BELOW GROUND PARAMETERS MONITORING FINAL REPORT

LIFE15 CCA/ES/000125

December 2019

TheGreenLink

Soil physical and chemical parameters:

It is assumed that data from the analyses of the soil samples would show the effect of the Cocoon and plant growth in the soil of the trial areas. Therefore, care was taken to ensure that soil samples collected represent the soil influenced by the Cocoon and the seedling planted in it. The reliability of a soil analysis depends on a good sampling, since soil tests and analysis are done on a sample that is only a tiny, but representativ, fraction of the field trial where Cocoons were installed and are causing "some effect".

In spring 2017 (first year of The Green Link project), soil samples were taken at two different soil depths, topsoil layer (Ts) and subsoil layer (Ss) at each experimental site. The Ts sample refers to the superficial layer of soil (depth has to be the first 10 cm), and the Ss to the subsoil layer (at a depth between 20 and 30 cm) (Fig. xxx). In spring 2019 (last year of the project) soil sampling was repeated following the same design than in 2017. In this case, Ts samples were taken precisely from the mass of soil introduced in the cylinder of the Cocoon box, where the plant was located, and in direct contact with the plant's root system. The Ss samples were taken below the Cocoon box (the box has a height of around 22 cm). Particularly important is to sample the soil around or within the deeper root system developed by the seedling.

Fig. xxx. Soil sampling carried out in 2019 spring in Jijona's site. a) Ts soils (0-10 cm), b) Ss soils (20-30 cm).

In each plantation site, the most representative species were selected in 2019 for soil and root sampling. It was very important that selected seedlings were as closest as possible to the point where the first soil sampling was done (2017 monitoring) (Fig. xxx). In this place, or close, a seedling planted with Cocoon is supposed to be located. Seedlings were unearthed and used also for root evaluation and carbon stock measurement. In the case that the soil sampling was not done in the place of a Cocoon, the selected seedlings to be unearthed must be the closest to that point.

Composite samples were done by mixing the superficial soil (to do the Ts sample) collected from each of the seedlings unearthed. The same was done for the sub-samples, collected from the subsoil (to do the Ss sample). Every sample was at least of 1.5 kg, trying to avoid rock fragments larger than 2 cm Ø, and visible remains of biomass (particularly those remaining after the microsite evaluation).

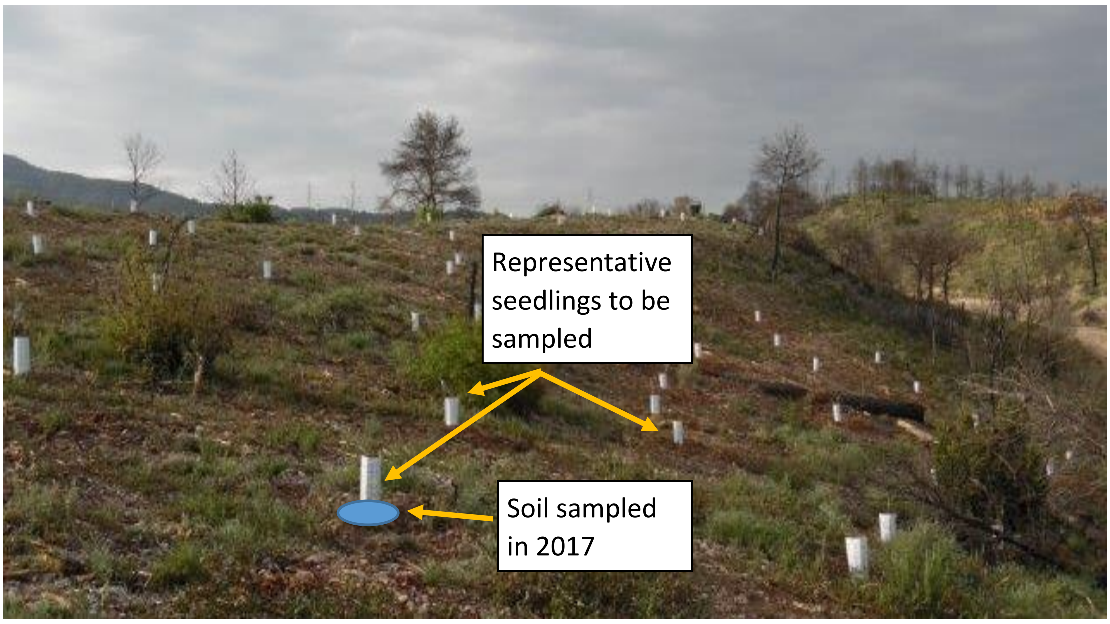


Fig. xxx. Location of seedlings and soil to be sampled in 2019.

In 2017, 72 soil samples covering all trial areas were characterised by means of physical, chemical and biological procedures carried out by the CIDE-CSIC. About 35 soil parameters (>2500 determinations including replicates) were assessed including: soil organic matter (SOM), available Phosphorus (P), carbonates ($CaCO_3$), total nitrogen (TN), total organic carbon (TOC), and particulate organic carbon (POC) contents, as well as cation exchange capacity (CEC), exchangeable cations (Na, K, Mg, Ca), pH, electrical conductivity (EC), structural stability (SS), soil texture (clay, silt and sand), soil erodibility (estimated through the factor K of Universal Soil Loss Equation), water retention capacity (WRC), porosity, bulk density (BD), organic carbon stock, urease, b-glucosidase, acid phosphatase and alkaline phosphatase activities.

Because of **the short time elapsed** between the initial and the final soil sampling (**2 years**) significant changes were not assumed to be measured in the most of the soil characteristics. Accordingly, it is possible to state that all soils analysed (from Almeria, Catalonia, Gran Canaria, Greece, Italy, Jijona and Tous) can be considered as alkaline with pH ranging from 7.15 to 8.8. In general, soils presented a clayey texture, although some sandy clay (Italy, Catalonia) and loamy (Jijona) textures were also observed. Erodibility can be considered very low to low with factor K values ranging from 0.003 to 0.034 T ha h MJ^{-1} ha^{-1} $cm^{-1.}$

The EC, which is a good indicator of soil salinity (excessive level of salts in soils can influence the nutrient's availability), showed that in Tous and Jijona the EC was < 2 dS m^{-1}, being not saline. In Italy, Gran Canaria and some sites from Greece, there is an apparent excess of Na and Mg. Carbonates content influences aggregation, biological activity, and storage and availability of nutrients. In Tous, the content can be considered as very low (<5%), in Gran Canaria low (5-10%), in Italy normal (10-20), and in Catalonia high (20-40%). In Greece, Almeria and Jijona is very high (>40%). Therefore, it is advisable to determine the "active limestone" in order to know its reactive fraction and its possible effects on macro and micro-nutrient immobilization. Based on the results, Catalonia (6-9 % active chalk) shows medium content, then sensible plants can be affected. Jijona, Almeria, Greece (>9%) presents high content of active chalk, which can cause acute chlorosis problems, particularly in tree cultivation.

An important physical property is the water retention capacity that is the amount of water that a given soil can hold for crop use. This is a key soil property in desertified areas. It is calculated as the difference between the field capacity (the maximum amount of water that a soil can retain) and the wilting point (remaining moisture from the soil beyond which plants cannot uptake). All soils analyzed showed medium to high water retention capacities, with values between 10% and 25% in both Ts and Ss. No significant changes at $p<0.5$, from 2017 to 2019, were measured in the former but in the latter it tended to decrease, particularly in Almeria.

The CEC is a quantitative measure of soil's ability to hold the exchangeable cations. In the 0-10 cm horizons, measured in 2017, it was normal (10-20 cmolc kg^{-1}) in Italy, Catalonia, Jijona and Almería, and high (20-30 cmolc kg^{-1}) in Tous. However, most of these values tended to decrease in 2019. In Italy, Catalonia, Tous and Jijona Na^{+} and K^{+} were < 1 $cmol_c$ kg^{-1} but in Gran Canaria Na^{+} 2-5 $cmol_c$ kg^{-1} and Almeria and Gran Canaria K^{+} ranged from 0.7 to 1.4 $cmol_c$ kg^{-1}. On the other hand, in Italy, Catalonia, Tous and Jijona the Mg^{2+} 1-3.6 $cmol_c$ kg^{-1} but in Almeria and Gran Canaria the Mg^{2+} was between 17 and 19 $cmol_c$ kg^{-1}. All soils presented values of Ca^{2+} 8-15 cmol kg^{-1}.

