



## PRACTICE ABSTRACT № 18

### Keywords

Regenerative agriculture, Soil conservation, Soil Quality, Carbon Farming, organic matter content, CO<sub>2</sub> sequestration, humus

## Using wood chips to increase organic matter content in soils – storing CO<sub>2</sub> & improving soil features

In the effort to mitigate climate change and to adapt to its effects (by better equipping soils against dry spells or erosion processes), incorporating wood chips into soils shows potential. 10 T/ha of wood shreds allow roughly for 5.1 T/ha of sequestered CO<sub>2</sub> equivalents (per 5 years).

There are many co-benefits to this treatment, especially when the wood-chips are locally sourced (trimmings from hedges/landscape elements or coppice of nearby parcels). The shredding and superficial incorporation (5 -10 cm) on-site is an efficient technique to deal with the remnants of the trimming while improving many important soil features at the same time. Some aspects must be considered when using wood chips for agricultural soils:

- Usually, this treatment is applied in autumn soon after harvest (this way it prevents potential nitrate leaching during the winter, by binding the excess nitrogen).
- The low C/N ratio in wood chips requires in the beginning additional nitrogen for the process of bacterial decomposition which leads to a temporary immobilization of N (this could be eased by planting leguminous plants after the application).
- After the decomposition has entered its stable phase (usually after 1 year), “permanent humus” particles aid the nutrient storage and availability and benefit soil life.
- Heavy (clay) or sandy soils benefit especially from this treatment, as the infiltration rate and water storage capacity are increased while the compaction risk is mitigated.
- The woody plants, as the source of the shreds, incorporate nutrients from deeper soil layers (not reachable by shallow-rooted crops) into their biomass and through decomposition make them available to the food crops.
- The treatment could be repeated every 5 years, depending on soil quality, crop rotation, availability of wood chips

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Belgium

## ADDITIONAL INFORMATION



Our partner Boerenatuur Vlaanderen trials the wood chips application treatment with farmers groups in Flanders with very encouraging results. As an effective way of closing regional/local production cycles while materialize the above-mentioned benefits, this measure could be also of interest for policy makers to further climate change mitigation and adaption strategies.

## ABOUT CONTRACTS2.0

April 2022

Contracts2.0 aims to develop innovative contract-based solutions, which increase the motivation for farmers and land managers to produce more environmental public goods and allow them to reconcile the profitability of their farms with sustainability objectives. To do so, 28 research and practice partners closely cooperate to co-design and evaluate the novel contracts. Lessons learned from successfully tested contracts will also provide support for policy makers on local, national and EU-Level.

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### Research partners



### Action partners



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 818190.

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