy
 - Economy

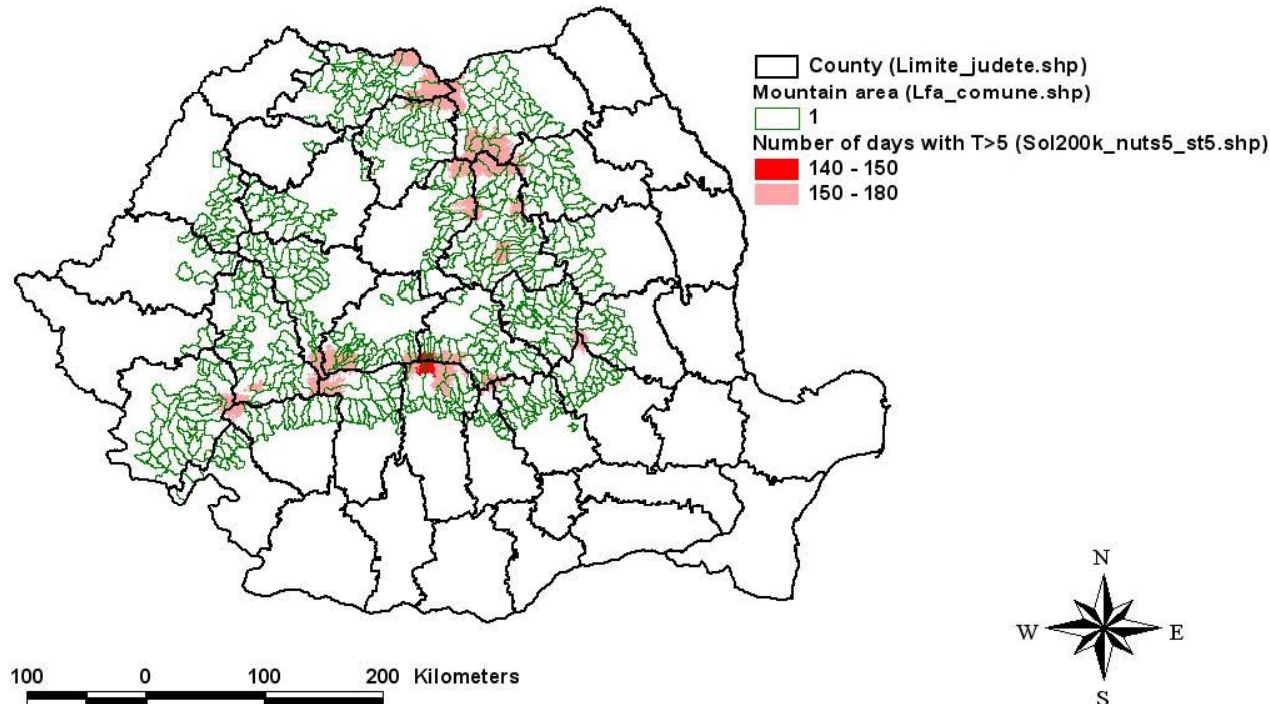
Who is the Ministry partner and why do we need a partner?

- The National Research and Development Institute for Soil Science, Agricultural Chemistry and Environment – ICPA, Bucharest, Romania
- A research institute means:
 - Needed access to database for soil
 - Professionalism
 - Credibility
 - Support for GIS simulations

What have we done until now?

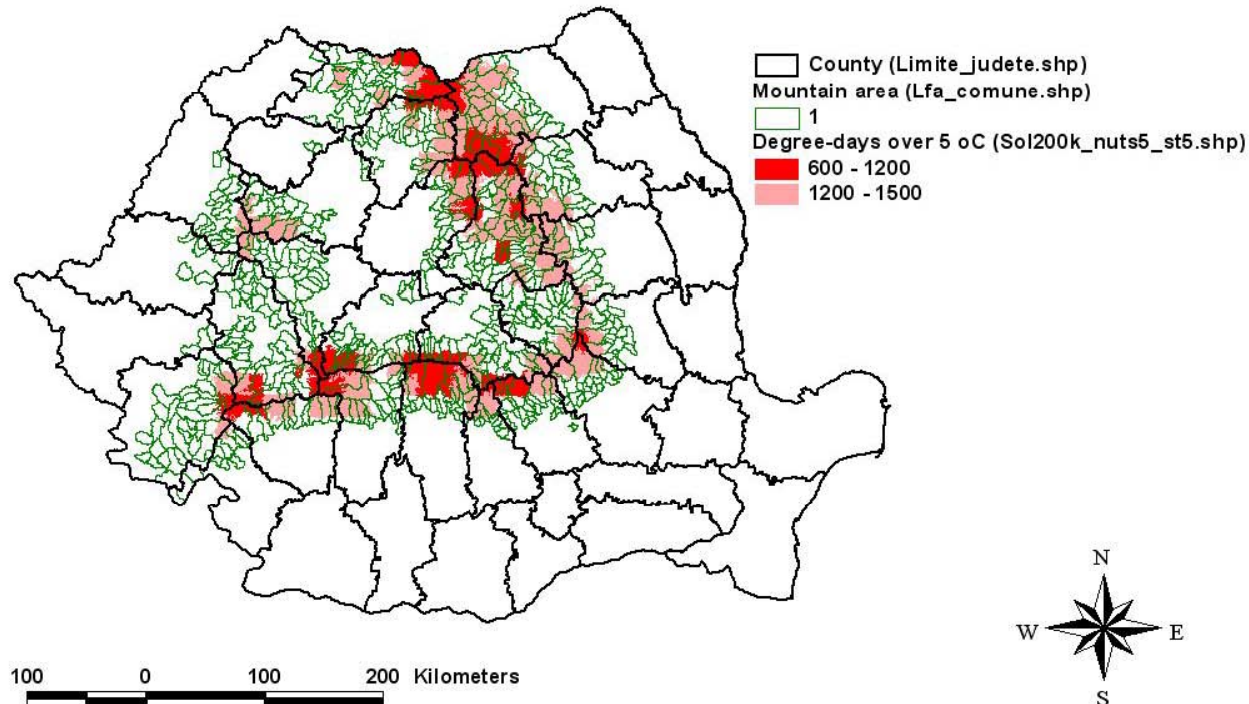
Low Temperature. Length of growing period (number of days) defined by number of days with daily average temperature > 5 degree Celsius

