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Studies regarding the seedling biomass in Uivar, Vermeş- Izgar and Luncaviţa- Verendin amelioration perimeters

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Abstract This paper presents a synthesis of the seedlings biomass în improvoving perimeter Uivar, Vermeş-Izgar end Luncaviţa – Verendin. This perimeters consisting of degraded lands by sheet erosion.

Key words

Degraded lands, afforestation works, biomass

In the Timis Plain, on the Uivar area, Timis County, we constituted the amelioration perimeter, comprising 6 stationary types: Rauti, Sanmartinu Maghiar, Ionel, Otelec, Uivar and Pustinis.

In the Poganişului Hills, we constituted the amelioration perimeter Vermes-Izgar, in an area belonging to the commune of Vermes in Caras-Severin County. This perimeter is divided into 4 stationary types: Dosul Murariului, Ştefârţa- Dealul Logii, Dealul Curţii Şuşara (in Vermeş) and Simera (in the locality called Izgar).

In the area of the Banat Mountains, we constituted the amelioration perimeter Luncavita-Verendin, in Caras-Severin County. All the cultivation was done by planting of 2 - 3 year old seedlings, depending on the species.

Material and Method

Except the dendrometric elements analysed, like height, the height growth and the crown seize, the biomass represents a very relevant ecological indicator indicator, due to the fact that gives the result of all the physiological from plants which take place under the influence of environmental factors. From this point of view we could consider that the biomass is the result or the mirror of plants activity efficiency in a given environment and of their adaptability.

We limited our research to a set of data, excluding the biomass in general, because by its nature this subject cannot be treated otherwise than based on destructive material. The method involves disinterment and seedling cuts, drying of the biological material resulted but respecting the statistics rules.

The determination of the biomass involves digging and cutting the seedlings and then, the organs weighing with the help of an analytical balance with an accuracy of 0,1 g

Results and Discussions

Due to this, we have chosen a minimum number of seedlings which means a minimum of data, but on the condition that this data is the most relevant. so, we have chosen two soil types, the most prevalent and with different characteristics, specially concerning the water and clay content- in the case of stagnicVertisols (improvement perimeter Ştefârţa – Dealul Loghii), Calcaro- calcic Chernozem (improvement perimeter Răuți) and distric Cambisols erodat (improvement perimeter Luncaviţa- Verendin). For the study we have chosen three species the pedunculated oak, the ash and the accacia.

From each specie we took around 40-60 seedlings, originated half from a soil type and another half from another soil type.

The research took place in Uivar, Vermeş-Izgar şi Luncaviţa- Verendin perimeters, covering all the areas of study.

The time when the determinations were held, matches the end of the month of August 2009, in days with normal temperatures for this time of the year, and the results are in mg H_2O eliminated/g green leaf/hour.

The determination of the biomass involves digging and cutting the seedlings and then, the organs weighing with the help of an analytical balance with an accuracy of 0,1 g.

The research shows that the biomass acumulation in seedling is different, according to the specie and soil (tab 5.15), the best results being registerd, as one can expect, on stagnicVertisols, , and the worst on distric Cambisols

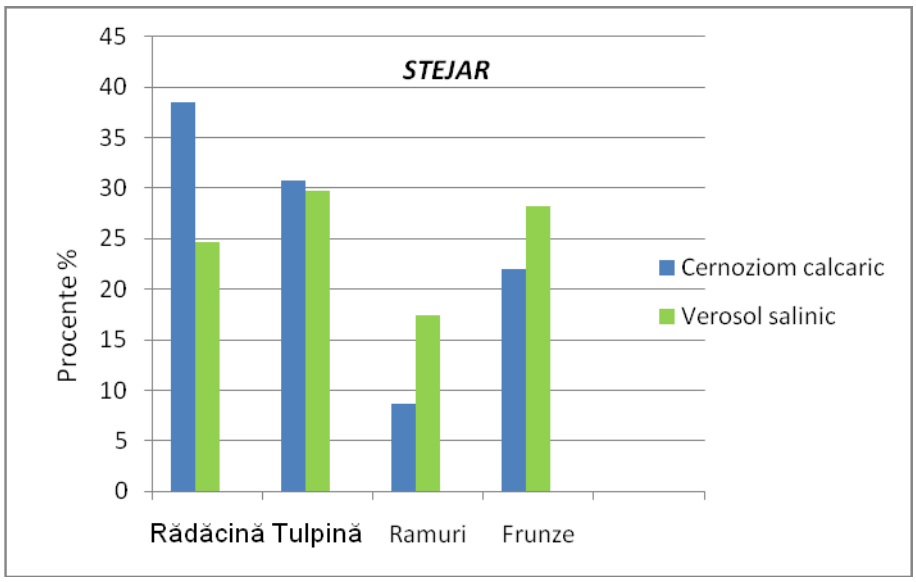
To be able to appreciate the succes of a culture, an important indicator is represented by the report between difrent seedlings organs.

