

SUSTAINABLE SUBSTRATES FOR AGRICULTURE FROM DREDGED REMEDIATED MARINE SEDIMENTS

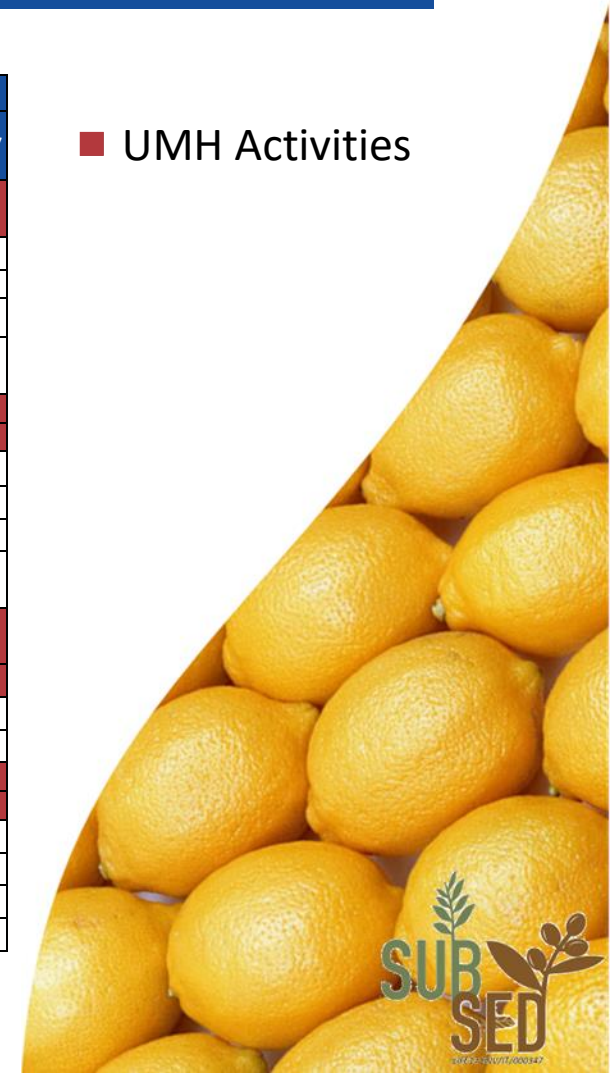
LIFE17 ENV/IT/000347



Project Schedule

ACTION Nº	ACTION NAME OF THE ACTION	2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A.1	Review of the EU and national regulations on the use of sediments for plant nursery and of the analytical protocols				■											■	
B. Implementation actions (obligatory)																	
B.1	Phytoremediated Sediment treated via landfarming process				■	■											
B.2	Demonstration of the use of remediated sediments as a substrate for nursery production						■	■	■	■	■	■	■				
B.3	Demonstration of the use of remediated sediments as substrate for non food crops cultivation (from plantlets to final production: flowers/ornamental)						■	■	■	■	■	■	■				
B.4	Demonstration of the use of remediated sediments as a substrate for food crops production						■	■	■	■	■	■	■	■			
B.5	Training courses, workshops and guidelines for project replicability and transferability											■	■	■	■	■	
B.6	SUBSED Business Plan													■	■	■	
C. Monitoring of the impact of the project actions (obligatory)																	
C.1	Monitoring and validation of treated sediments					■	■										
C.2	Monitoring and validation of the use of remediated sediments as a substrate for plant nursing and cultivation: non food crops production							■	■	■	■	■	■	■	■		
C.3	Monitoring and validation of the use of remediated sediments as a substrate for nursing and cultivation: food crops production							■	■	■	■	■	■	■	■		
C.4	Monitoring of socio-economic impact of the project and LCA												■	■	■	■	
C.5	Performance indicators monitoring				■					■				■		■	
D. Public awareness and dissemination of results (obligatory)																	
D.1	Project dissemination plan: web-site, material, articles, Layman's report and video				■	■	■	■	■	■	■	■	■	■	■	■	
D.2	Project dissemination plan: events, networking and contacts with Institutions and policy makers				■	■	■	■	■	■	■	■	■	■	■	■	
E. Project management (obligatory)																	
E.1	Project management by FLORA				■	■	■	■	■	■	■	■	■	■	■	■	
E.2	SUBSED Audit															■	
E.3	SUBSED After-LIFE plan															■	

■ UMH Activities



ACTION A.1: Review of the EU and national regulations on the use of sediments for plant nursery and of the analytical protocols