Number of days with $T > 5^{\circ}\text{C}$
(80 % probability of non-excedence)
1961-1990

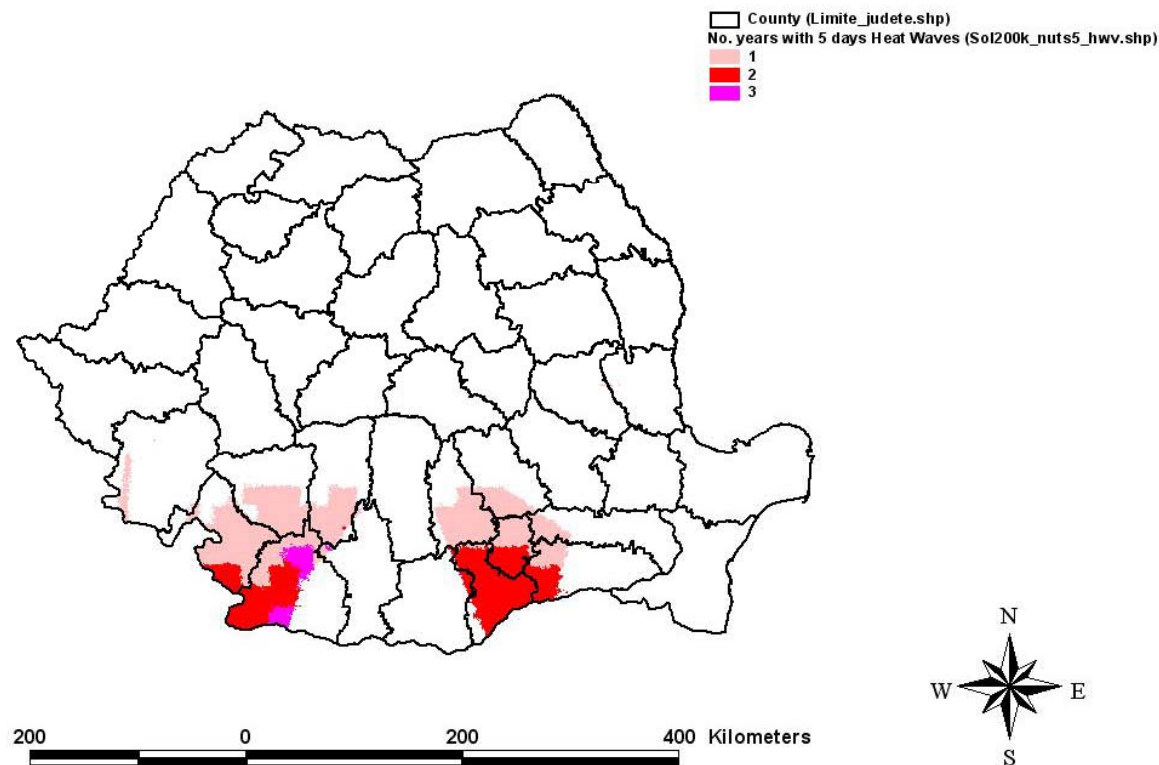


Low Temperature. Heat sum (degree fays) for Growing Period defined by accumulated daily average temperatures >5 degree Celsius

Heat sum : degree-days for $T > 5$ °C
(80 % probability of non-excedence)
1961-1990

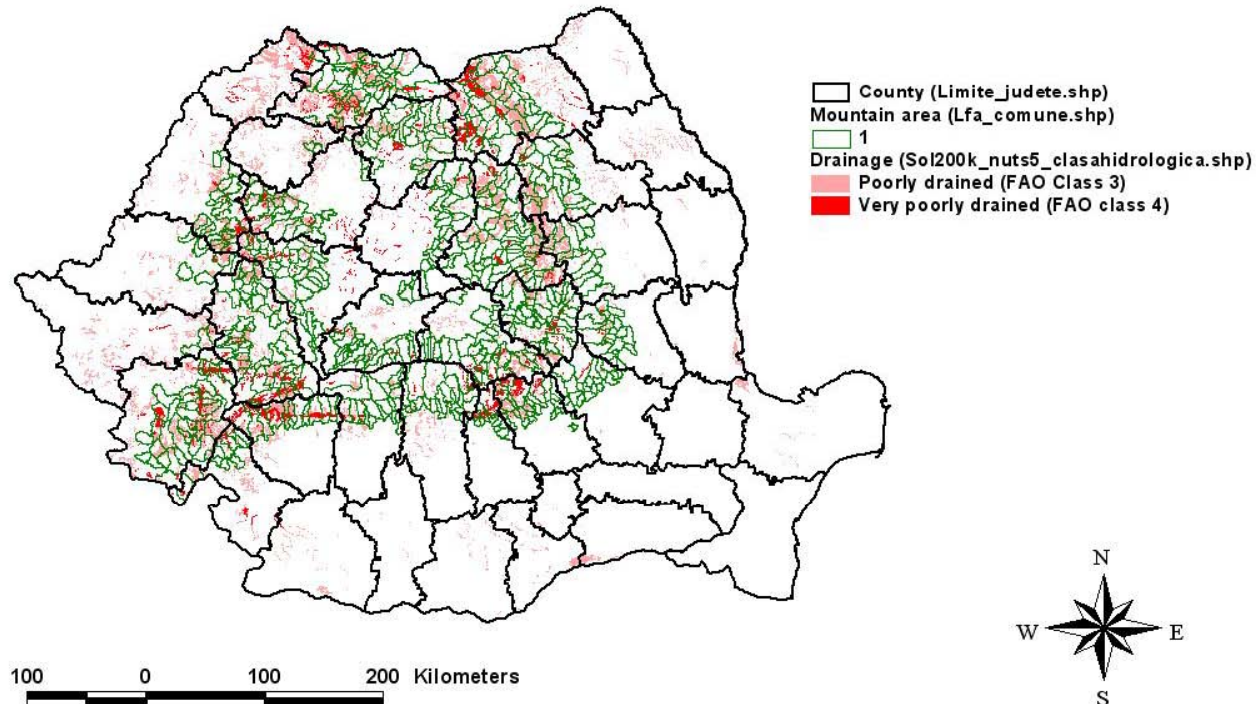


Heat Stress. One or more periods of at least 5 consecutive days with $T_{max} > 35^{\circ}\text{C}$. No areas in Romania for the threshold of 10 consecutive days with $T_{max} > 35$ degree Celsius