The soil organic matter content is a key property of soil since it is directly related to soil structure, aggregate formation, water flow, water retention capacity, root penetration, resistance to erosion, and aeration among others. It is also important for the biological activity affecting the soil fertility, nutrients source in terms of nutrients-mineralization, nutrients-storage, as well as in the leaching losses, etc.

a)

b)

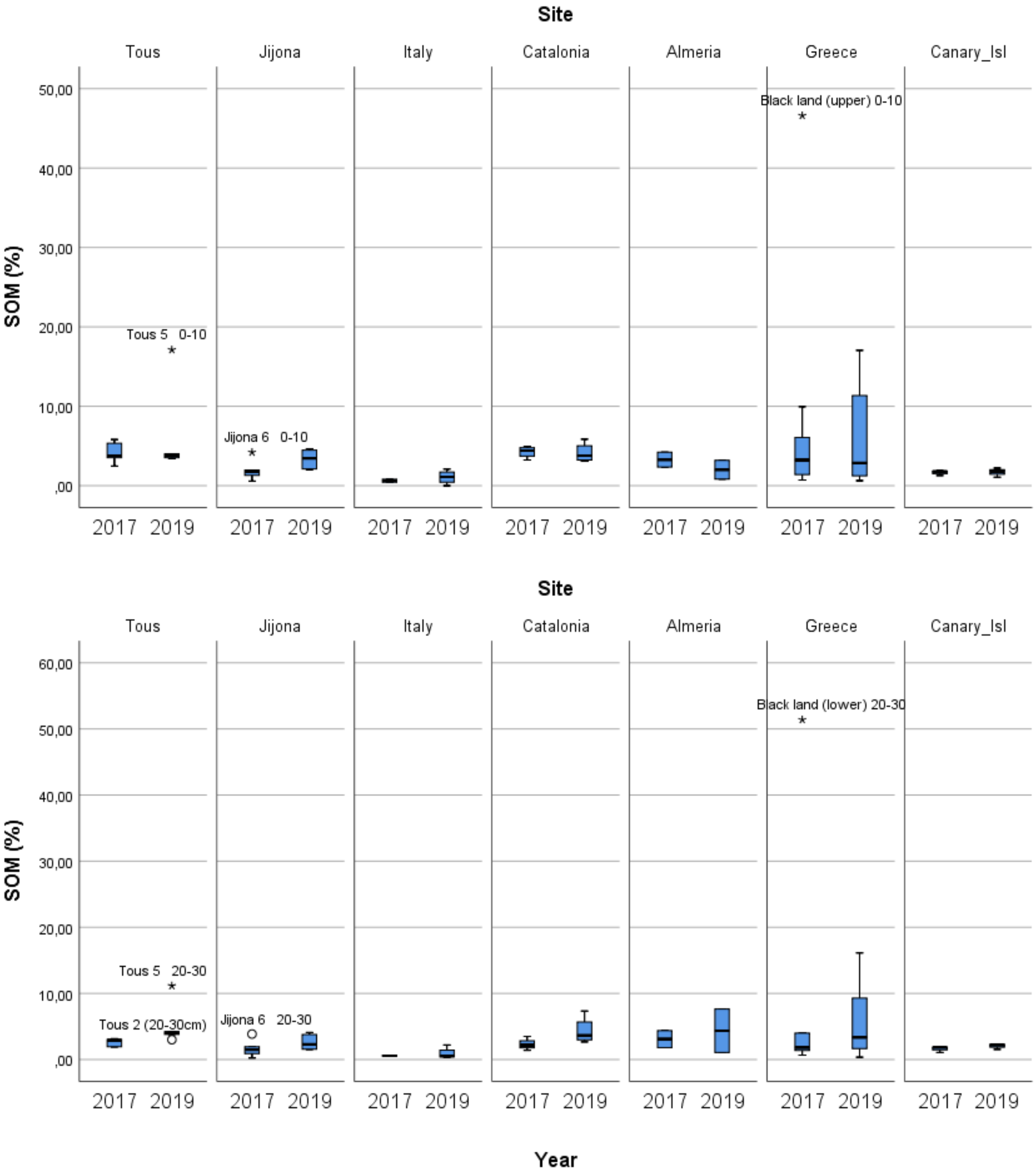


Fig. xxx. Soil organic matter content (%) in the different plantation sites. a) Ts soils (0-10 cm), b) Ss soils (20-30 cm).

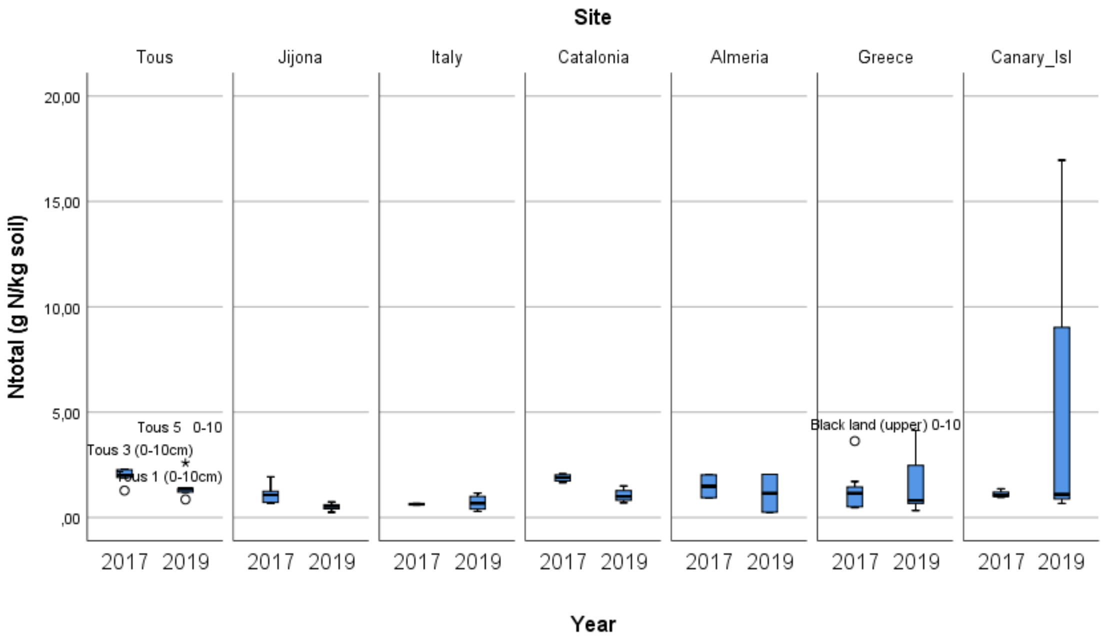
The levels found in 2017 in the first 10 cm of soil are very low (<1%) in Italy, low (1.15-2.3%) in Gran Canaria, Jijona, Almeria and Greece, except for the Black Land sites, normal (3-4%) in Catalonia and Tous, and very high (>5%) in the Black Land sites from Greece. There are not significant changes (at $p<0.5$) in these SOM contents at the end of the project (2019), as it can be observed in Fig. xxx. Only at Jijona and in the Ss of Catalonia significant increases were measured.

The total Carbon content presented great variability in 2019. This variability can be related to a possible **soil mixing during plantations** (Ts and Ss could be combined), and consequently samples taken in 2019 did not correspond exactly to those sampled in 2017, which could produce relative biases in the results. Lowest values were found in Gran Canaria (12-14 g C kg^{-1} soil), Tous (30 C kg^{-1} soil) and Italy (45 C kg^{-1} soil). Catalonia (70 C kg^{-1} soil) presented higher values and the highest were measured in Jijona (105 C kg^{-1} soil), Greece (related to the Black Land sites, 110 C kg^{-1} soil), and Almeria (110 g C kg^{-1} soil). Significant increases in 2019 regarding 2017 were measured in Almeria and subsoil of Catalonia (at $p<0.5$). Another soil characteristic that shows high variability in 2019 is the total Nitrogen content, particularly in Gran Canaria, Greece and Almeria. As it can be seen in Fig. xxx values in Topsoils were in general lower than 5 g N kg^{-1} soil and is Subsoils lower than 3 g N kg^{-1} soil. This can be a limiting factor for seedlings development in most sites, specially having in mind that decreasing trends were observed in Tous, Jijona and Catalonia.

In relation to the available P, Tous (negligible), Catalonia (2 mg P kg^{-1} soil) Gran Canaria (5 mg P kg^{-1} soil), and Jijona (7 mg P kg^{-1} soil) showed very low-low values in 2017, while Greece presented normal values (20 mg P kg^{-1} soil), and Almeria (25 mg P kg^{-1} soil) and Italy (35 mg P kg^{-1} soil) high ones. A significant increase was measured in Italy (contents> 150 mg P kg^{-1} soil) associated to manure addition, while in the subsoils of Jijona and Almeria decreasing trends were observed.

The Total Organic Carbon contents in all sites were between 9 g C kg^{-1} soil (Ss in Gran Canaria) and 96 g C kg^{-1} soil (black land Ss in Greece). As observed in other soil characteristics, great variability was measured in 2019 compared to 2017. Despite this, no significant changes were found between years (at $p<0.5$). Decreasing trends were observed in Almeria and Gran Canaria Topsoils, but increasing one in Catalonia subsoil. On the other hand, the Particulate Organic Carbon (the more labile OC fraction of TOC) was higher in 2019 than in 2017 with no significant differences between sites. Most of these changes were measured in the Subsoil samples as in Tous, Jijona, Catalonia and Gran Canaria (Fig. xxx). In all these sites, the increasing values can be related to an incorporation of labile organic carbon coming from the root system of seedlings, which could be enhanced by the cocoon's presence.

a)