ANNEX 1: SPANISH LEGAL BACKGROUND FOR THE USE OF TREATED SEDIMENT

Based on the principal Spanish legal parameters, the treated sediment it could be considered appropriate as agriculture substrate for using it on the context of Project LIFE17 ENV/IT/347 – Life-SUBSED, as justified below:

METALS CONTENT (Table 1)

- Metals content according to the maximum limit legal established on Spanish Royal Decree 865/2010 (growing media) for ligneous cultivar as Citrus (Class B).
- For classification as Class A (horticultural cultivars), only [Ni] and [Zn] values are a bit out of legal limits. But, it should be considered that the treated sediment will not use pure on the tests, and based on the results of previous experiments (Project LIFE14 ENV/IT/113-Life HORTISED), the sediment mix with peat (50%) presented [Ni] and [Zn] values according to the limits for a class A sediment (25 mg Kg⁻¹ and 193 mg Kg⁻¹ for [Ni] and [Zn], respectively).
- In addition, the Ministry of Agriculture, Food and Environment, Ports of the State (Ministry of Development) and the Centro de Estudios y Experimentación en Obras Públicas (CEDEX), through the Interministerial Commission of Marine Strategies (Spanish acronym, CIEM), created and regulated by Royal Decree 715/2012, elaborated the "Guidelines for the characterization of dredged material and its relocation in the maritime-terrestrial public domain". The final version was published in November 2017, along with the agreements for its normative processing. According to the guidelines, the characterization of the sediment, for metallic content, would agree as non-hazardous sediment. Concept of non-hazardous sediment for the purposes of Law 22/2011, of July 28, on waste and contaminated soils.

Table 1: Metals contents of treated sediment compared with Spanish maximum legal limits

Parameter	Unit	Value	CIEM 2017	and Law 22/2011	Royal Decree 865/2010
			Non-hazardous sediment	Class A	Class B
Cd	mg Kg ⁻¹	< L.Q.	2	1	1
Cr (total)	mg Kg ⁻¹	54.3 ± 1.2	1000	70	150
Cu	mg Kg ⁻¹	34.3 ± 4.3	2500	10	30
Hg	mg Kg ⁻¹	0.075 ± 0.001	17	1	1
Ni	mg Kg ⁻¹	34.6 ± 5.33	1000	25	90
Pb	mg Kg ⁻¹	35.2 ± 3.7	1000	75	150
V	mg Kg ⁻¹	30.8 ± 3.7	n.a	n.a	n.a
Zn	mg Kg ⁻¹	248 ± 11	2500	200	500

n.a. = not available; L.Q: Limit of Quantitation

Overview of Spanish legislation

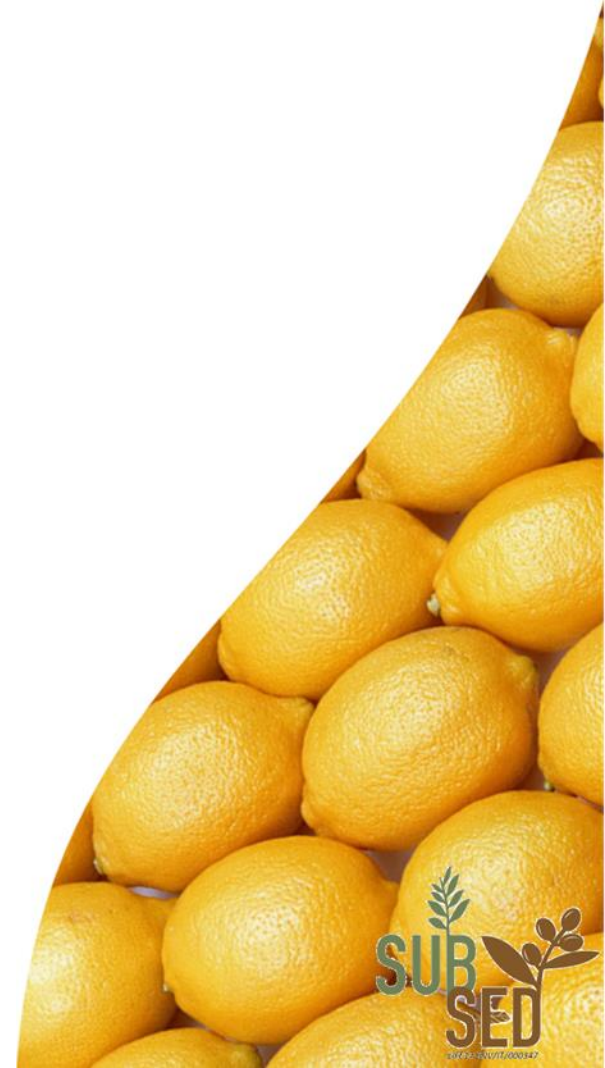


Sediment receipt
(04/05/2020)

ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production



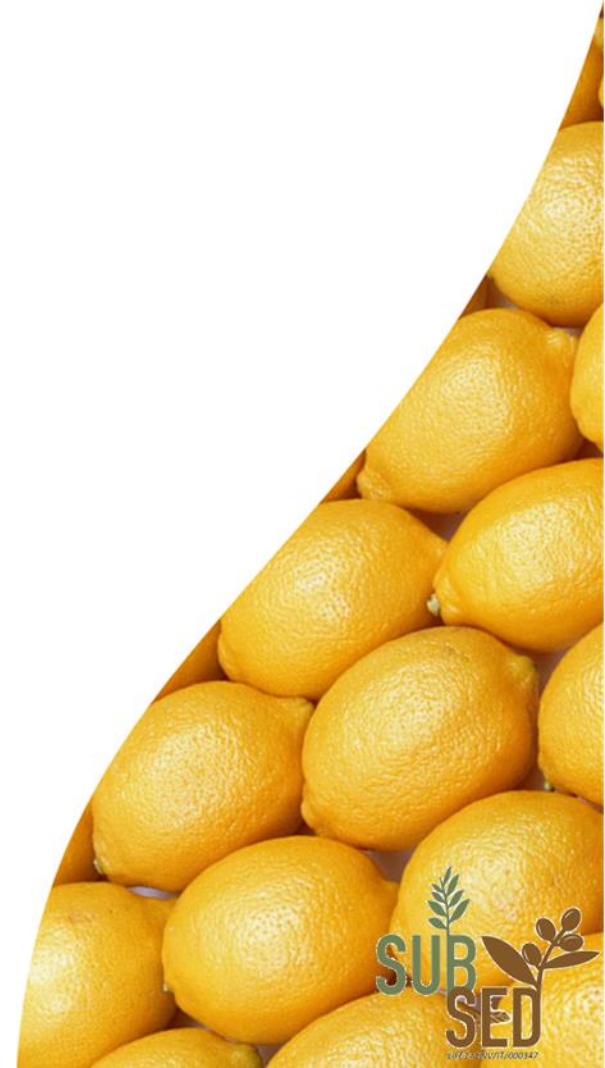
Sediment treatment
(14/05/2020)