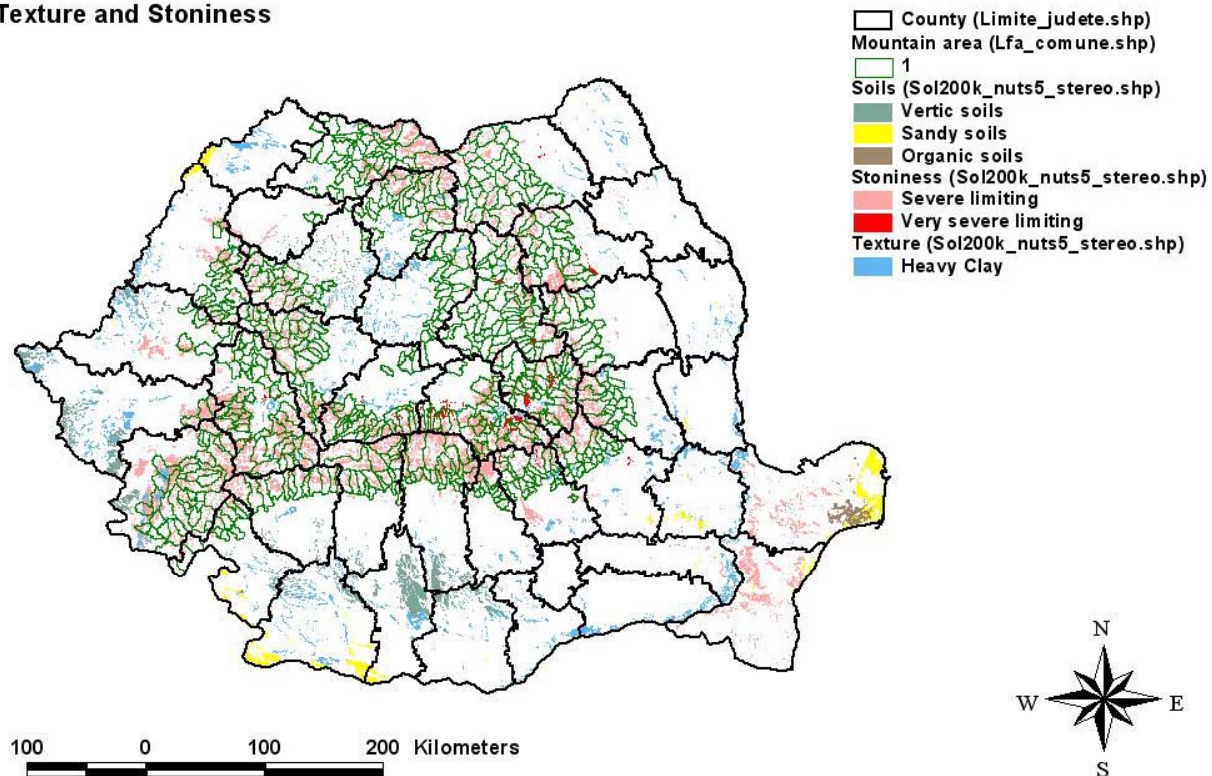
Drainage. Areas which are water logged ad/or flooded for significant duration of the year

