

## STUDY ON THE SITUATION OF ANTI-EROSIONALLY ARRANGED LANDS FOR SOUTH-WEST OLTENIA REGION

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**Keywords:** *landscaped land, anti-erosion works, region.*

### ABSTRACT

In this paper there is presented the average of the anti-erosionally arranged areas in the period 2015-2019, in the South-west Oltenia region. These were of 281097 ha of which the agricultural area 264897 ha (94.24%) and the non-agricultural area 16200 ha (5,76%). Within the agricultural area, the arable land arranged against erosion represents almost half of the total agricultural area (48.81%), while the area occupied by vineyards and nursery is the smallest, respectively 3.93%. At county level, Mehedinti County has the largest agricultural area anti-erosionally arranged, namely 83628 ha, while Olt County is at the opposite pole with 25965 ha. Regarding the situation by way of use, at county level, Mehedinti has the largest arable areas (46,21%) and natural pastures (33.06%), Valcea County has the largest areas with orchards and fruit nurseries (47, 67%) and with vineyards and viticultural nurseries (48.16%), and Gorj County has the largest area of natural grasslands (61.59%).

### INTRODUCTION

Of the processes that affect soil quality, erosion is of the greatest interest, both in terms of the damage it causes and the areas affected. For our country, the theoretical and applied study of water erosion, as well as the means to combat soil erosion, is of interest, as the physical and geographical conditions of most of Romania are favorable for the manifestation of this process. At the level of our country, from the point of view of the evolution of anti-erosion works, it can be stated that they started practically from scratch, in 1950 there were only 2000 ha arranged with CES. works, in 1960 there were already approx. 100,000 ha, in 1970 approx. 435,000 ha, 1.6 thousand ha in 1980 and 2.2 thousand ha in 1989 (Cîmpeanu S., Bucur D., 2006). After 1990, the restitution of land according to law 18/1991, led to a fragmentation of land ownership, in this way many developments were no longer maintained and degraded, and others were even destroyed, which inevitably led to intensification of the soil erosion process. South-west Oltenia region includes five counties: Dolj, Olt, Valcea, Mehedinti and

Gorj. It largely coincides with the old historical region of Oltenia, within its natural limits: the Danube River to the south, the Olt River (the third largest in Romania) to the east, the Carpathian Mountains (Transylvanian Alps) to the north and west, with an area of 29,212 km<sup>2</sup> (7th place among the regions of Romania, 12.25% of the total area of the country).

At the level of South-west Oltenia region, according to INSSE, the area of degraded and unproductive lands is 54549 ha, of which: Dolj county 6026 ha, Gorj county 19426 ha, Mehedinti county 13693ha, Olt county 6702 ha, and Valcea county 8702 ha.

The anti-erosionally arranged area represents the set of hydrotechnical and improvement works performed so as to reduce or stop the degradation of the soil area by erosion.

Within the anti-erosion measures that are being executed, there are measures to prevent and measures to fight against erosion; these must work in a full interdependence, to complement each other.

One of the works to prevent soil erosion is the organisation of arable lands located on the slope, which must be arranged according to the slope and the degree of erosion (cultivation of field plants, vineyards or orchards, pastures and grass lands. Regardless of the mode of use, among the most effective methods of preventing and fighting against soil erosion there is agrotechnical measures and special hydrotechnical works.

The agro-technical measures, regardless of the use, are the following: tillage, plowing, structure and rotation of crops, the placement of crops on the slopes (compact crop system, strip crop system, grassland crop system) furrowing, unclogging and land clearing, mulching, ridging, planting system, cultivation of annual plants among rows of trees or vines, grass strips, establishment of

protective curtains, overseeding, reseeded.

The anti-erosion hydrotechnical works that are being executed lead to the modification of the land configuration. The anti-erosion hydrotechnical works are differentiated by ways of use as follows: on the arable lands located on the slope, special works of interception and retention of surface runoff are performed, such as earth waves and agrotases. In the vineyards on the lands with a slope greater than 15%, leveling-modeling works, terraces, coastal canals and outlets are performed. In the orchards, there are continuous and individual terraces, coastal canals and outlets;

on pastures and meadows, the earth waves and the coastal canals are executed.