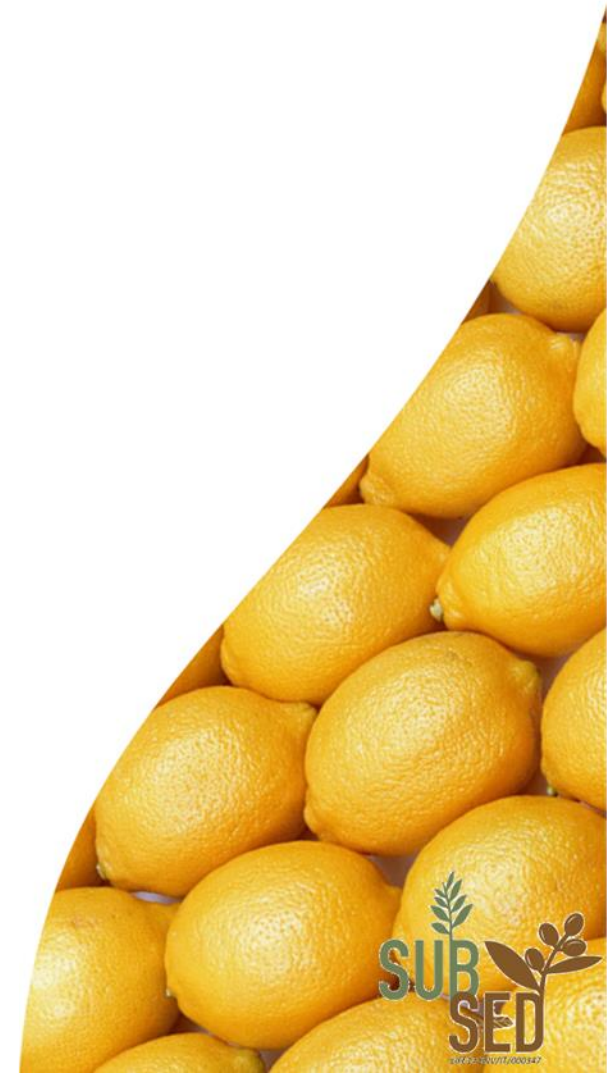
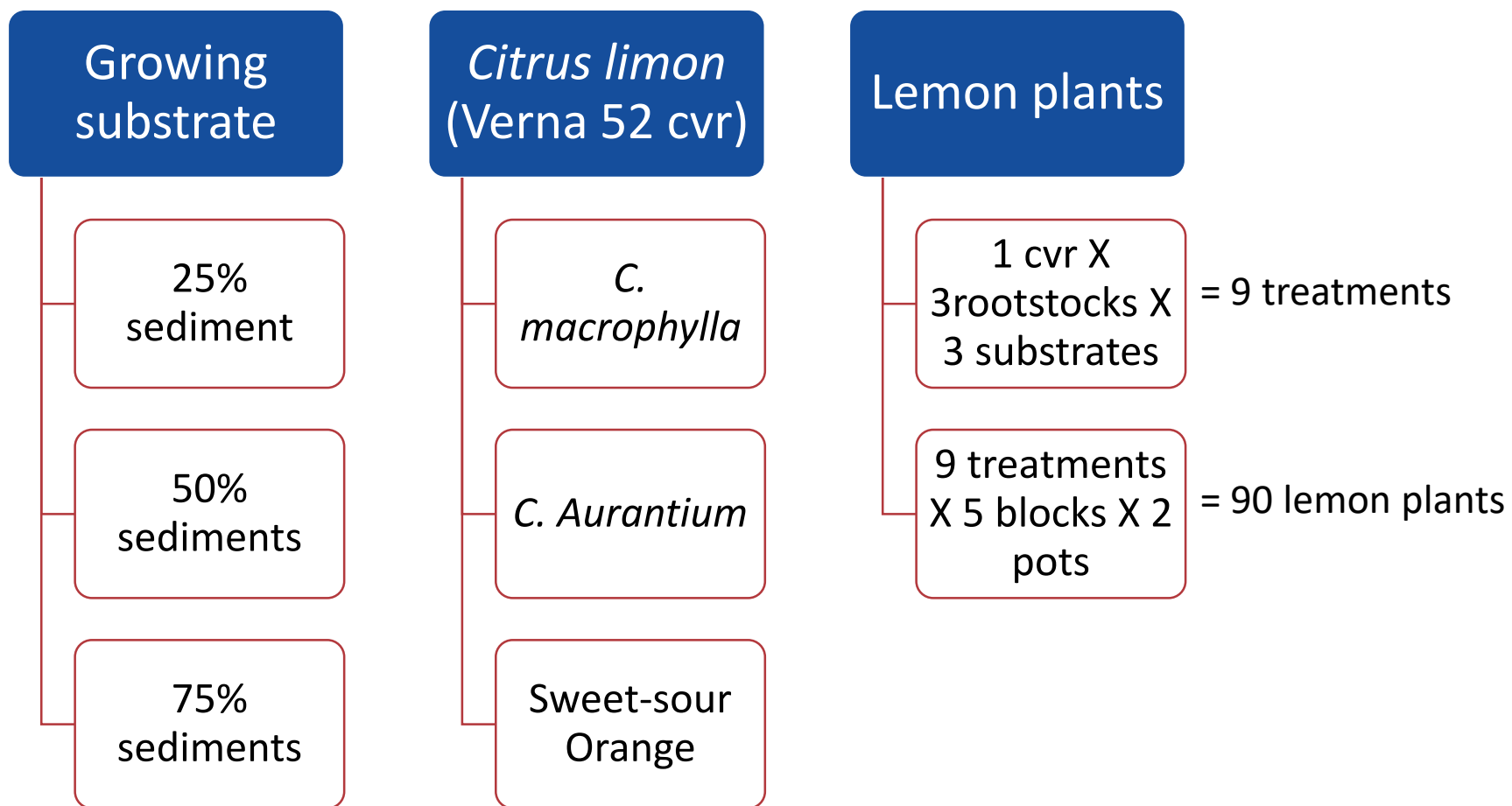
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Citrus planting
(20/05/2020)