Drainage
Classes defined by FAO 1994 guide
1961-2000



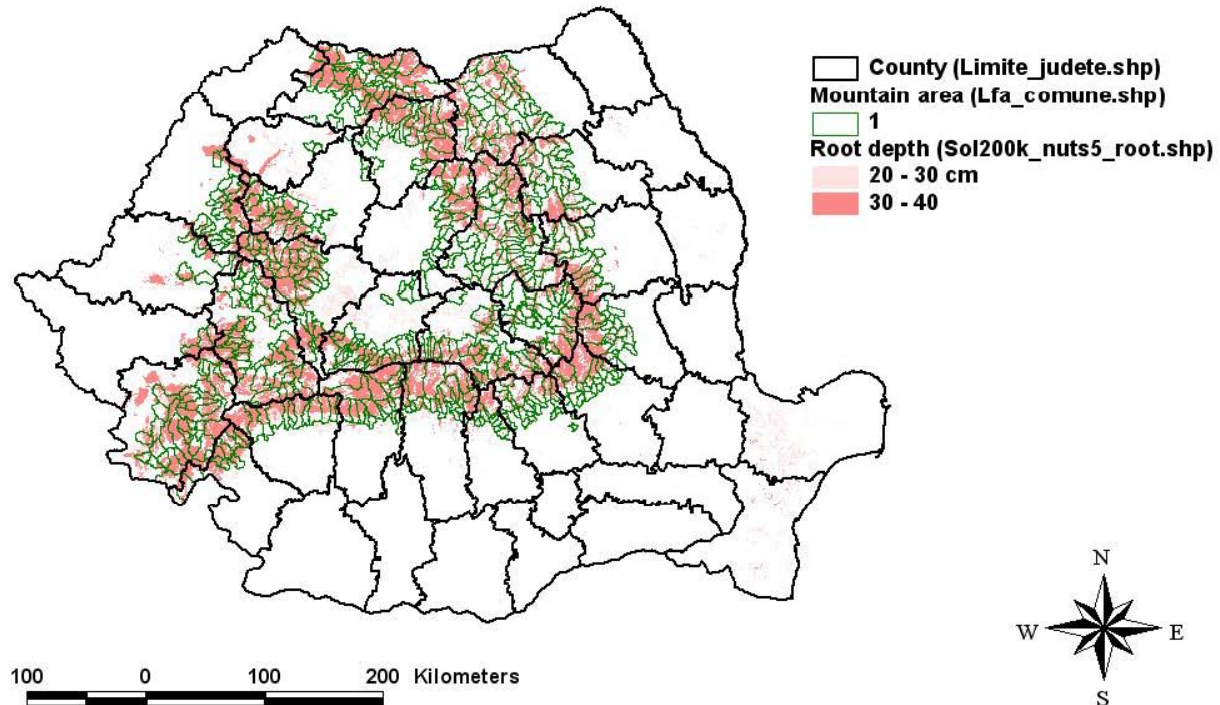
Texture and Stoniness

Texture and Stoniness

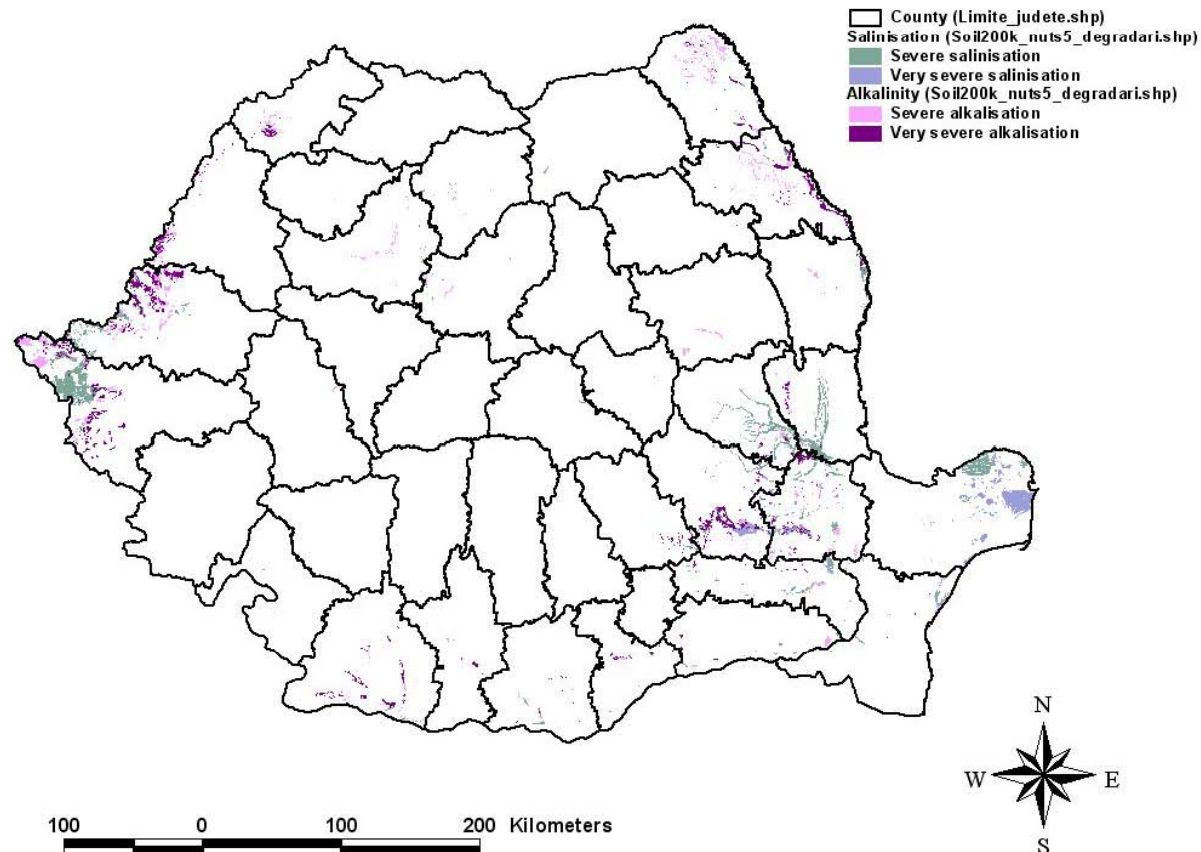