Highlighting the root, as a undergroud part, we can observe that this has more important proportion than the other organs and that this depends on the other organs according to specie and soil. On Calcaro-calcic Chernozem the root is 38,5% for pedunculated oak and 39,0% for ash.

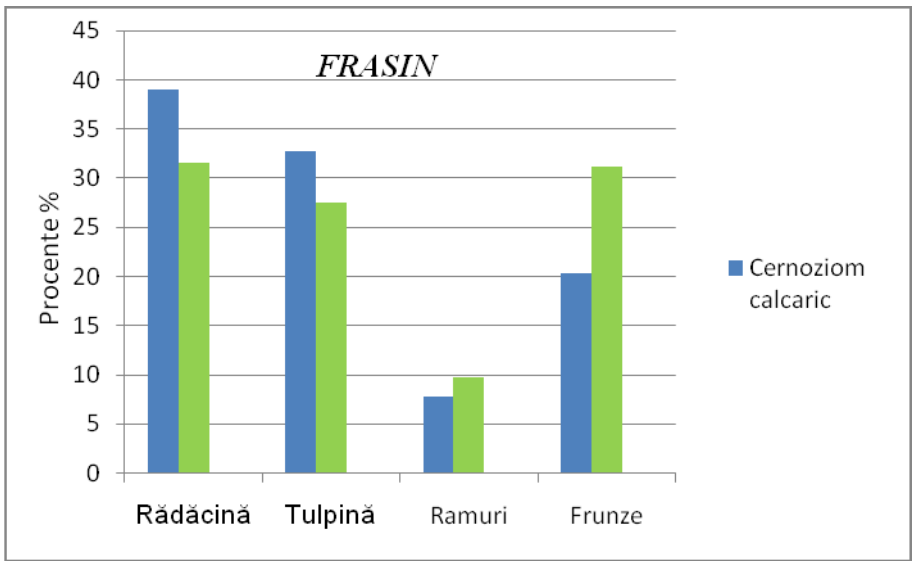
On stagnicVertisols root is 24,6% for pedunculated oak and 31.39% for ash.

On distric Cambisols, strongly erodated, the root for accacia is 33,8%.

On stagnic Luvisols, ponderea root for accacia is 31,2%.