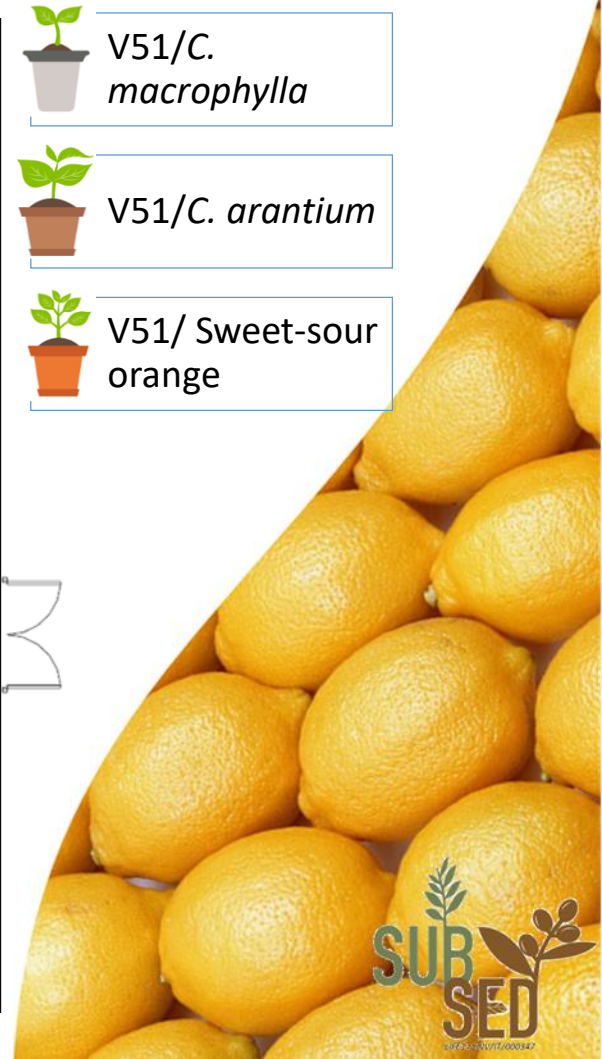
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ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production

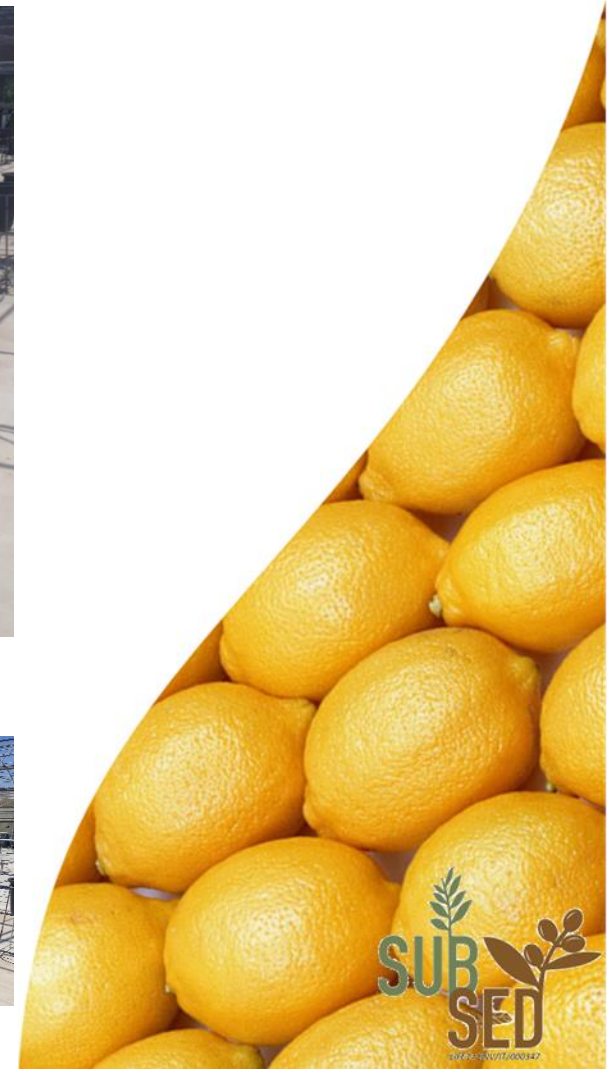
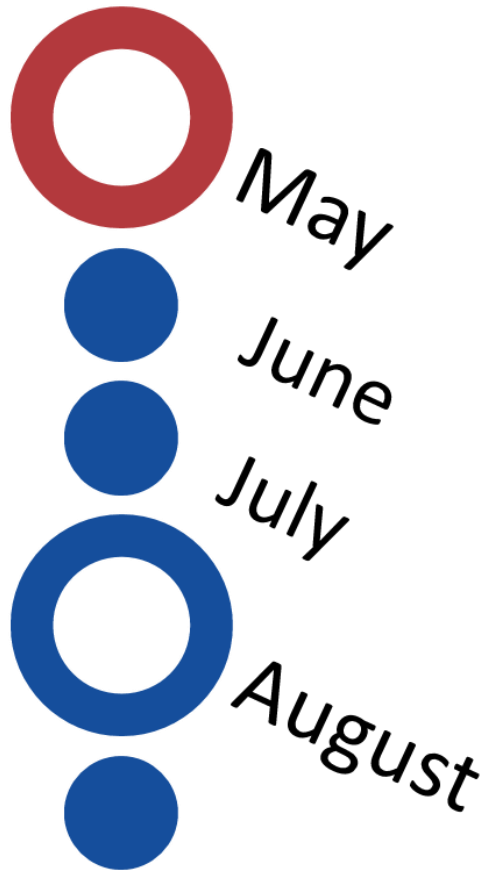