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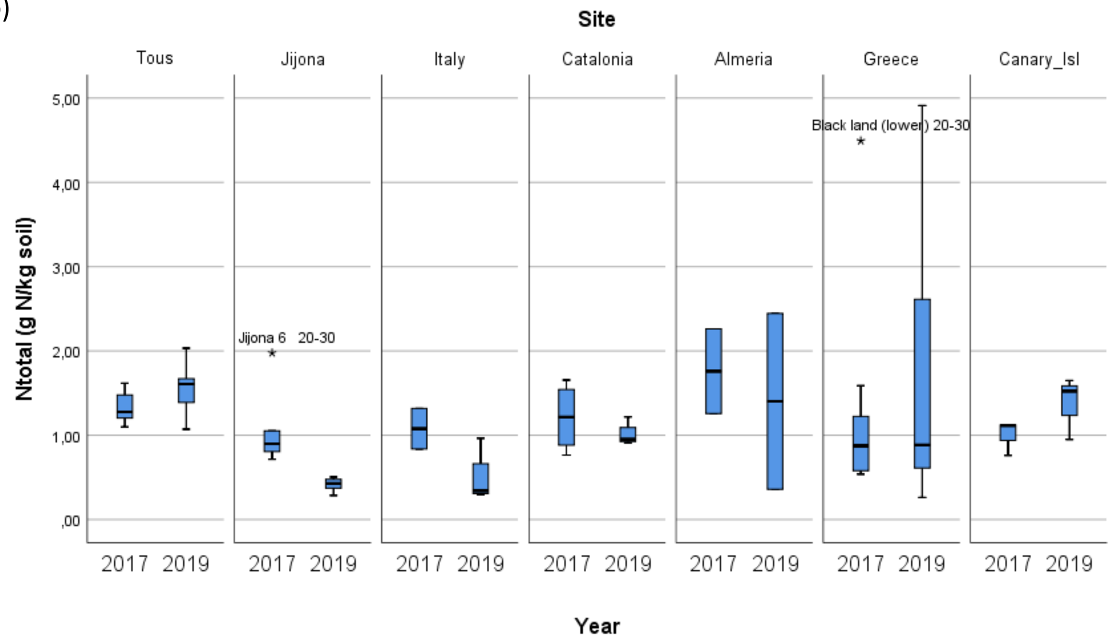
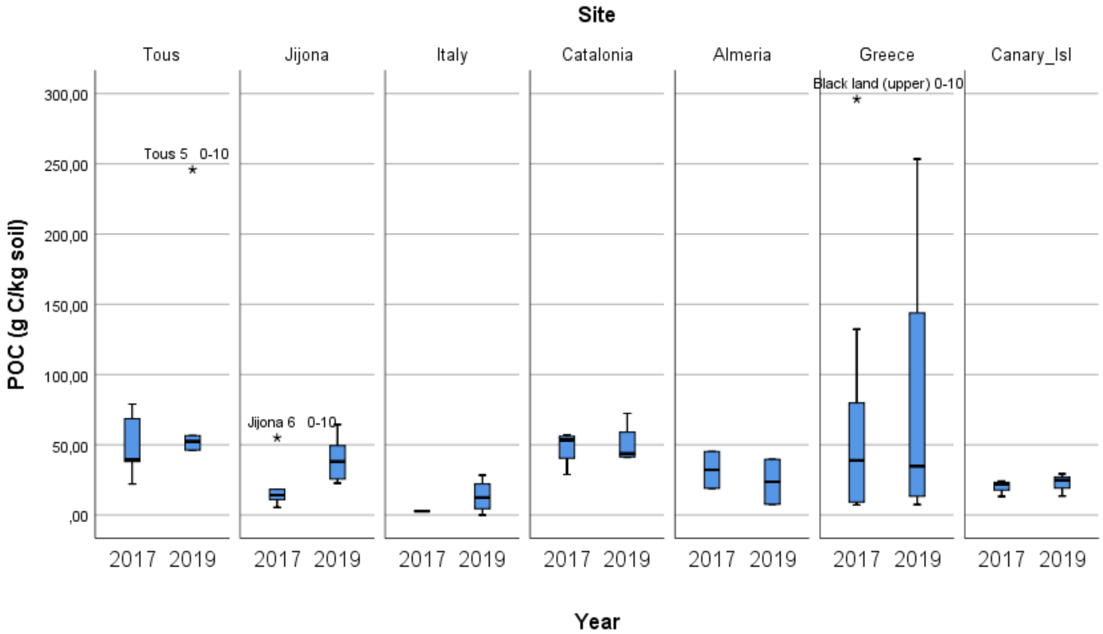


Fig. xxx. Total Nitrogen content (g N kg^{-1} soil) in the different plantation sites. a) Ts soils (0-10 cm), b) Ss soils (20-30 cm).

In relation to soil carbon stock, determined using the TOC, the bulk density and an estimation of the soil depth, significant differences were not observed (at $p<0.5$). This was expected, since bulk density and depth are fixed properties and TOC did not change, as it was already explained. In the first year, the lowest levels were found in Gran Canaria (<20 T ha^{-1}), similar stocks were measured in Jijona, Tous Almeria and Greece (20-40 T ha^{-1}), and the highest in Catalonia and Italy (>50 T ha^{-1}). Similar trends were assessed in both top and subsoils of all sites. In the last year, no significant differences were found, although decreasing trends could be observed in the first 10 cm of Almeria and Gran Canaria soils. These trends could be attributed to soil mixing after the cocoons placement into the soil, as it was explained above.

a)



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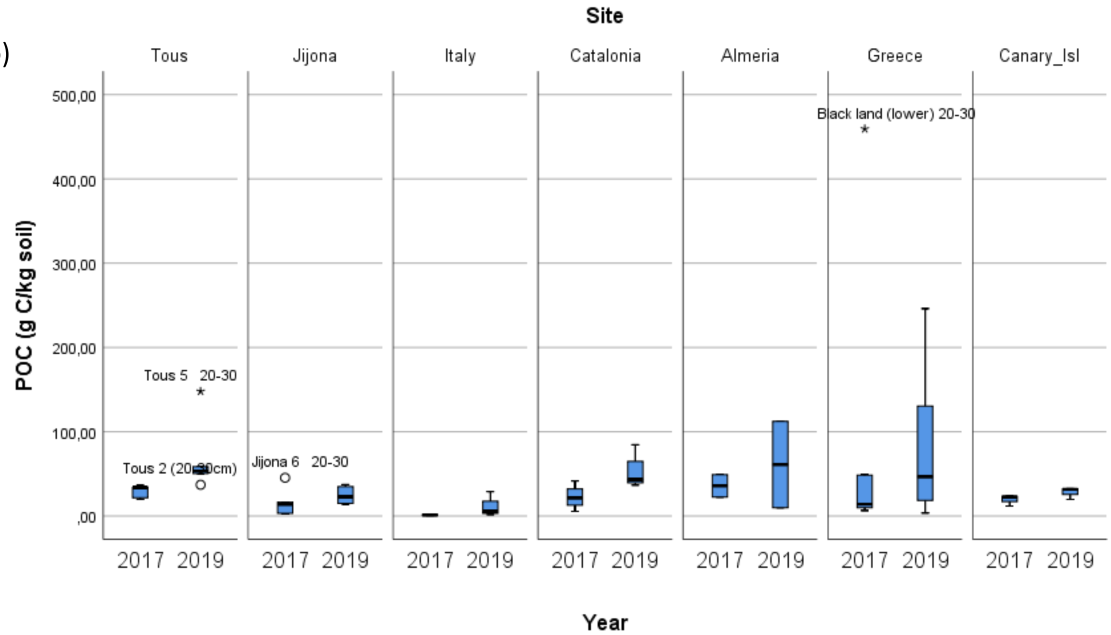

Fig. xxx. Particulate Organic Carbon content (g C kg^{-1} soil) in the different plantation sites. a) Ts soils (0-10 cm), b) Ss soils (20-30 cm).

Root growth and enzymatic activity:

Biological soil properties, and more specifically enzymatic activities, could respond faster to disturbances as the planting of seedlings and the installation of cocoons. In Topsoils, Urease, related to N cycle, presented increasing trends in Italy and Greece but decreasing trends were also observed in other sites. In general, values between 10 and 60 µmoles N g^{-1} in dry soil per hour were measured. On the other hand, increasing trends, and even significant higher values, were determined for the β-glucosidase and phosphatase (acid and alkaline) activities (at $p<0.5$). In Tous, Jijona and Italy, higher β-glucosidase values were measured in 2019 than in 2017 samples (Fig. xxx). These increased from <25 nmoles Glu/h g ds to >25 nmoles Glu/h g ds indicating possible higher activities of enzymes involved in the C cycle.

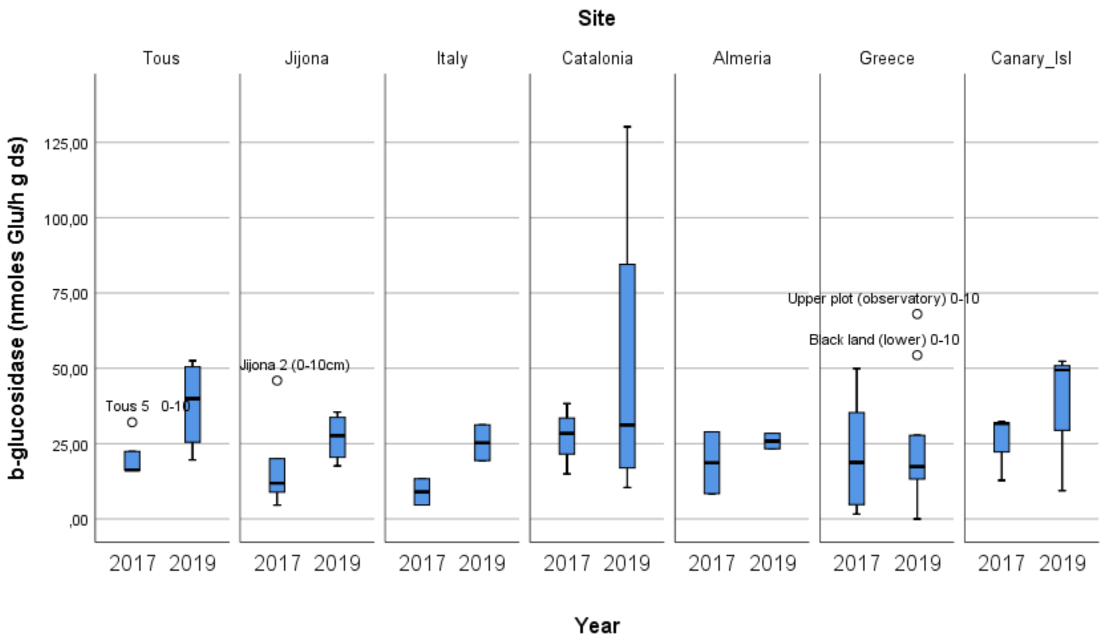

Fig. xxx. β-glucosidase (nmoles Glu/h g ds) in Ts of the different plantation sites.