At regional level, it is proposed to highlight the weight of each county, for each mode of use (land category).

## MATERIAL AND METHOD

In order to study the current situation of the anti-erosionally arranged lands in the South-west Oltenia region, statistical data provided by the INSS of Romania were used and the percentage method was applied, taking into account the categories of land use. (the average of the period 2015 to 2019)

## RESULTS AND DISCUSSIONS

From table 1, it arises out that the total area anti-erosionally arranged for the South-west Oltenia region (average of 2015 to 2019), was 281097 ha, of which the agricultural area 264897 ha (94.24%), and the non-agricultural area 16200 ha (5.76 %).

Table 1

**The Situation of anti-erosionally arranged lands for the South-west Oltenia Region  
(the average of the period 2015 to 2019)**

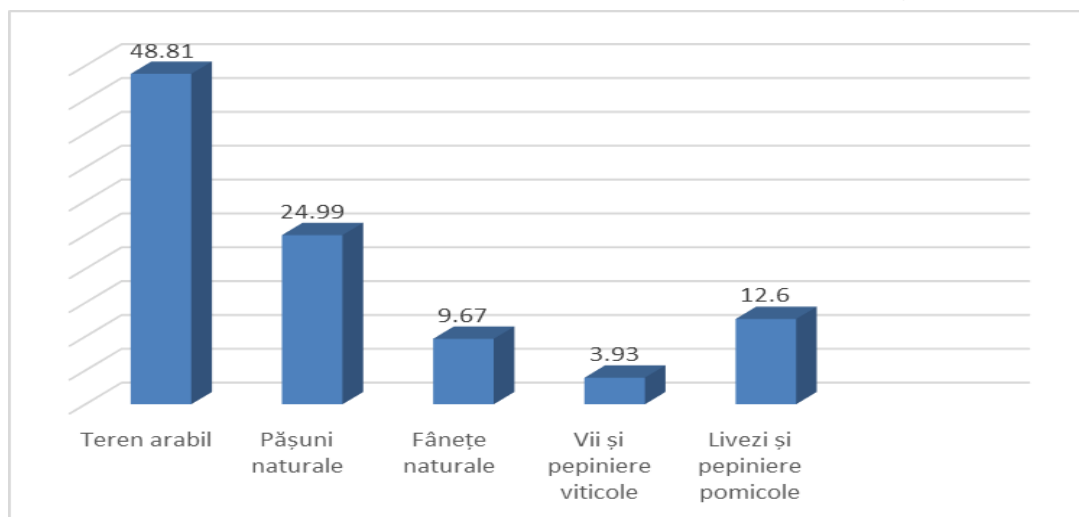
Item No.	Land Category	Area* -ha-	% of total arranged**
1	Total landscape area	281097	100%
2	Landscaped agricultural area	264897	94,24%
3	Arable land	129305	48,81%
4	Natural pastures	66191	24,99%
5	Natural grasslands	25623	9,67%
6	Vineyards and nurseries	10402	3,93%
7	Orchards and fruit nurseries	33376	12,60%
8	Landscaped non-agricultural area	16200	5,76%

<http://statistici.insse.ro:8077/tempo-online/#/pages/tables/insse-table> (01.11.2020)

\*\*own calculations

Within the agricultural area arranged with works to combat soil erosion, at the level of categories or modes of agricultural use, according to Figure 1, the situation is as follows: arable land 129305 ha (48,81%), natural pastures 66191 ha (24,99%), natural grasslands 25623 ha (9,67%), vineyards and nurseries, viticultural nurseries 10402 ha (3,93%), orchards and fruit nurseries 33376 ha (12,60%).

Table 2 shows the average for the years 2015 to 2019 regarding the distribution of anti-erosionally arranged lands for the South-west Oltenia region at county level. Thus, it can be observed that the total developed area was 281097 ha, of which the largest share is Mehedinți County 29.75%, followed by Valcea County (23.16%), then Dolj County (19.63%), Gorj county (18.22%) and lastly Olt county with 9.24% (fig. 2).