- V51/C. macrophylla
- V51/C. arantium
- V51/ Sweet-sour orange



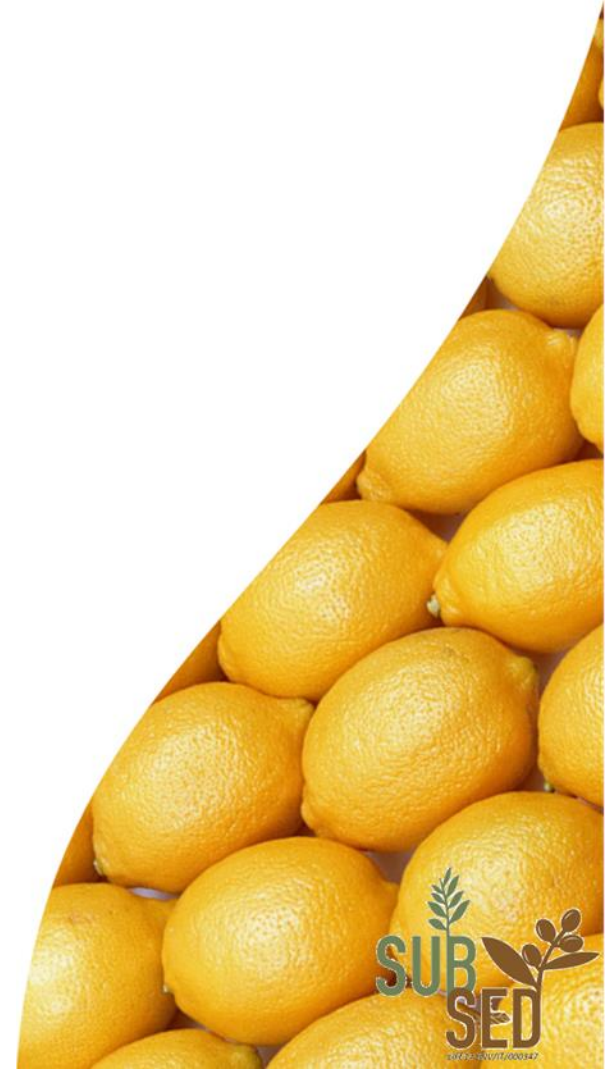
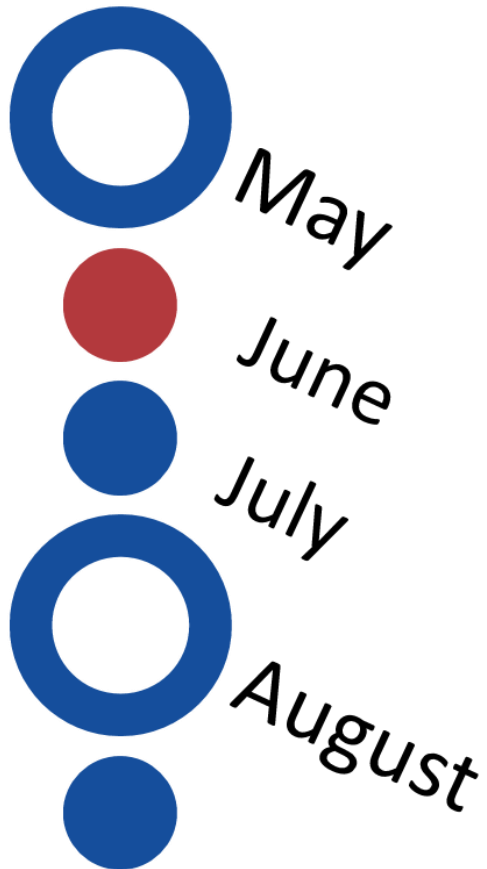
ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production