The highest differences between years (significant at p<0.5) were observed for the acid and alkaline phosphatase activities, whose values were higher in the last year than in the first one (Fig. xxx). Worth mentioning are those of Tous, Jijona and Gran Canaria that in 2019 presented almost twice the values of 2017. Based on these results it is possible to state that microbial activity is increasing in most of the planting sites, which could help to revert the degradation processes affecting zones included in the Green Link project.

Finally, taking advantage of other measurements related to seedlings development, as root length and weight (dry and wet), and the aerial part of plants (dry and wet weights) correlation analyses comparing cocoon and control results were carried out (Tables xxx and xxx). Considering all plantation sites together, in the seedlings planted with cocoon there are positive and significant correlations between root length and weight (dry and wet) regarding soil organic matter content and related characteristics, as total and particulate organic contents as well as the SOC stock. The total content of N was positively and significantly correlated with all variables characterizing the roots development besides the weight of the aerial part of plants (dry and wet). Similar correlations were also found between the aerial part weights and the urease and acid phosphatase activities.

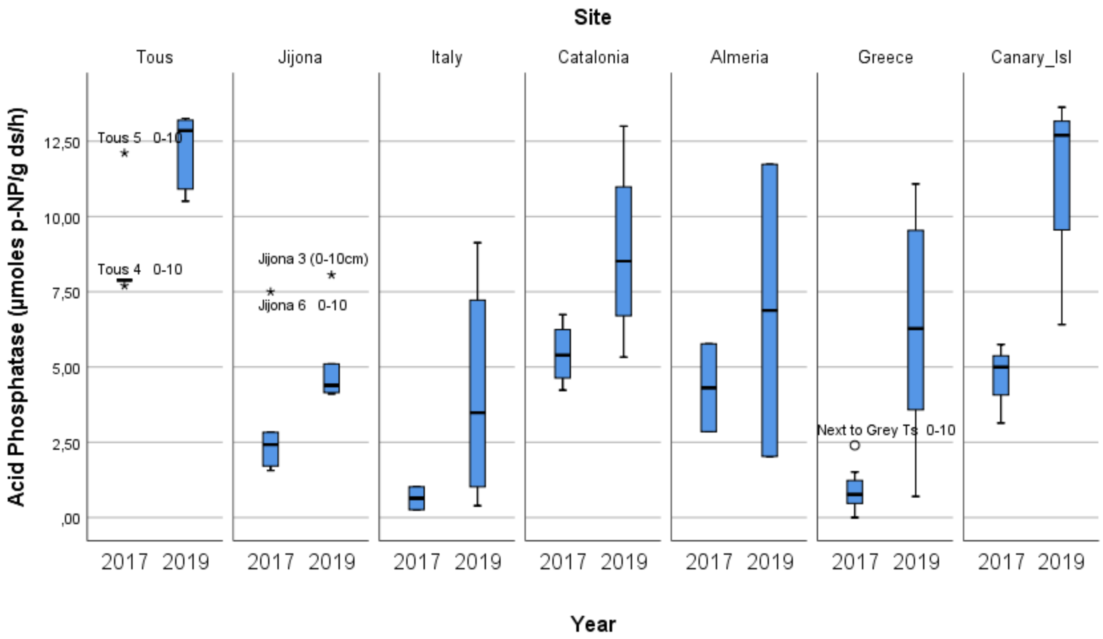

Fig. xxx. Acid Phosphatase (µmoles p-NP/g ds/h) in Ts of the different plantation sites.

On the other hand, in seedlings planted without cocoon (i.e. control ones) positive and significant correlations were found between root, aerial part of plants characteristics and soil moisture: Cation exchange capacity and total N content. SOM and related properties (TOC and SOC stock) were only correlated with the roots length, while POC content was with roots length and weight (Table xxx).

It seems that in seedlings planted with cocoon the development of roots favored the accumulation of organic carbon in the soil, which will tend to increase its stock in soil showing some improvement in only two years. In these seedlings, the development of the aerial part of plants is more related to the enzymatic activity, particularly urease and phosphatase. Moisture is a paramount variable for the development of seedlings without cocoon (roots and aerial part) as well as the of soil's ability to hold the exchangeable cations (CEC). The total content of N showed a significant influence in both, seedlings planted with and without cocoon.

In summary, it possible to conclude that:

- It was assumed that data from the analyses of the soil samples would show the effect of the

Cocoon and plant growth in the soils of the different trial areas. However, **the short time elapsed** between the initial and the final soil sampling (**2 years**) is not enough to let such effects to be significant.

- The reliability of soil analyses depends on a good sampling. Because of the **soil mixing during plantations** (Ts and Ss could be combined) samples taken in 2019 did not correspond exactly to those sampled in 2017, which can produce relative biases in analyses results (higher variability was observed in 2019 characteristics).

- At the end of the project, soil **chemical properties** showed **increasing trends**, as it was observed for available P and Ctotal.

- A certain improvement in soil biological characteristics can be highlighted in relation to the significant **higher** values measured for **POC and enzymatic activities** (mainly acid and alkaline phosphatase), which can suggest that microbial activity is increasing in most of the planting sites, helping to revert the degradation processes affecting zones included in the Green Link project and can be considered the **beginning of soil restauration**.

Rho de Spearman	Available P (mg/kg)	SOM (%)	Na cmol(+)/Kg ss	K cmol(+)/Kg ss	Mg cmol(+)/Kg ss	Ca cmol(+)/Kg ss	pH_ClK (saturated paste)	EC dS/m (paste extract)	WRC (θ10) (%)	WRC (θ20) (%)	Ntotal (g N/kg soil)	TOC (g C/kg soil)	POC (g C/kg soil)	SOC stock (T/ha)	Urease (μmoles N/g ss/hr)	Acid Phosphatase	Root lenght (cm)	Root weight (ww, g)	Root weight (dw, g)	Plant weight (aerial ww, g)
Root lenght (cm)	-,382	,214	-,328	-,292	0,149	0,034	,225	,242	-,330	-0,090	,237	,669	,286	,545	0,009	0,088	1,000	,709	,610	,349
Root weight (ww, g)	-,256	,243	-0,118	-0,195	0,092	,226	0,026	,304	-,232	-,260	,433	,370	,279	,272	0,199	0,102	,709	1,000	,905	,709
Root weight (dw, g)	-,251	,315	-0,127	-0,079	-0,060	,216	-0,140	0,132	-,234	-,466	,330	0,186	,326	0,094	0,234	0,294	,610	,905	1,000	,765
Plant weight (aerial ww, g)	-0,043	0,147	0,092	-0,080	-,282	,224	-0,134	0,077	0,102	-0,202	,273	-0,148	0,125	-0,145	,462	,331	,349	,709	,765	1,000
Plant weight (aerial dw, g)	-0,089	0,082	0,050	-0,098	-,246	0,203	-0,137	0,092	0,009	-,244	,271	-0,106	0,072	-0,124	,386	,377	,354	,707	,774	,975

Table xxx. Correlation results of seedling planted with cocoon and soil characteristics considering all the different plantation sites. ** Significant correlation at p<0.01 (bilateral). * Significant correlation at p<0.05 (bilateral)

Rho de Spearman	Moisture	CO3Ca (%)	SOM (%)	Na cmol(+)/Kg ss	Mg cmol(+)/Kg ss	Ca cmol(+)/Kg ss	CEC cmol(+)/Kg ss	pH_water (saturated paste)	EC dS/m (paste extract)	Ntotal (g N/kg soil)	Ctotal (g C/kg soil)	TOC (g C/kg soil)	POC (g C/kg soil)	SOC stock (T/ha)	Urease (μmoles N/g ss/hr)	Glucosidase	Root lenght (cm)	Root weight (ww, g)	Root weight (dw, g)	Plant weight (aerial ww, g)
Root lenght (cm)	,360	-0,084	,326	0,038	,396	,359	,361	-0,068	,659	,501	-0,136	,393	,405	,327	0,029	0,030	1,000	,829	,773	,440
Root weight (ww, g)	,617	-0,150	0,268	0,190	,300	,556	,540	-0,234	,509	,597	-0,193	0,183	,447	0,099	0,307	-0,178	,829	1,000	,961	,668
Root weight (dw, g)	,648	-,323	0,289	0,146	0,233	,568	,553	-,343	,368	,583	-,424	0,080	,477	0,023	0,403	-0,005	,773	,961	1,000	,618
Plant weight (aerial ww, g)	,590	-0,138	0,066	,344	0,000	,583	,533	-,349	0,098	,556	-0,115	-0,028	0,255	-0,197	,451	-,487	,440	,668	,618	1,000
Plant weight (aerial dw, g)	,553	-0,278	-0,059	0,277	0,065	,561	,520	-0,289	0,022	,516	-0,243	0,019	0,168	-0,156	0,358	-0,416	,413	,619	,631	,965