Rooting Depth

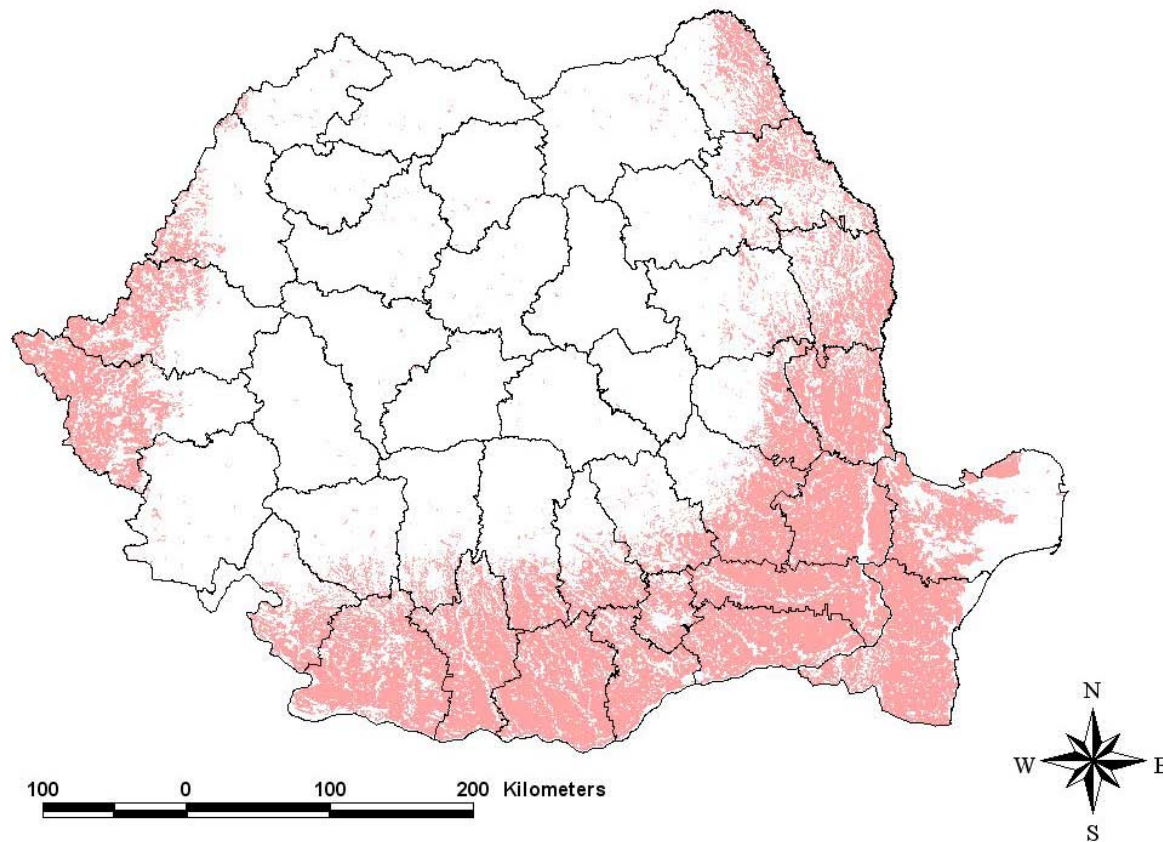
Rooting Depth



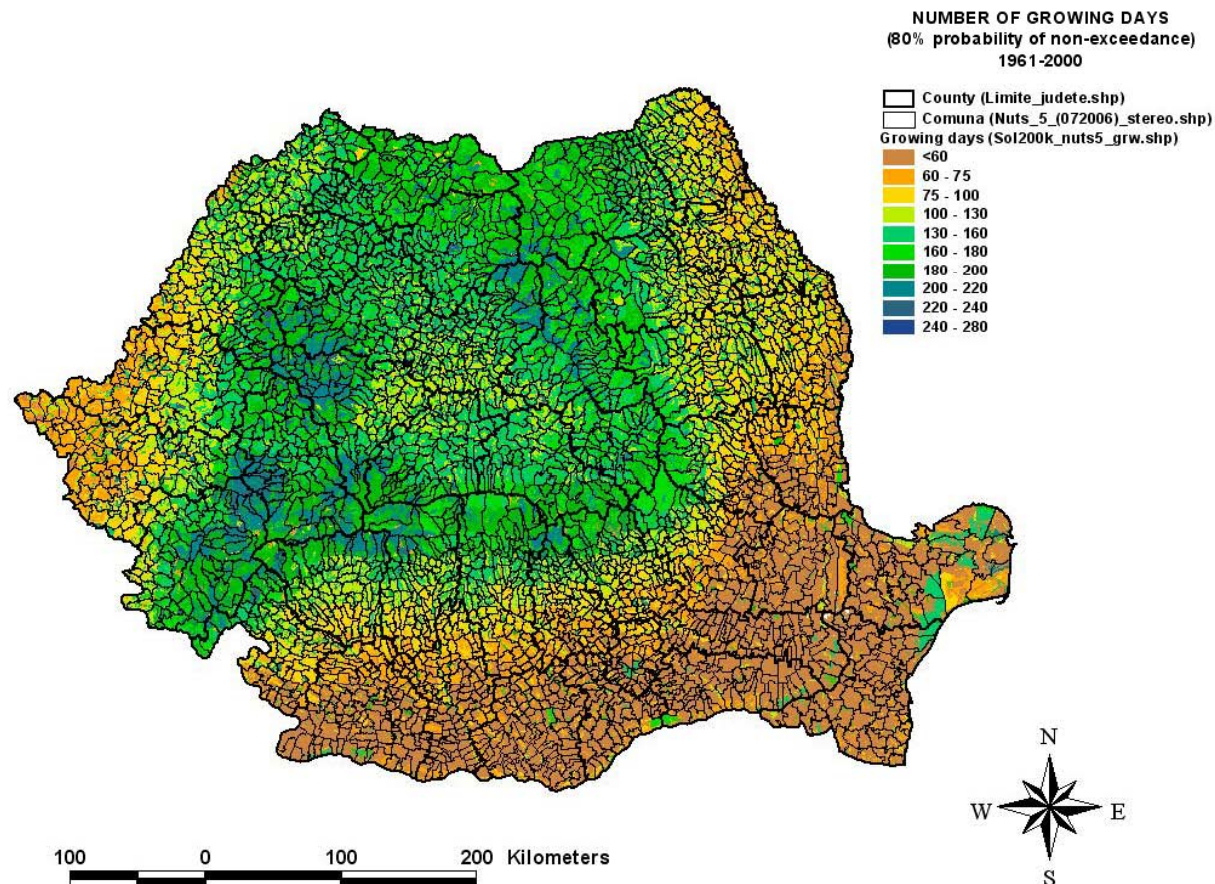
Chemical property (salinity and sodicity)