2020



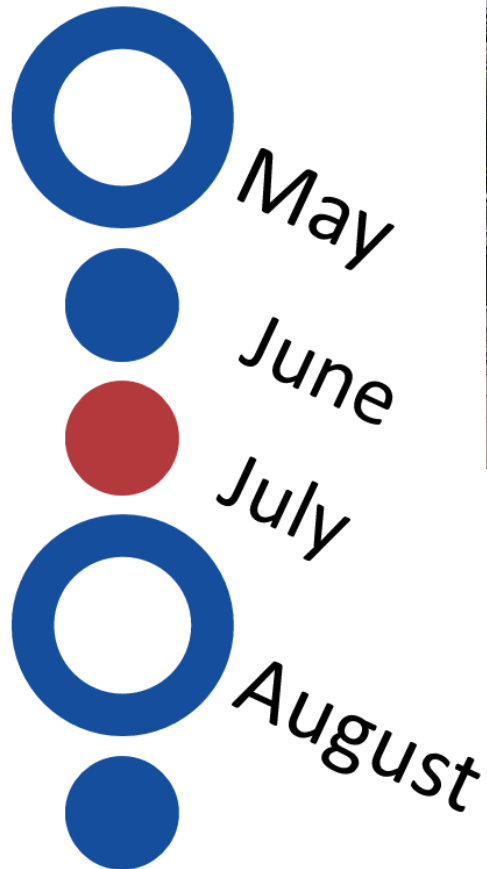
ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production