Table xxx. Correlation results of seedling planted without cocoon (control) and soil characteristics considering all the different plantation sites. ** Significant correlation at p<0.01 (bilateral). * Significant correlation at p<0.05 (bilateral)

ID	Samples	Moisture	CO_3Ca (%)	Active chalk (%)	SOM (%)	Na cmol(+)/Kg	K cmol(+)/Kg	Mg cmol(+)/Kg	Ca cmol(+)/Kg	CEC cmol(+)/Kg
1	TOUS 1 (0-10cm)	2,23	1,35	-	3,83	0,09	0,96	1,99	23,49	26,54
2	TOUS 1 (20-30cm)	2,29	2,77	-	3,79	0,10	0,94	1,67	23,31	26,02
3	TOUS 2 (0-10cm)	1,68	1,38	-	3,52	0,06	1,12	1,39	16,06	18,64
4	TOUS 2 (20-30cm)	1,80	5,48	-	3,00	0,06	1,16	1,30	18,33	20,84
5	TOUS 3 (0-10cm)	1,35	3,68	-	3,41	0,05	0,53	1,11	14,21	15,90
6	TOUS 3 (20-30cm)	1,45	1,67	-	4,03	0,05	0,44	0,97	15,99	17,45
7	JIJONA 1 (0-10cm)	0,51	77,81	13,20	2,03	0,09	0,47	1,16	6,39	8,11
8	JIJONA 1 (20-30cm)	0,53	85,03	15,44	1,54	0,07	0,39	1,13	6,63	8,23
9	JIJONA 2 (0-10cm)	0,51	75,20	15,23	2,45	0,03	0,34	1,04	6,57	7,97
10	JIJONA 2 (20-30cm)	0,42	82,68	15,44	1,56	0,04	0,27	0,96	6,76	8,02
11	JIJONA 3 (0-10cm)	0,52	87,42	16,71	2,11	0,02	0,26	0,73	6,71	7,73
12	JIJONA 3 (20-30cm)	0,58	87,33	16,71	1,68	0,04	0,24	0,82	7,54	8,63
13	BIOPOPLAR parte alta 10cm	0,43	14,66	-	1,35	0,20	0,82	2,82	5,91	9,75
14	BIOPOPLAR parte alta 30cm	0,37	17,07	-	0,46	0,28	0,26	2,31	5,55	8,40
15	BIOPOPLAR parte bassa 10cm	0,20	17,50	-	0,00	1,45	0,07	4,11	0,78	6,41
16	BIOPOPLAR parte bassa 30cm	0,24	22,46	-	0,32	1,48	0,08	4,15	0,82	6,53
17	EL BRUC camp Ts (0-10)	0,35	28,92	6,07	4,18	0,02	0,21	0,80	5,61	6,63
18	EL BRUC camp Ss (20-30)	0,34	28,81	6,84	4,01	0,02	0,19	0,93	5,73	6,87
19	EL BRUC bosc Ts (0-10)	0,56	31,14	9,05	5,85	0,03	0,35	1,76	8,45	10,58
20	EL BRUC bosc Ss (20-30)	0,52	33,10	8,85	7,33	0,02	0,29	1,95	8,20	10,46
21	Almería Ts (0-10)	1,00	62,80	15,27	3,20	0,11	0,79	1,22	12,39	14,51
22	Almería Ss (20-30)	2,71	63,25	15,49	7,64	0,07	0,18	1,41	22,03	23,69
23	Upper plot (observatory) 0-10	0,65	83,58	16,74	1,23	0,07	0,15	0,74	7,71	8,66
24	Upper plot (observatory) 20-30	0,72	83,95	16,31	1,69	0,06	0,16	0,65	7,92	8,79
25	Black land (upper) 0-10	4,27	49,44	13,22	13,99	0,13	1,01	3,14	39,01	43,29
26	Black land (upper) 20-30	4,21	50,45	15,29	16,08	0,08	1,16	2,62	40,13	44,00
27	Black land (lower) 0-10	4,52	64,36	14,44	17,05	0,06	0,41	3,37	42,45	46,29
28	Black land (lower) 20-30	4,68	49,76	13,93	16,12	0,07	0,43	3,73	39,68	43,91

ID	Samples	Moisture	CO_3Ca (%)	Active chalk (%)	SOM (%)	Na cmol(+)/Kg	K cmol(+)/Kg	Mg cmol(+)/Kg	Ca cmol(+)/Kg	CEC cmol(+)/Kg
29	Sensoterra 0-10	1,68	47,97	14,84	2,31	0,05	0,46	1,23	14,85	16,59
30	Sensoterra 20-30	2,04	49,58	15,25	1,47	0,06	0,47	1,61	15,73	17,88
31	Next to Sensoterra 0-10	2,10	71,91	16,38	1,23	0,07	0,15	0,85	7,14	8,21
32	Next to Sensoterra 20-30	1,43	82,87	16,68	2,40	0,21	1,17	0,86	14,04	16,28
33	Sloped area 0-10	0,74	86,16	15,87	2,13	0,07	0,09	1,02	4,96	6,13
34	Sloped area 20-30	0,49	74,98	15,76	1,66	0,04	0,07	0,51	4,97	5,59
35	Pendiente ladera alta Ts 0-10	2,29	5,62	-	2,21	1,30	1,55	8,63	14,51	25,99
36	Pendiente ladera alta Ss 20-30	2,33	5,03	-	2,36	1,19	2,06	8,44	14,89	26,58
37	Terraza ladera alta Ts 0-10	2,77	6,95	-	1,80	1,38	1,21	9,77	18,31	30,66
38	Terraza ladera alta Ss 20-30	2,81	12,35	-	2,20	1,59	1,75	8,78	18,21	30,33
39	Terraza ladera baja Ts 0-10	3,74	4,01	-	1,07	4,23	1,05	16,69	14,96	36,93
40	Terraza ladera baja Ss 20-30	3,49	5,15	-	1,54	2,94	1,39	16,22	16,43	36,98
41	TOUS 4 0-10	2,14	4,15	-	4,00	0,07	1,62	1,46	20,00	23,14
42	TOUS 4 20-30	2,11	38,62	-	4,22	0,06	1,54	1,25	20,02	22,88
43	TOUS 5 0-10	2,22	2,64	-	17,11	0,12	1,34	2,24	29,38	33,08
44	TOUS 5 20-30	1,80	32,61	-	11,15	0,12	0,90	1,59	28,84	31,44
45	JIJONA 4 0-10	0,23	70,84	14,75	4,64	0,03	0,23	0,83	2,36	3,44
46	JIJONA 4 20-30	0,32	69,75	15,71	3,77	0,03	0,21	0,89	5,28	6,41
47	JIJONA 5 0-10	0,38	77,61	11,01	4,48	0,06	0,39	1,22	6,12	7,79
48	JIJONA 5 20-30	0,37	81,34	11,68	4,10	0,09	0,31	1,25	5,88	7,53
49	JIJONA 6 0-10	0,74	70,10	14,92	4,44	0,04	0,46	1,17	6,18	7,85
50	JIJONA 6 20-30	0,93	69,89	15,83	2,92	0,06	0,51	1,73	5,03	7,32
51	Almería rambla Ts 0-10	0,21	53,98	15,72	0,83	0,03	0,14	0,53	3,22	3,92
52	Almería rambla Ss 20-30	0,17	52,55	15,21	1,07	0,03	0,16	0,66	3,98	4,83
53	EL BRUC CT Ts 0-10	0,50	22,82	6,34	3,39	0,03	0,23	1,95	9,58	11,79
54	EL BRUC CT Ss 20-30	0,54	25,46	8,28	3,28	0,04	0,16	1,94	9,41	11,54
55	EL BRUC CT Fons Ts 0-10	0,48	30,96	6,85	3,08	0,04	0,26	2,27	8,67	11,24
56	EL BRUC CT Fons Ss 20-30	0,44	28,72	6,33	2,67	0,03	0,21	2,29	7,96	10,49

ID	Samples	Moisture	CO_3Ca (%)	Active chalk (%)	SOM (%)	Na cmol(+)/Kg	K cmol(+)/Kg	Mg cmol(+)/Kg	Ca cmol(+)/Kg	CEC cmol(+)/Kg
57	Next to Grey Ts 0-10	1,02	58,41	13,80	3,32	0,05	0,20	0,96	13,63	14,84
58	Next to Grey Ss 20-30	1,82	66,89	11,52	6,31	0,07	0,24	1,45	20,92	22,68
59	Above black Ts 0-10	1,12	49,25	11,88	0,64	0,04	0,55	2,87	18,75	22,21
60	Above black Ss 20-30	1,03	54,82	12,14	0,36	0,22	0,41	2,53	15,04	18,19
61	Grey Plot Ts 0-10	0,56	75,63	10,27	3,79	0,05	0,14	0,85	6,12	7,15
62	Grey Plot Ss 20-30	3,51	78,32	10,60	4,30	0,07	0,13	1,28	7,44	8,92
63	Unit 5 Ts 0-10	1,70	82,54	14,05	11,35	0,06	0,14	2,17	28,99	31,37
64	Unit 5 Ss 20-30	2,93	84,25	16,00	9,30	0,06	0,23	1,78	24,67	26,74
65	Calabria 1 Ts 0-10	0,43			2,08	0,17	2,47	2,68	4,06	9,37
66	Calabria 2 Ss 20-30	0,40			2,20	0,21	2,50	2,45	4,38	9,53
67	Calabria 3 Ts 0-10	0,01			0,87	0,27	0,16	2,94	3,48	6,85
68	Calabria 4 Ss 20-30	0,05			0,64	0,26	0,13	3,15	2,72	6,26