**Fig. 1 Anti-erosionally arranged land – structure (ha/ %) by agricultural use categories**

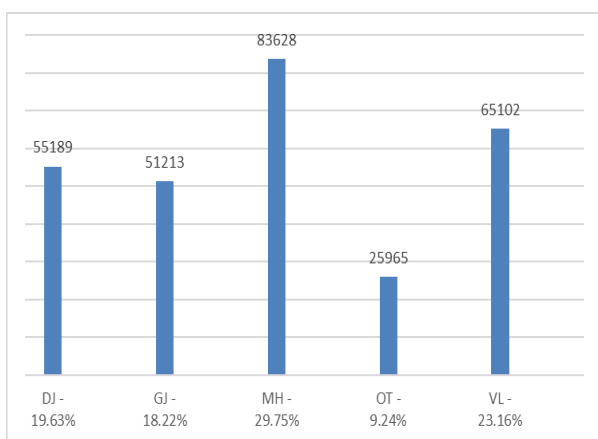
Table 2

**Distribution of anti-erosionally arranged lands for the South-west Oltenia region at county level (the average of the period 2015 to 2019)**

Item No.	Land Category	Area* -ha-	County									
			Dolj		Gorj		Mehedinți		Olt		Vâlcea	
			Area* -ha-	% of the regional total**	Area* -ha-	% of the regional total**	Area* -ha-	% of the regional total**	Area* -ha-	% of the regional total**	Area* -ha-	% of the regional total**
1	Total landscaped area	281097	55189	19,63	51213	18,22	83628	29,75	25965	9,24	65102	23,16
2	Landscaped agricultural area	264897	53642	20,25	49683	18,76	77616	29,30	24958	9,42	58998	22,27
3	Arable land	129305	37374	28,90	13946	10,79	46215	35,74	18779	14,52	12991	10,05
4	Natural pastures	66191	8333	12,59	13583	20,52	21882	33,06	3644	5,50	18749	28,33
5	Natural grasslands	25623	669	2,61	15780	61,59	889	3,47	1428	5,57	6857	26,76
6	Vineyards and viticultural nurseries	10402	2344	22,54	327	3,14	2669	25,66	572	5,5	4490	43,16
7	Orchards and fruit nurseries	33376	4922	14,75	6047	18,12	5961	17,86	535	1,60	15911	47,67
8	Landscaped non-agricultural area	16200	1547	9,55	1530	9,44	6012	37,11	1007	6,22	6104	37,68

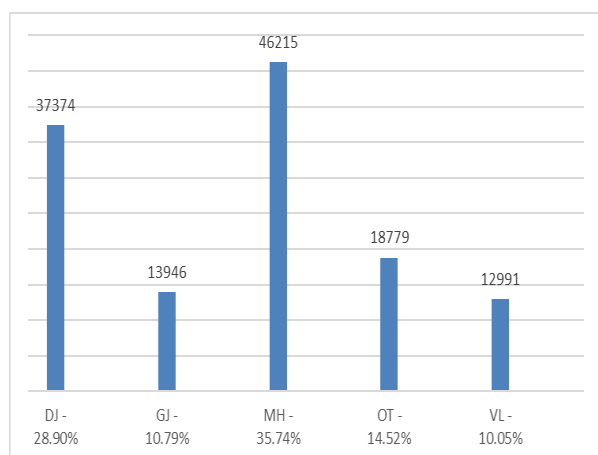
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\*\* own calculations