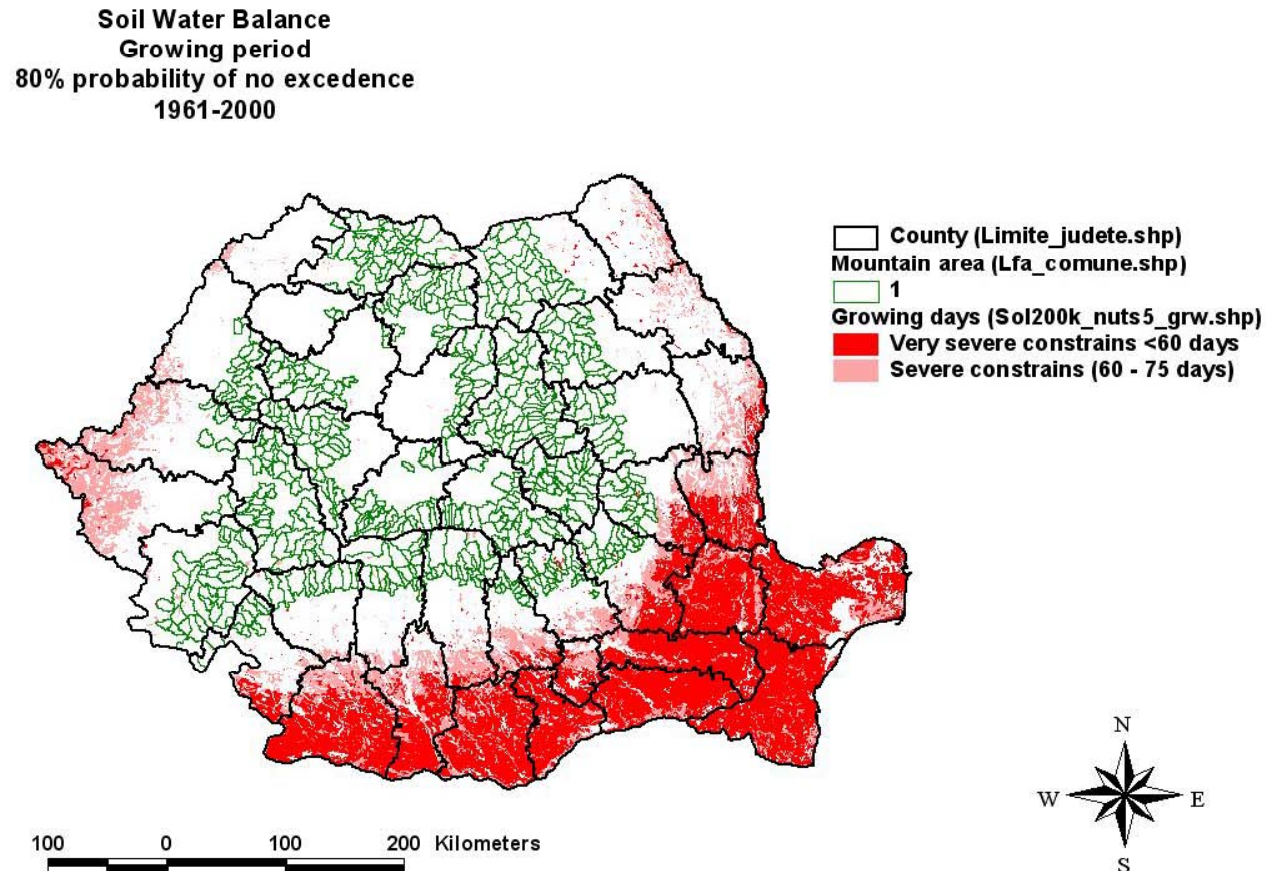
**Soil Water Balance: Number of days with growing period as defined by $T > 5^{\circ}\text{C}$ for which the amount of precipitation and water available in the soil profile exceeds half of the potential evapotranspiration (computed with Thornthwaite-Mather method);
Area with growing period less than 90 days**