2020

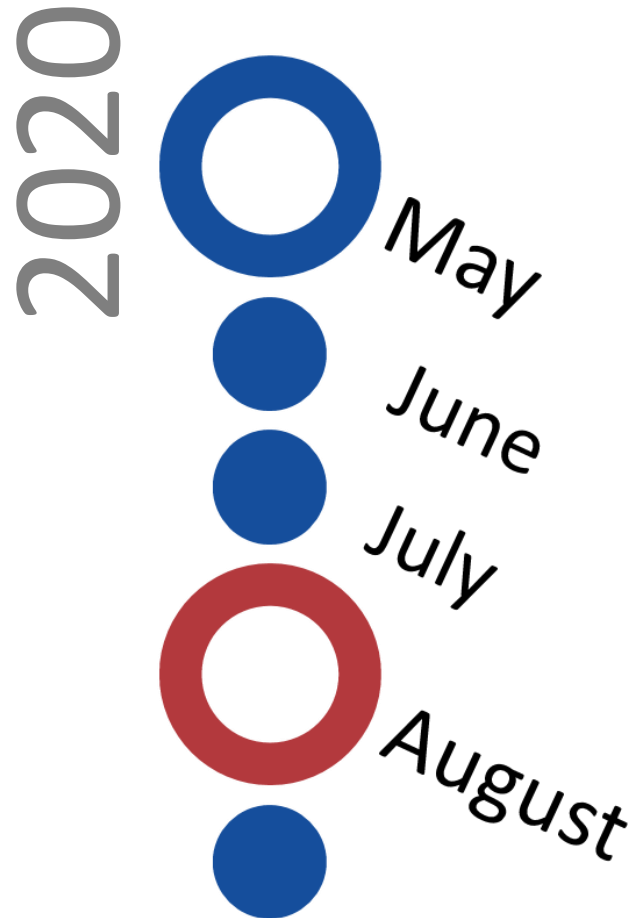


ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production

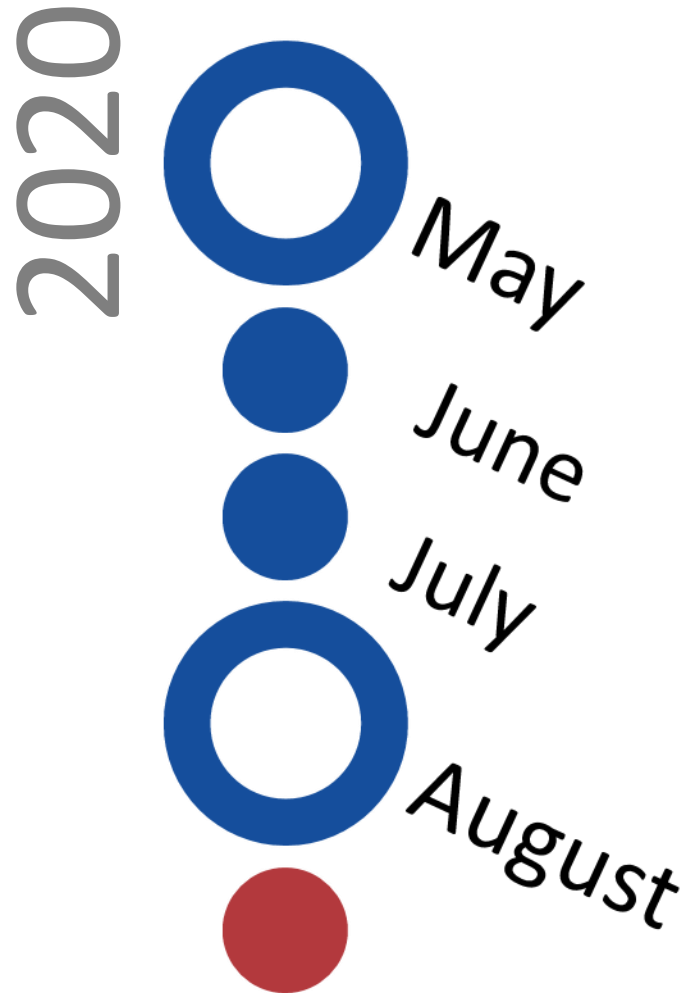
2020



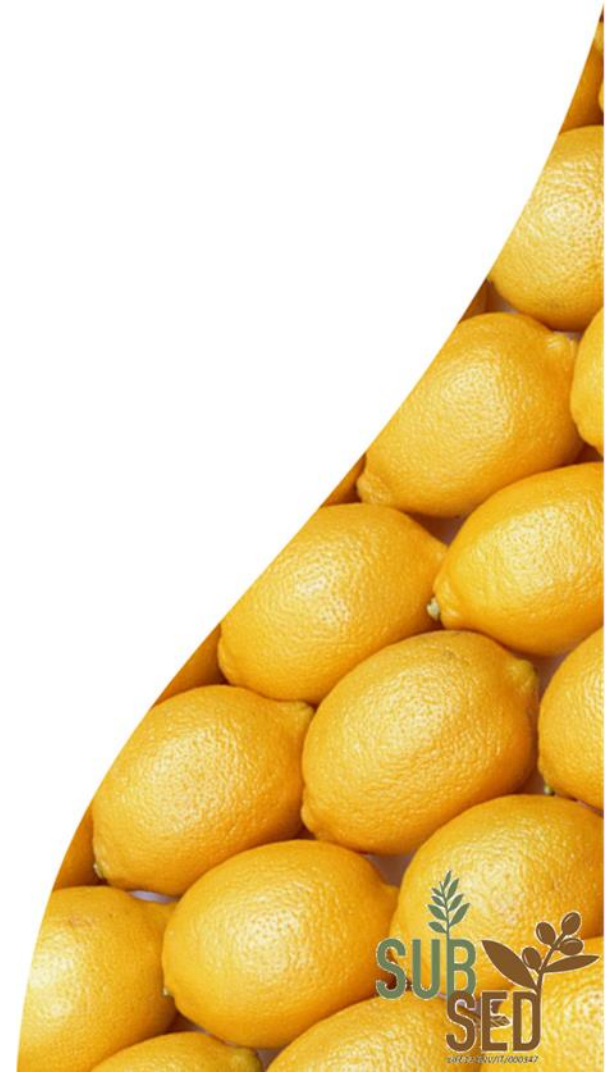
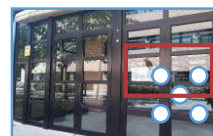
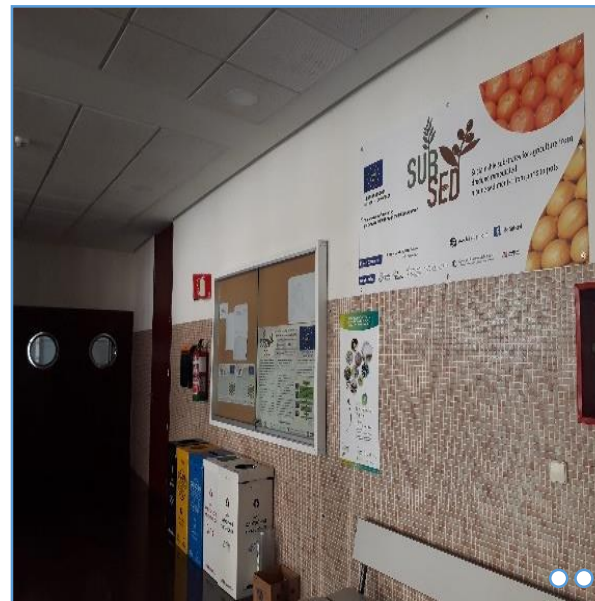
ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production



ACTION B.4: Demonstration of the use of remediated sediments as a substrate for food crops production



ACTION D.1: Project dissemination plan: web-site, material, articles, Layman's report and video



UMH Schedule 2020

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E. Project management (obligatory)																	

- Finalized
- In process
- No advance

Additional Information/Request

September 2020

- Incorporation of the Prof^o Juan José in the SUBSED project
- Add M^a Dolores Torregrosa as Administrative Staff (md.torregrosa@umh.es)
- Spanish mixtures of sediments shipped to Italy

Additional period

- Between 12 and 18 months

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