**Fig. 2 Total landscaped area – county structure (ha, %)**

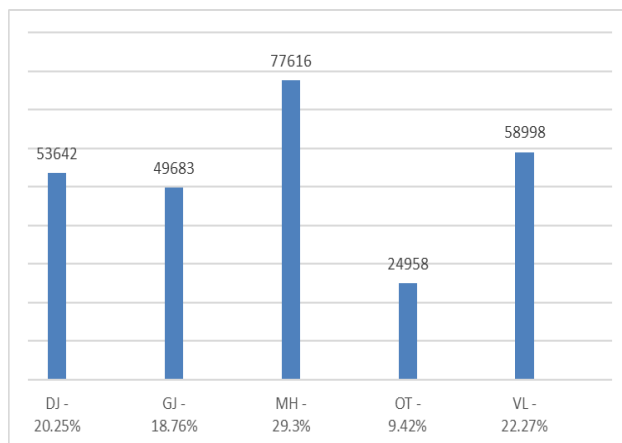
Regarding the arranged arable land, from figure 4 it is observed that Mehedinti County also has the largest arranged area 35.74%, being followed this time by Dolj county with 28.90%.



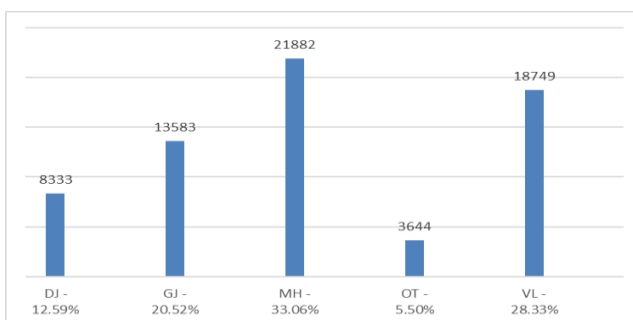
**Fig. 4. Total arable arranged area– county structure (ha, %)**

From figure 5 it can be noticed that Mehedinti county has again the largest area of natural pastures (33.06%), followed by Valcea County with 28.33% and Gorj with 20.52%.

Within the areas occupied by natural grasses and anti-erosionally arranged, the situation radically changes.

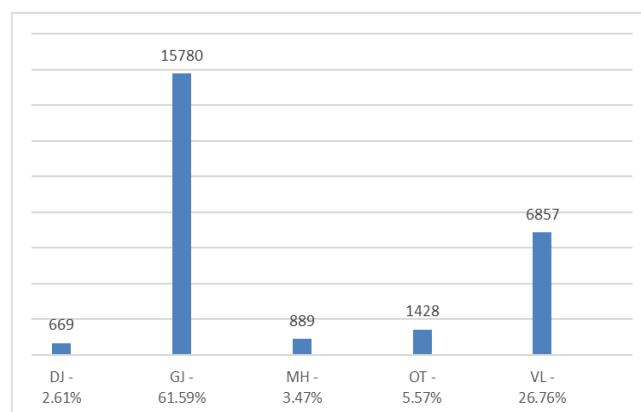


**Fig. 3 Total agricultural area – county structure (ha, %)**



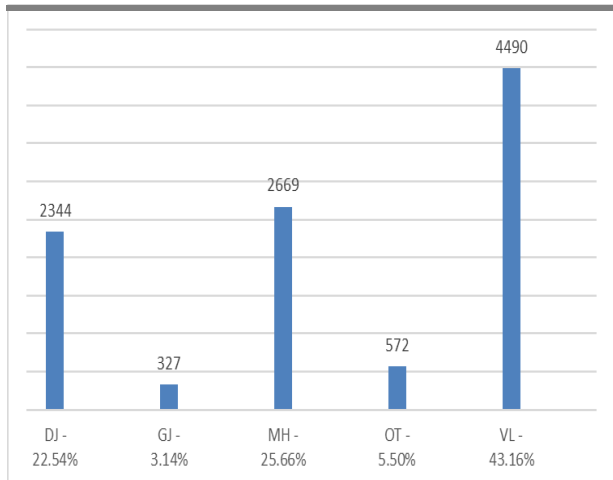
**Fig. 5. Natural pastures arranged area – county structure (ha, %)**

in the sense that Gorj has the largest area of 15,780 ha, ie 61.59%, clearly surpassing all other counties in this respect. (fig. 6).