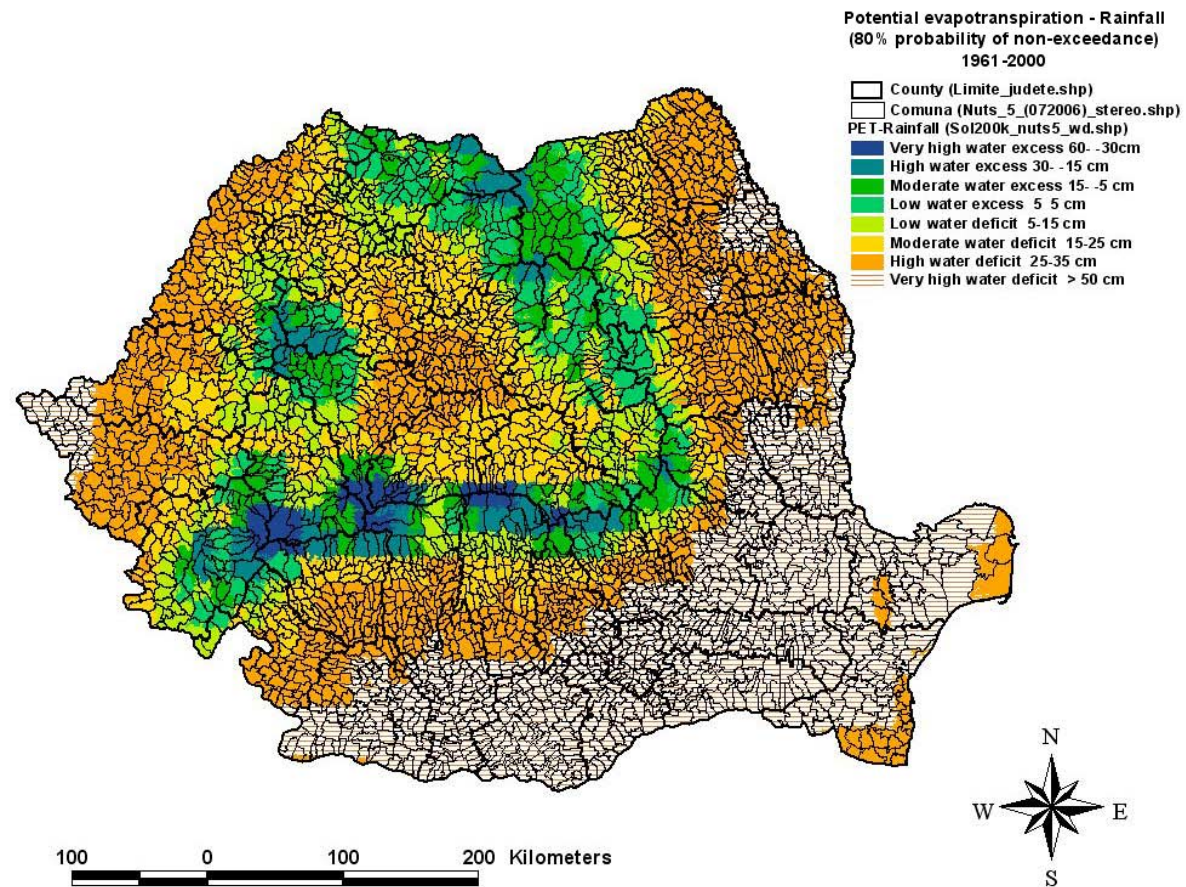
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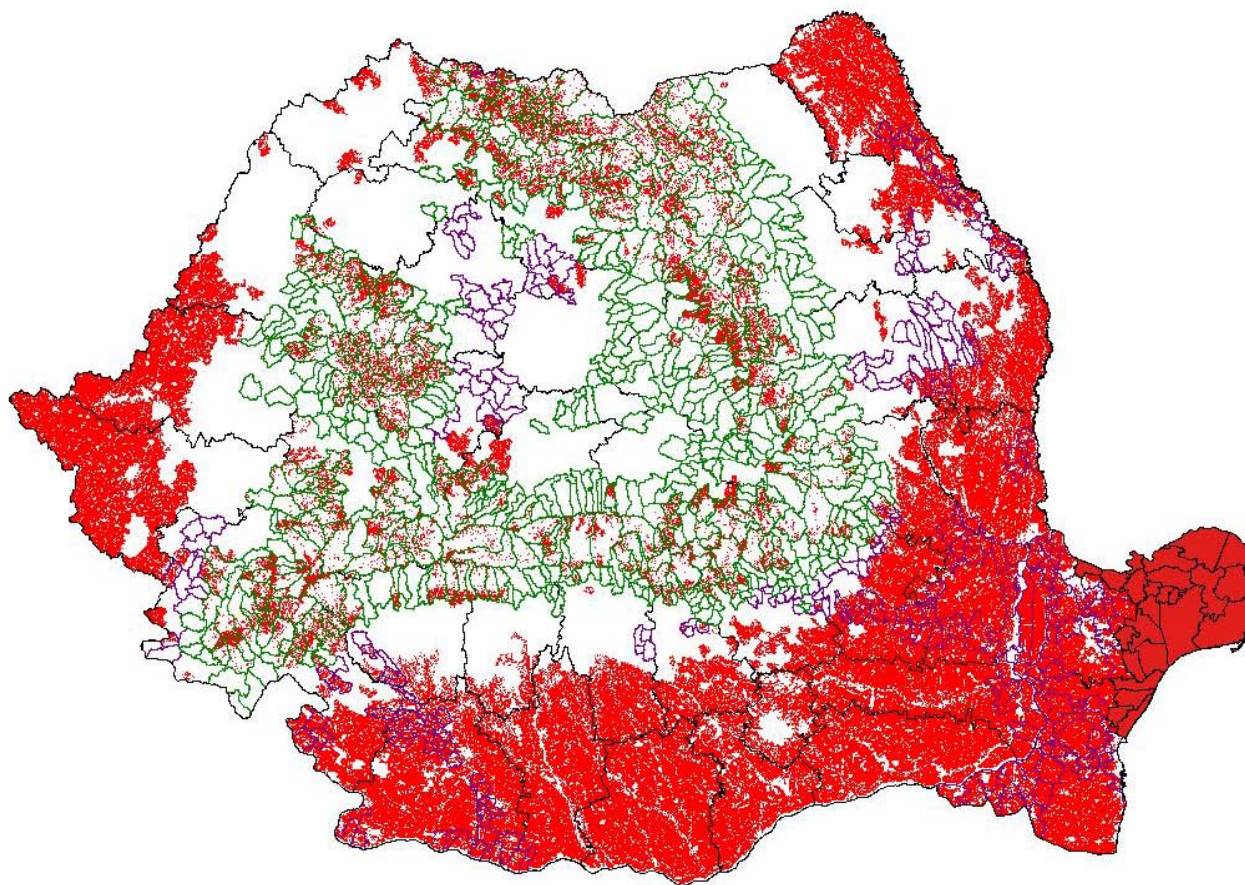
**Soil Water Balance: Number of days with growing period as defined by $T > 5^{\circ}\text{C}$ for which the amount of precipitation and water available in the soil profile exceeds half of the potential evapotranspiration (computed with Thornthwaite-Mather method);
Area with very severe and severe constraints.**



Climatic Water Deficit according with the Romanian soil survey guidelines

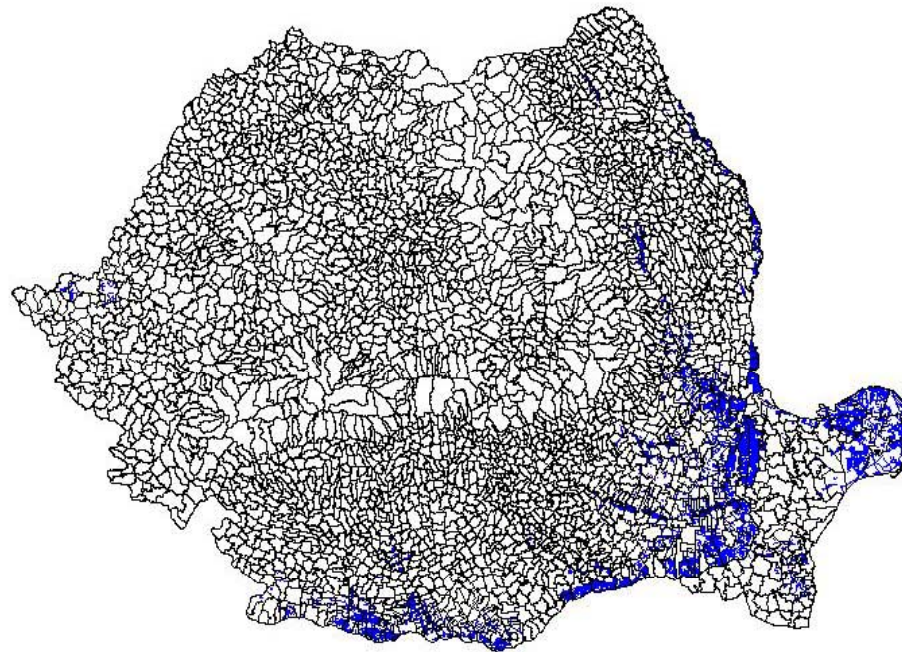


UAA in Comuna (NUTS5) having $\geq 66\%$ of agricultural land with severe and/or very severe limitations. Land use: LPIS