Seedling biomass of English oak

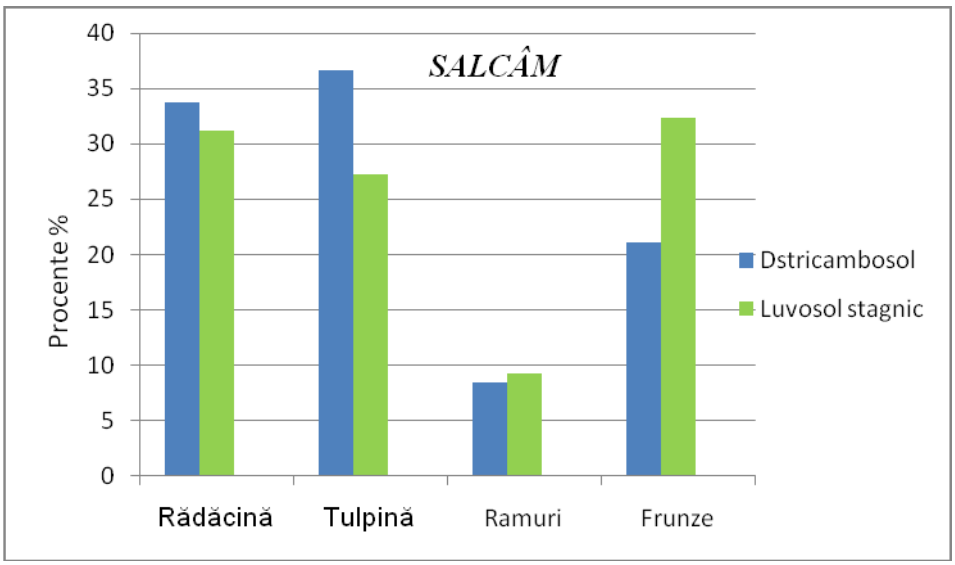


Seedling biomass of European ash

Table 1

Seedling biomass of pedunculate oak, european ash, and acacia in terms of soil type

Lotul de puieţi	Dimensiuni medii pe lot		În g subst. uscată/individ					În % faţă de biomasa totală				
	Înălţimea cm	Diametru colet mm	Tulpină	Ramuri	Frunze	Rădăcină	Totală	Tulpină	Ramuri	Frunze	Rădăcină	Totală
1. Stejar pedunculat												
Calcaro- calcic Chernozem												
1-10	42	10	26	7	15	10	58	44,8	12,1	25,9	17,2	100
11-20	43	10	27	5	24	46	102	26,5	4,9	23,5	45,1	100
21-30	45	10	32	12	21	48	113	28,3	10,6	18,6	42,5	100
Media	43	10	28	8	20	35	91	30,8	8,7	22	38,5	100
stagnicVertisols												
31-40	83	19	92	55	76	80	303	30,4	18,2	25	26,4	100
41-50	96	20	114	63	112	94	383	29,8	16,4	29,3	24,5	100
51-60	102	20	126	76	127	102	431	29,2	17,6	29,5	23,7	100
Media	94	20	111	65	105	92	373	29,8	17,4	28,2	24,6	100
2. Frasin												
Calcaro- calcic Chernozem												
1-10	72	9	24	5	14	29	72	33,3	6,9	19,4	40,3	100
11-20	74	11	18	5	11	20	54	33,3	9,3	20,4	37,0	100
Media	73	10	21	5	13	25	64	32,8	7,8	20,3	39	100
stagnicVertisols												
21-30	122	16	74	24	81	84	263	28,8	9,1	30,8	31,9	100
31-40	147	18	62	23	74	72	231	26,8	10	32	31,2	100
Media	134	17	68	24	77	78	247	27,5	9,7	31,2	31,6	100
3. Salcâm												
distric Cambisols												
41-10	64	10	24	7	16	26	73	32,9	9,6	21,9	35,6	100
11-20	73	12	28	5	14	21	68	41,1	7,4	20,6	30,9	100
Media	69	11	26	6	15	24	71	36,6	8,4	21,1	33,8	100
stagnic Luvisols												
21-30	116	16	64	25	76	87	252	25,4	9,9	30,2	34,5	100
31-40	149	19	78	22	91	75	266	29,3	8,3	34,2	28,2	100
Media	133	18	71	24	84	81	260	27,3	9,2	32,3	31,2	100



Seedling biomass of acacia

Conclusions

Regarding the seedling biomass, one can observe that in relation with the other organs (body, branches, and leaves), the root appears well developed, existing some differences according to the specie and the type of soil.

- For oak and ash one can observe a higher value of the root biomass on Calcaro- calcic Chernozem (38,5%, respectively 39%), in comparison with stagnicVertisols, where the root taking percentage was 24,6% respectively 31,6%;
- For acacia we can observe a higher value of the roots biomass on distric Cambisols 33,8%, in comparison with stagnic Luvisols 31,2%.

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