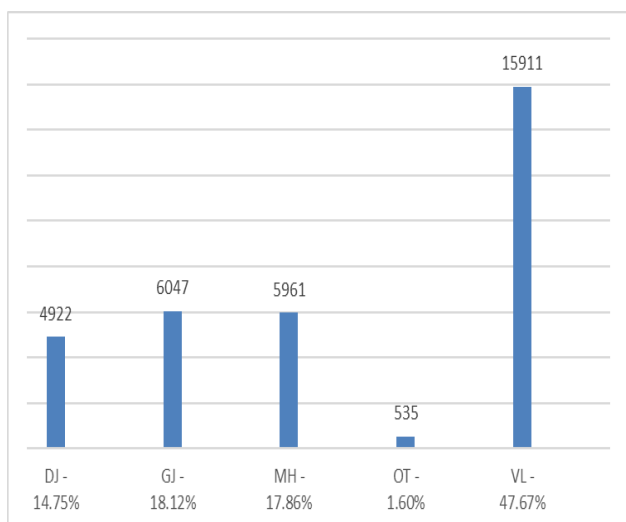
**Fig. 6. Natural grasslands arranged area – county structure (ha, %)**

From figure 7, it can be seen that Valcea has the largest area of vineyards and viticultural nurseries anti-erosionally arranged, namely 4490 ha (43.16%) exceeding Mehedinti and Dolj.



**Fig. 7. Vineyards and viticultural nurseries arranged area – county structure (ha, %)**

In figure 8 it can be seen that Valcea County has the largest anti-erosionally arranged area, occupied with orchards and nurseries, namely 15911 ha which represents approximately 50% of the total

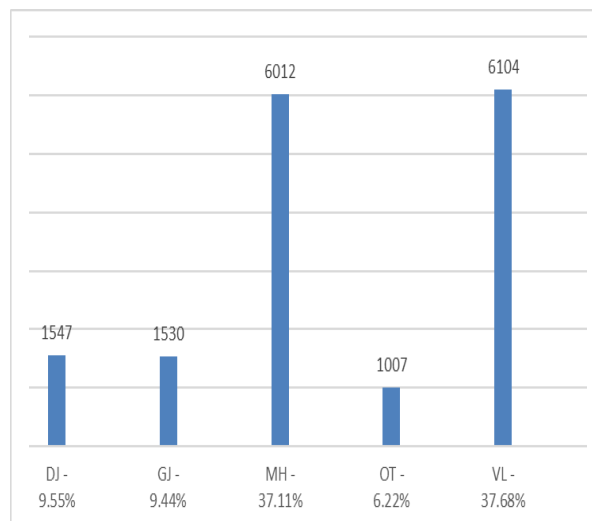


**Fig. 8. Orchards and fruit nurseries arranged area – county structure (ha, %)**

## CONCLUSIONS

The anti-erosionally arranged area (Average 2015 to 2019) for the South-west Oltenia region was 281097 ha, of which the agricultural area was ha (94.24%), and the non-agricultural area was 16200 ha (5.76%). Within the agricultural area arranged by anti-erosion works, at the level of agricultural use

area of the South-west Oltenia region, at the opposite end being Olt County by 1.6%.



**Fig. 9. Non-agricultural arranged area – county structure (ha, %)**

methods, the situation was as follows: arable land 129305 ha (48,81%), natural pastures 66191 ha (24,99%), natural grass lands 25623 ha (9,67%), vineyards and viticultural nurseries 10402 ha (3,93%), orchards and fruit nurseries 33376 ha (12,60%).

Thus it can be concluded that within the agricultural area, the anti-erosionally arranged land represents almost half of the total agricultural area (48.81%), while the area occupied by vineyards and fruit nurseries is the smallest, respectively 3.93%. At county level, out of the total arranged area which was 281097 ha, the highest share has Mehedinti county 29.75%, followed by Valcea county (23.16%), then Dolj county (19, 63%), Gorj county (18.22%) and lastly Olt county with 9.24%.

Regarding the situation by way of use, at county level, Mehedinti has the largest arable areas (46219%) and natural pastures (33,06%), Valcea has the largest areas with orchards and fruit nurseries (47,67%), with vineyards and viticultural nurseries (48,16%), and Gorj has the largest area of natural grasslands (61,59%).

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