ID	Samples	pH_water (saturated paste)	pH_ClK (saturated paste)	EC dS/m (paste extract)	% Clay	% Silt	% Sand	Textural Class
1	TOUS 1 (0-10cm)	7,62	6,54	0,446	42,73	21,30	35,97	Clay
2	TOUS 1 (20-30cm)	7,57	6,49	0,441	44,36	7,28	48,36	Sandy clay
3	TOUS 2 (0-10cm)	7,67	6,67	0,353	54,25	19,13	26,62	Clay
4	TOUS 2 (20-30cm)	7,64	6,70	0,338	62,41	10,34	27,24	Clay
5	TOUS 3 (0-10cm)	7,36	6,50	0,346	53,69	21,75	24,56	Clay
6	TOUS 3 (20-30cm)	7,50	6,60	0,379	64,61	10,31	25,09	Clay
7	JIJONA 1 (0-10cm)	7,85	7,42	0,581	41,43	45,36	13,21	Silty clay
8	JIJONA 1 (20-30cm)	7,90	7,47	0,485	24,57	43,12	32,32	Loam
9	JIJONA 2 (0-10cm)	7,81	7,19	0,404	39,32	49,19	11,48	Silty clay loam
10	JIJONA 2 (20-30cm)	7,88	7,50	0,407	32,56	34,92	32,52	Clay loam
11	JIJONA 3 (0-10cm)	7,87	7,20	0,403	37,66	42,91	19,43	Silty clay loam
12	JIJONA 3 (20-30cm)	7,99	7,37	0,447	21,76	34,84	43,40	Loam
13	BIOPOPLAR parte alta 10cm	7,73	6,92	0,538	20,11	23,12	56,77	Silty clay loam
14	BIOPOPLAR parte alta 30cm	7,69	6,86	0,509	17,84	22,49	59,67	Sandy loam
15	BIOPOPLAR parte bassa 10cm	8,30	7,54	3,670	21,25	22,16	56,60	Silty clay loam
16	BIOPOPLAR parte bassa 30cm	8,36	7,53	3,210	19,26	23,64	57,09	Sandy loam
17	EL BRUC camp Ts (0-10)	7,87	7,37	0,544	20,11	23,12	56,77	Silty clay loam
18	EL BRUC camp Ss (20-30)	7,85	7,33	0,489	17,84	22,49	59,67	Sandy loam
19	EL BRUC bosc Ts (0-10)	7,94	7,39	0,597	21,25	22,16	56,60	Silty clay loam
20	EL BRUC bosc Ss (20-30)	7,96	7,24	0,522	19,26	23,64	57,09	Sandy loam
21	Almería Ts (0-10)	7,79	7,26	0,854	28,47	32,00	39,53	Clay loam
22	Almería Ss (20-30)	7,75	7,21	0,753	24,64	40,36	35,00	Loam
23	Upper plot (observatory) 0-10	7,96	7,24	0,455	47,69	39,69	12,62	Clay
24	Upper plot (observatory) 20-30	7,87	7,17	0,418	50,85	44,49	4,66	Silty clay
25	Black land (upper) 0-10	7,65	7,03	0,742	34,46	65,54	0,00	Silty clay loam
26	Black land (upper) 20-30	7,70	7,00	0,687	49,63	34,31	16,06	Clay

ID	Samples	pH_water (saturated paste)	pH_ClK (saturated paste)	EC dS/m (paste extract)	% Clay	% Silt	% Sand	Textural Class
27	Black land (lower) 0-10	7,82	6,97	0,564	28,38	53,88	17,74	Silty clay loam
28	Black land (lower) 20-30	7,72	6,91	0,697	64,45	35,55	0,00	Clay
29	Sensoterra 0-10	7,73	6,90	0,615	41,05	32,84	26,11	Clay
30	Sensoterra 20-30	7,90	6,98	0,421	46,66	34,82	18,52	Clay
31	Next to Sensoterra 0-10	7,96	7,25	0,634	30,92	34,40	34,68	Clay loam
32	Next to Sensoterra 20-30	7,74	7,31	2,570	46,57	36,08	17,35	Clay
33	Sloped area 0-10	7,93	7,43	0,558	41,97	47,48	10,55	Silty clay
34	Sloped area 20-30	7,92	7,52	0,417	44,92	45,18	9,90	Silty clay
35	Pendiente ladera alta Ts 0-10	7,49	6,51	0,868	48,79	37,47	13,74	Clay
36	Pendiente ladera alta Ss 20-30	7,45	6,44	1,165	62,27	27,92	9,82	Clay
37	Terraza ladera alta Ts 0-10	7,67	6,69	1,034	43,16	45,66	11,18	Silty clay
38	Terraza ladera alta Ss 20-30	7,73	6,76	0,880	44,76	32,55	22,68	Clay
39	Terraza ladera baja Ts 0-10	8,07	6,79	0,945	57,55	27,66	14,79	Clay
40	Terraza ladera baja Ss 20-30	7,80	6,77	0,796	64,59	20,53	14,88	Clay
41	TOUS 4 0-10	7,83	6,89	0,350	54,75	24,24	21,02	Clay
42	TOUS 4 20-30	7,84	6,98	0,366	56,32	10,55	33,14	Clay
43	TOUS 5 0-10	7,70	6,64	0,405	85,59	14,41	0,00	Clay
44	TOUS 5 20-30	7,71	6,67	0,335	70,11	13,84	16,05	Clay
45	JIJONA 4 0-10	7,84	7,24	0,425	29,94	45,47	24,59	Clay loam
46	JIJONA 4 20-30	8,00	7,23	0,368	41,48	40,55	17,97	Silty clay
47	JIJONA 5 0-10	7,91	7,26	0,402	18,36	37,93	43,71	Loam
48	JIJONA 5 20-30	7,98	7,45	0,389	11,68	9,27	79,05	Sandy loam
49	JIJONA 6 0-10	7,54	7,20	2,700	43,16	48,18	8,66	Silty clay
50	JIJONA 6 20-30	7,67	7,22	2,840	17,36	14,28	68,36	Sandy loam
51	Almería rambla Ts 0-10	8,07	7,47	0,445	42,22	35,47	22,31	Clay
52	Almería rambla Ss 20-30	8,03	7,45	0,505	15,37	15,47	69,16	Sandy loam

ID	Samples	pH_water (saturated paste)	pH_ClK (saturated paste)	EC dS/m (paste extract)	% Clay	% Silt	% Sand	Textural Class
53	EL BRUC CT Ts 0-10	7,91	7,32	0,555	33,38	17,09	49,53	Sandy clay loam
54	EL BRUC CT Ss 20-30	7,92	7,27	0,530	13,77	9,19	77,04	Sandy loam
55	EL BRUC CT Fons Ts 0-10	7,96	7,28	0,546	30,50	27,85	41,65	Clay loam
56	EL BRUC CT Fons Ss 20-30	7,95	7,27	0,509	12,91	11,66	75,43	Sandy loam
57	Next to Grey Ts 0-10	7,82	7,14	0,748	31,55	39,59	28,87	Clay loam
58	Next to Grey Ss 20-30	7,74	7,19	0,543	20,90	15,25	63,85	Sandy clay loam
59	Above black Ts 0-10	7,73	6,73	0,310	54,73	21,11	24,16	Clay
60	Above black Ss 20-30	7,84	6,75	0,305	46,41	34,03	19,56	Clay
61	Grey Plot Ts 0-10	7,51	7,30	1,959	45,02	54,98	0,00	Silty clay
62	Grey Plot Ss 20-30	7,50	7,31	2,370	42,87	51,69	5,44	Silty clay
63	Unit 5 Ts 0-10	7,46	7,00	1,702	47,12	40,09	12,79	Silty clay
64	Unit 5 Ss 20-30	7,49	7,00	1,337	46,93	37,31	15,76	Clay
65	Calabria 1 Ts 0-10	7,83	7,16	1,024				
66	Calabria 2 Ss 20-30	7,90	7,21	0,969				
67	Calabria 3 Ts 0-10	8,07	7,18	0,801				
68	Calabria 4 Ss 20-30	8,19	7,37	0,657				