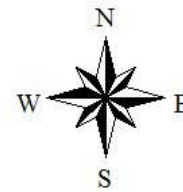


Irrigation systems used in 2009

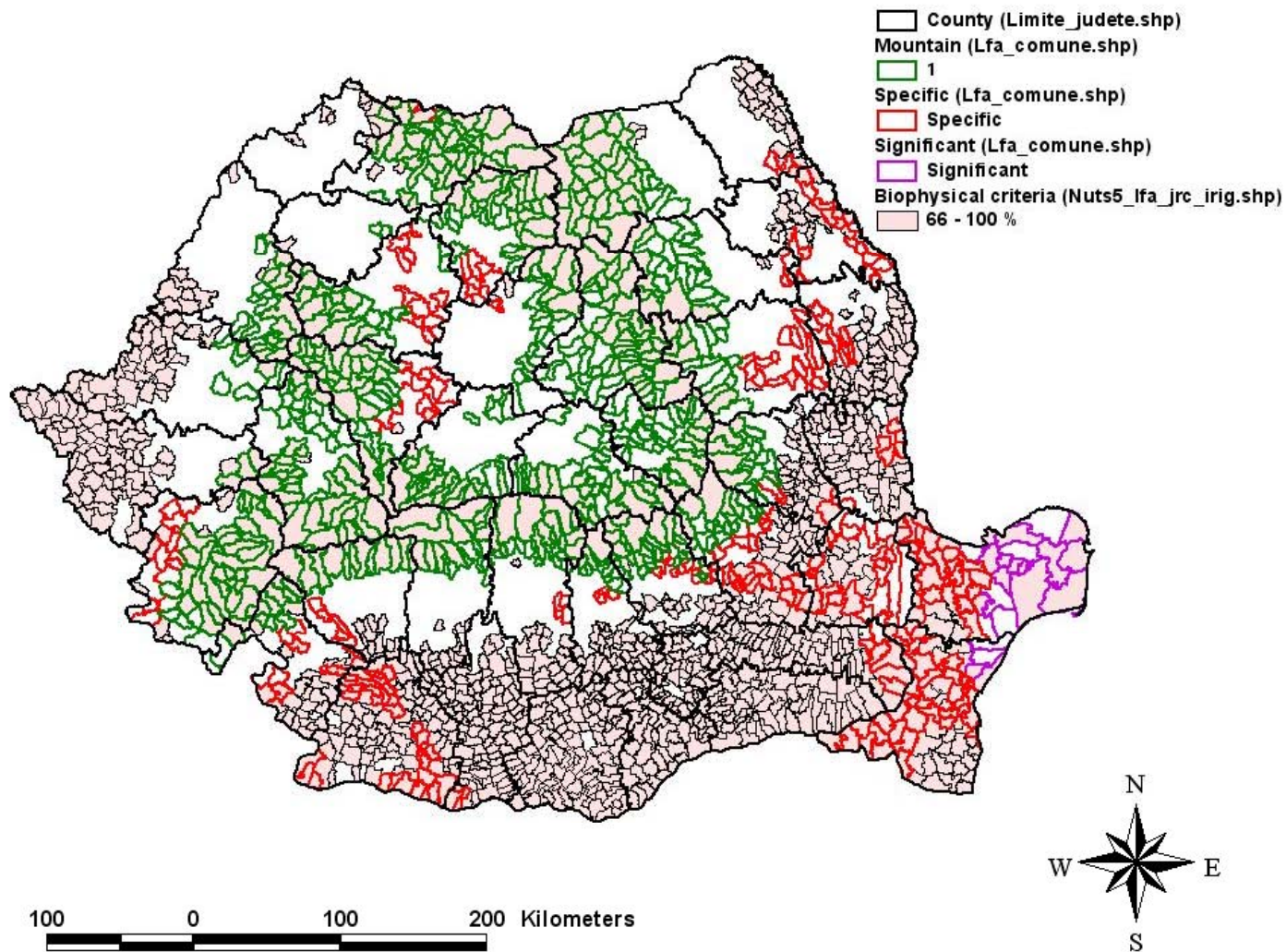
Irrigation systems used in 2009



100 0 100 200 Kilometers



Comuna (NUTS5) $\geq$ 66% of agriculture land have at least one severe or very severe limitation corrected with the areas where water stress limitations were surpassed



Some statistical data

SEVERE & VERY SEVERE	TOTAL	1473
VERY SEVERE	TOTAL	1224
SEVERE	TOTAL	1456
LOW TEMPERATURE	VERY SEVERE	176
	SEVERE	61
HEAT STRESS	VERY SEVERE	0
	SEVERE	0
DRAINAGE	VERY SEVERE	217
	SEVERE	575
TEXTURE & STONINESS	VERY SEVERE	21
	SEVERE	1028
ROOTING DEPTH	VERY SEVERE	0
	SEVERE	488
CHEMICAL PROPERTIES	VERY SEVERE	268
	SEVERE	323
SOIL WATER BALANCE	VERY SEVERE	889
	SEVERE	1143

LFA – Romanian exercise

What is our position on this exercise?

- Criteria are acceptable, but the “fine tuning” should be applied at the farm level and not in the delineation process. Also, attention on what average means (e.g. livestock density – 0.4/ha of grasslands in Romania, many of drainage and irrigation systems are not in function);
- We believe is not enough the slogan “additional costs and income forgone?” to ensure the needed unity in methodology for payment calculation among EU member states, as necessary and also, as ECA asked

LFA – Romanian exercise

What are our expectations:

1. Stability in area designation, but also happy to see other areas included 😊;
2. Payment level that shall avoid both under and overcompensation;
3. Focus on extensive management of land but also keep in mind that in a common market we must to have a leveled paying field, so products should meet a faire competition in the market.

Thank you for attention,

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development

ROMANIA

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