ID	Samples	Structural Stability (% stable aggregates)	WRC (θ10) (%)	WRC (θ20) (%)	Total porosity (%)	BD (g/cm³)	Erodibility (factor K) T ha h MJ^{-1} ha^{-1} cm^{-1}	Available P (mg/kg)
1	TOUS 1 (0-10cm)	9,67	20,36	14,48	52,34	1,15	0,012	nd
2	TOUS 1 (20-30cm)	23,24	21,74	15,61	57,31	1,04	0,007	nd
3	TOUS 2 (0-10cm)	16,82	22,04	13,32	55,54	1,04	0,010	nd
4	TOUS 2 (20-30cm)	33,31	19,84	14,46	56,22	0,94	0,007	nd
5	TOUS 3 (0-10cm)	14,67	25,24	11,83	53,33	1,13	0,011	nd
6	TOUS 3 (20-30cm)	34,99	21,60	12,81	60,70	1,01	0,007	nd
7	JIJONA 1 (0-10cm)	7,09	28,27	20,80	49,12	1,31	0,030	nd
8	JIJONA 1 (20-30cm)	7,12	26,42	19,47	50,50	1,27	0,032	0,25
9	JIJONA 2 (0-10cm)	7,75	25,37	19,16	48,71	1,32	0,034	5,31
10	JIJONA 2 (20-30cm)	7,84	24,31	17,01	48,82	1,32	0,028	2,69
11	JIJONA 3 (0-10cm)	9,78	26,79	24,71	49,10	1,29	0,030	0,95
12	JIJONA 3 (20-30cm)	9,84	27,38	22,45	49,49	1,31	0,032	3,86
13	BIOPOPLAR parte alta 10cm	3,32	29,48	23,70	50,30	1,36	0,021	46,25
14	BIOPOPLAR parte alta 30cm	5,20	31,74	21,65	48,23	1,37	0,024	nd
15	BIOPOPLAR parte bassa 10cm	4,34	20,12	19,32	52,50	1,38	0,020	0,95
16	BIOPOPLAR parte bassa 30cm	2,97	19,98	17,48	48,78	1,42	0,025	2,94
17	EL BRUC camp Ts (0-10)	5,05	19,54	12,58	50,65	1,10	0,017	nd
18	EL BRUC camp Ss (20-30)	2,28	18,67	13,14	42,27	1,34	0,023	nd
19	EL BRUC bosc Ts (0-10)	15,50	20,94	15,40	57,75	1,25	0,014	nd
20	EL BRUC bosc Ss (20-30)	3,97	20,55	13,73	46,57	1,48	0,022	nd
21	Almería Ts (0-10)	7,99	29,65	21,05	54,15	1,07	0,022	44,30
22	Almería Ss (20-30)	8,55	25,87	19,30	53,67	1,07	0,031	nd
23	Upper plot (observatory) 0-10	9,75	34,10	26,78	54,86	1,04	0,022	38,93
24	Upper plot (observatory) 20-30	8,70	27,34	23,60	54,55	0,94	0,023	43,24
25	Black land (upper) 0-10	20,68	29,41	28,38	66,35	0,70	0,000	nd
26	Black land (upper) 20-30	18,61	22,69	20,43	55,60	0,98	0,019	nd
27	Black land (lower) 0-10	22,99	35,20	25,65	60,77	0,92	0,008	6,22
28	Black land (lower) 20-30	33,09	30,85	22,31	69,37	0,66	0,000	nd

ID	Samples	Structural Stability (% stable aggregates)	WRC (θ10) (%)	WRC (θ20) (%)	Total porosity (%)	BD (g/cm^3)	Erodibility (factor K) T ha h MJ^{-1} ha^{-1} cm^{-1}	Available P (mg/kg)
29	Sensoterra 0-10	4,31	34,02	32,25	61,58	1,07	0,017	24,51
30	Sensoterra 20-30	3,27	32,24	30,42	61,65	1,07	0,017	18,23
31	Next to Sensoterra 0-10	11,65	28,49	22,33	60,54	0,99	0,020	39,38
32	Next to Sensoterra 20-30	10,30	25,63	18,76	63,20	0,97	0,016	20,13
33	Sloped area 0-10	9,89	32,52	20,87	61,03	0,87	0,025	38,00
34	Sloped area 20-30	7,47	30,29	23,38	60,15	0,90	0,023	40,18
35	Pendiente ladera alta Ts 0-10	22,91	29,20	21,94	74,41	0,86	0,013	13,16
36	Pendiente ladera alta Ss 20-30	25,32	34,69	24,77	78,46	0,86	0,006	27,68
37	Terraza ladera alta Ts 0-10	22,76	20,76	10,91	84,81	0,96	0,020	7,10
38	Terraza ladera alta Ss 20-30	17,65	25,11	16,01	79,80	0,95	0,012	10,89
39	Terraza ladera baja Ts 0-10	22,16	18,94	8,08	86,88	0,91	0,007	nd
40	Terraza ladera baja Ss 20-30	19,96	19,98	12,84	82,00	0,91	0,003	nd
41	TOUS 4 0-10	39,58	23,93	14,12	68,17	0,98	0,006	nd
42	TOUS 4 20-30	31,78	21,88	14,98	68,42	1,15	0,004	nd
43	TOUS 5 0-10	56,29	24,23	19,52	73,86	0,84	0,000	nd
44	TOUS 5 20-30	40,11	19,45	14,93	66,58	1,02	0,003	nd
45	JIJONA 4 0-10	5,34	27,31	15,51	53,38	1,29	0,033	0,87
46	JIJONA 4 20-30	3,05	26,93	15,68	57,86	1,26	0,026	3,20
47	JIJONA 5 0-10	6,29	27,22	19,70	58,52	1,84	0,034	3,20
48	JIJONA 5 20-30	6,11	25,87	19,69	48,12	1,40	0,014	6,08
49	JIJONA 6 0-10	24,28	23,96	19,41	74,48	0,85	0,016	24,67
50	JIJONA 6 20-30	34,07	24,79	18,57	69,43	1,01	0,008	16,42
51	Almería rambla Ts 0-10	7,13	19,16	15,47	59,32	0,99	0,017	5,28
52	Almería rambla Ss 20-30	8,28	22,30	20,42	62,16	0,96	0,009	4,99
53	EL BRUC CT Ts 0-10	17,96	21,05	19,76	57,25	1,06	0,010	nd
54	EL BRUC CT Ss 20-30	15,02	22,67	21,49	61,64	1,12	0,006	nd
55	EL BRUC CT Fons Ts 0-10	25,93	20,84	23,62	58,91	1,07	0,016	nd
56	EL BRUC CT Fons Ss 20-30	17,35	19,63	19,76	54,80	1,24	0,012	nd

ID	Samples	Structural Stability (% stable aggregates)	WRC (θ10) (%)	WRC (θ20) (%)	Total porosity (%)	BD (g/cm^3)	Erodibility (factor K) T ha h MJ^{-1} ha^{-1} cm^{-1}	Available P (mg/kg)
57	Next to Grey Ts 0-10	11,43	32,54	24,30	66,92	0,97	0,014	28,65
58	Next to Grey Ss 20-30	7,54	31,07	24,82	64,95	1,04	0,008	13,67
59	Above black Ts 0-10	9,96	24,89	21,09	64,99	1,08	0,009	19,32
60	Above black Ss 20-30	8,46	24,39	21,10	50,87	1,06	0,021	25,89
61	Grey Plot Ts 0-10	36,23	42,77	35,62	66,25	0,94	0,021	16,07
62	Grey Plot Ss 20-30	36,58	45,26	38,76	61,48	0,93	0,021	14,49
63	Unit 5 Ts 0-10	9,60	22,13	17,06	59,04	0,98	0,018	6,74
64	Unit 5 Ss 20-30	10,28	25,57	19,22	61,77	0,95	0,014	7,98
65	Calabria 1 Ts 0-10	3,32	29,48	23,70	50,30	1,36	0,021	202,51
66	Calabria 2 Ss 20-30	5,20	31,74	21,65	48,23	1,37	0,024	153,52
67	Calabria 3 Ts 0-10	4,34	20,12	19,32	52,50	1,38	0,020	21,89
68	Calabria 4 Ss 20-30	2,97	19,98	17,48	48,78	1,42	0,025	8,09

ID	Samples	Ntotal (g N/kg soil)	Ctotal (g C/kg soil)	TOC (g C/kg soil)	POC (g C/kg soil)	SOC stock (T/ha)
1	TOUS 1 (0-10cm)	0,86	14,98	14,67	52,38	16,80
2	TOUS 1 (20-30cm)	1,39	26,17	25,57	50,40	26,54
3	TOUS 2 (0-10cm)	1,37	36,59	35,90	46,16	37,28
4	TOUS 2 (20-30cm)	1,07	27,60	26,86	37,06	25,23
5	TOUS 3 (0-10cm)	1,20	23,40	23,10	46,06	26,17
6	TOUS 3 (20-30cm)	1,67	37,29	36,36	53,30	36,61
7	JIJONA 1 (0-10cm)	0,60	104,11	26,45	22,68	34,60
8	JIJONA 1 (20-30cm)	0,42	102,98	26,57	14,16	33,67
9	JIJONA 2 (0-10cm)	0,53	103,97	25,99	25,70	34,29
10	JIJONA 2 (20-30cm)	0,50	109,10	24,66	14,93	32,65
11	JIJONA 3 (0-10cm)	0,74	115,91	22,10	30,28	28,50
12	JIJONA 3 (20-30cm)	0,48	110,94	22,90	16,94	29,92
13	BIOPOPLAR parte alta 10cm	0,84	8,42	8,33	15,92	11,32
14	BIOPOPLAR parte alta 30cm	0,36	2,38	2,36	4,61	3,23
15	BIOPOPLAR parte bassa 10cm	0,29	73,44	56,11	0,00	77,38
16	BIOPOPLAR parte bassa 30cm	0,32	73,86	54,83	1,76	77,98
17	EL BRUC camp Ts (0-10)	0,70	72,44	48,62	41,69	53,45
18	EL BRUC camp Ss (20-30)	0,94	73,47	49,74	42,02	66,57
19	EL BRUC bosc Ts (0-10)	1,05	79,35	51,84	72,32	64,67
20	EL BRUC bosc Ss (20-30)	0,91	76,27	50,71	84,61	74,95
21	Almería Ts (0-10)	2,05	93,31	31,15	39,64	33,27
22	Almería Ss (20-30)	2,44	158,89	32,74	112,26	35,04
23	Upper plot (observatory) 0-10	0,67	111,78	16,33	12,60	17,06
24	Upper plot (observatory) 20-30	0,64	112,79	19,39	18,50	18,26
25	Black land (upper) 0-10	4,13	196,32	95,82	208,66	66,80
26	Black land (upper) 20-30	4,91	223,96	115,99	246,02	113,24
27	Black land (lower) 0-10	4,04	202,50	105,44	253,47	96,86
28	Black land (lower) 20-30	3,52	180,49	90,79	221,36	59,59
29	Sensoterra 0-10	0,80	87,19	38,29	35,19	40,91

ID	Samples	Ntotal (g N/kg soil)	Ctotal (g C/kg soil)	TOC (g C/kg soil)	POC (g C/kg soil)	SOC stock (T/ha)
30	Sensoterra 20-30	0,55	67,94	34,62	18,03	36,97
31	Next to Sensoterra 0-10	0,33	104,20	23,38	13,38	23,21
32	Next to Sensoterra 20-30	0,70	102,83	30,61	35,30	29,79
33	Sloped area 0-10	0,68	119,70	22,59	23,83	19,61
34	Sloped area 20-30	0,61	92,57	28,35	19,35	25,40
35	Pendiente ladera alta Ts 0-10	1,09	12,79	12,29	29,34	10,56
36	Pendiente ladera alta Ss 20-30	1,65	16,65	16,28	32,59	13,99
37	Terraza ladera alta Ts 0-10	0,67	10,59	10,06	24,80	9,66
38	Terraza ladera alta Ss 20-30	0,95	17,90	16,89	31,63	16,01
39	Terraza ladera baja Ts 0-10	16,96	5,99	5,83	13,52	5,33
40	Terraza ladera baja Ss 20-30	1,52	9,89	9,60	19,61	8,73
41	TOUS 4 0-10	1,36	61,41	46,03	56,51	44,94
42	TOUS 4 20-30	1,61	46,20	36,83	58,46	42,34
43	TOUS 5 0-10	2,59	35,18	32,51	245,86	27,16
44	TOUS 5 20-30	2,03	26,30	22,99	147,87	23,44
45	JIJONA 4 0-10	0,26	108,76	22,80	49,42	29,48
46	JIJONA 4 20-30	0,37	106,72	20,05	28,70	25,28
47	JIJONA 5 0-10	0,41	104,47	24,97	45,83	46,02
48	JIJONA 5 20-30	0,28	102,74	26,33	37,14	36,81
49	JIJONA 6 0-10	0,56	97,69	30,02	64,45	25,58
50	JIJONA 6 20-30	0,44	89,88	29,23	34,90	29,62
51	Almería rambla Ts 0-10	0,25	123,11	24,31	7,69	23,96
52	Almería rambla Ss 20-30	0,36	117,36	29,76	9,85	28,61
53	EL BRUC CT Ts 0-10	1,50	65,81	52,81	45,75	55,98
54	EL BRUC CT Ss 20-30	0,97	61,77	49,05	44,82	54,90
55	EL BRUC CT Fons Ts 0-10	0,95	77,66	54,39	40,98	58,17
56	EL BRUC CT Fons Ss 20-30	1,22	77,83	54,37	36,60	67,16
57	Next to Grey Ts 0-10	0,83	108,02	25,13	34,27	24,26
58	Next to Grey Ss 20-30	1,52	121,67	43,17	79,30	44,71

ID	Samples	Ntotal (g N/kg soil)	Ctotal (g C/kg soil)	TOC (g C/kg soil)	POC (g C/kg soil)	SOC stock (T/ha)
59	Above black Ts 0-10	0,39	56,49	30,89	7,48	33,52
60	Above black Ss 20-30	0,26	65,68	32,84	3,57	34,91
61	Grey Plot Ts 0-10	1,07	120,81	21,60	48,63	20,33
62	Grey Plot Ss 20-30	1,07	123,73	24,09	58,02	22,29
63	Unit 5 Ts 0-10	2,47	173,72	56,79	143,89	55,54
64	Unit 5 Ss 20-30	2,61	154,87	56,82	130,47	53,85
65	Calabria 1 Ts 0-10	1,16	15,90	15,62	28,40	20,31
66	Calabria 2 Ss 20-30	0,96	12,51	12,32	29,00	16,02
67	Calabria 3 Ts 0-10	0,51	76,57	59,68	8,91	77,58
68	Calabria 4 Ss 20-30	0,30	72,62	56,13	6,26	72,97

ID	Samples	Urease (µmoles N/g ss/hr)	Glucosidase (nmoles Glu/ hr g ss)	Acid Phosphatase (µmoles p-NP/g ss/hr)	Alkaline Phosphatase (µmoles p-NP/g ss/hr)
1	TOUS 1 (0-10cm)	28,13	31,43	10,91	12,98
2	TOUS 1 (20-30cm)				
3	TOUS 2 (0-10cm)	12,41	52,49	12,85	14,33
4	TOUS 2 (20-30cm)				
5	TOUS 3 (0-10cm)	22,78	19,57	10,51	11,75
6	TOUS 3 (20-30cm)				
7	JIJONA 1 (0-10cm)	18,00		5,10	14,21
8	JIJONA 1 (20-30cm)				
9	JIJONA 2 (0-10cm)	13,02	31,92	4,50	12,92
10	JIJONA 2 (20-30cm)				
11	JIJONA 3 (0-10cm)	27,84		8,06	13,82
12	JIJONA 3 (20-30cm)				
13	BIOPOPLAR parte alta 10cm	12,94	19,35	5,31	12,98
14	BIOPOPLAR parte alta 30cm				
15	BIOPOPLAR parte bassa 10cm	16,76		0,39	0,90
16	BIOPOPLAR parte bassa 30cm				
17	EL BRUC camp Ts (0-10)	17,00	38,85	5,33	16,52
18	EL BRUC camp Ss (20-30)				
19	EL BRUC bosc Ts (0-10)	15,48	10,40	8,07	17,05
20	EL BRUC bosc Ss (20-30)				
21	Almería Ts (0-10)	14,65	28,39	11,73	16,03
22	Almería Ss (20-30)				
23	Upper plot (observatory) 0-10	27,87	68,01	6,08	17,60
24	Upper plot (observatory) 20-30				
25	Black land (upper) 0-10	31,55		9,06	2,37
26	Black land (upper) 20-30				
27	Black land (lower) 0-10	15,86	54,35	0,70	0,31
28	Black land (lower) 20-30				

ID	Samples	Urease (µmoles N/g ss/hr)	Glucosidase (nmoles Glu/ hr g ss)	Acid Phosphatase (µmoles p-NP/g ss/hr)	Alkaline Phosphatase (µmoles p-NP/g ss/hr)
29	Sensoterra 0-10	21,71	13,26	10,06	17,74
30	Sensoterra 20-30				
31	Next to Sensoterra 0-10	23,82	13,71	3,34	11,55
32	Next to Sensoterra 20-30				
33	Sloped area 0-10	27,07	17,38	11,08	19,99
34	Sloped area 20-30				
35	Pendiente ladera alta Ts 0-10	14,27	9,36	12,70	15,27
36	Pendiente ladera alta Ss 20-30				
37	Terraza ladera alta Ts 0-10	12,93	52,33	13,63	20,21
38	Terraza ladera alta Ss 20-30				
39	Terraza ladera baja Ts 0-10	30,51	49,44	6,41	15,70
40	Terraza ladera baja Ss 20-30				
41	TOUS 4 0-10	41,33	48,47	13,26	12,32
42	TOUS 4 20-30				
43	TOUS 5 0-10	16,59		13,20	15,96
44	TOUS 5 20-30				
45	JIJONA 4 0-10	5,69	23,32	4,11	14,44
46	JIJONA 4 20-30				
47	JIJONA 5 0-10	13,60	35,48	4,28	15,43
48	JIJONA 5 20-30				
49	JIJONA 6 0-10	6,07	17,57	4,15	15,11
50	JIJONA 6 20-30				
51	Almería rambla Ts 0-10	18,79	23,27	2,03	9,57
52	Almería rambla Ss 20-30				
53	EL BRUC CT Ts 0-10	9,72	23,52	13,00	12,67
54	EL BRUC CT Ss 20-30				
55	EL BRUC CT Fons Ts 0-10	8,10	130,17	8,96	16,21
56	EL BRUC CT Fons Ss 20-30				

ID	Samples	Urease (µmoles N/g ss/hr)	Glucosidase (nmoles Glu/ hr g ss)	Acid Phosphatase (µmoles p-NP/g ss/hr)	Alkaline Phosphatase (µmoles p-NP/g ss/hr)
57	Next to Grey Ts 0-10	20,87	4,76	3,58	11,12
58	Next to Grey Ss 20-30				
59	Above black Ts 0-10	1,95	0,00	6,47	20,62
60	Above black Ss 20-30				
61	Grey Plot Ts 0-10	32,18	27,75	9,54	14,38
62	Grey Plot Ss 20-30				
63	Unit 5 Ts 0-10	14,10	19,35	4,64	3,13
64	Unit 5 Ss 20-30				
65	Calabria 1 Ts 0-10	34,53		9,13	14,18
66	Calabria 2 Ss 20-30				
67	Calabria 3 Ts 0-10	14,13	31,20	1,65	5,91
68	Calabria 4 Ss 20-30				