foliar level followed an accumulation of N> K> P, additionally the biggest contents in N and the promotion of the vegetative development are associated with the biggest tenor of this element in the substrates. The application of CP and SP, alones or as cocktails, increased the foliar content of P and K.

P253
Arable (C_3) to *Miscanthus* grassland (C_4); derivation of carbon within soil fractions

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Land-use by C_4 plants alters the composition and turnover of soil organic matter (SOM). These alterations to SOM dynamics can be traced using mass spectrometry (MS) due to the higher natural abundance of ^{13}C in C_4 plant material. This study focuses on the conversion of arable land (C_3) to *Miscanthus x giganteus* (C_4), a biomass crop.
Soil cores were taken from three replicate plots of nine-year old *Miscanthus* stand at two depths; 0-23 (topsoil) and 23-50cm (subsoil). A control nearby wheat field was also sampled. Soils were homogenised for each depth and the SOM physically divided by density separation ("fractionation") to isolate the free, between aggregate (FLF) and intra-aggregate (IALF) light fractions.
For each depth three replicates were analysed using MS to measure differences in ^{13}C abundance ($\delta^{13}C$) and the amount of carbon (kg/tonne soil). Statistical analyses across depths and fractions were performed using residual mean likelihood (REML).
Miscanthus soils at both depths were significantly different in $\delta^{13}C$ *(P*<0.001) from corresponding control wheat soil depths. Under both land-uses the topsoil had more carbon (kg/tonne) than subsoil. Compared to the wheat fractions, *Miscanthus* topsoil FLF had 6% more carbon whilst IALF had 75% more. In contrast, overall light fraction subsoil carbon under *Miscanthus* decreased significantly (*P*<0.001).
The *Miscanthus* topsoil is most affected by the large organic matter input of root/shoot material. This, together with SOM formerly being "mixed" through tillage mean the most rapid incorporation of C_4-material can be expected within the topsoil. Between topsoil fractions the FLF (mainly plant debris) derived more C_4-material than IALF (microbial metabolites).
The data forms part of a timeline from planting to the present in which SOM composition and turnover can be studied. The further applications of this work involve the bacteria associated with the SOM and their location within the soil.

P254
Quantification and characterisation of charred materials in two recently burned pine forest soils in Tuscany, Central Italy

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Pine forests are common in the Mediterranean basin. Wildfires are both a threat and a main factor for their survival. In fact they can destroy entire forests but they also promote pine renovation by allowing the opening of the cones and by enhancing seed germination. The release of charred materials to soil during wildfires is a relevant stabilization process for soil organic matter in Mediterranean soils, but only when the land use do not change and the vegetation recovers the pre-fire status. In addition, not all of the charcoal released to the soil represents a lasting net increment of stable C. Actually, a not negligible fraction of charcoal is preferentially eroded or undergoes to biotic and abiotic degradation processes that are still relatively unknown. Even though fire-prone coastal pine forests of Italy are carefully preserved, the effects of wildfires on soil organic matter have been rarely examined in these biomes. We studied two recently burned forests of *Pinus pinaster* Ait. and *Pinus pinea* L. of Tuscany, Central Italy, both growing on sandy soils developed on marine deposits. The two forests have different fire histories, the first one being burned several times in the last 30 years while the second was never burned in that period. The comparison of paired burned and unburned plots in both sites allowed assessing the effects of fire on the quantity and quality of soil organic matter by dry and wet oxidation and solid state ^{13}C NMR spectroscopy.

P255
The dynamic of organic matter in hortic antrosols conditioned with polymeric materials

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The studies regarding the dynamic of organic matter in hortic antrosols are important both from scientific point of view and for the implementation of durable ecological technologies of amelioration, conservation and superior capitalization of soil resources from protected areas. In case of hortic antrosols, the application of intensive technologies for plants cultivation determined intense perturbations of equilibriums between organic and mineral components of antrosols, which is reflected by a fast degradation of morphological and physic-chemical properties.
The experimental modelling of interaction between some organic materials with mineral components of hortic antrosols conditioned with different polymeric materials, supplemented with the field studies realized in glasshouses from Ia[[Unable to Display Character: ş]]i and Bac[[Unable to Display Character: ă]]u cities (Romania), have evidenced a particular evolution of organic matter, and of distribution and interaction way with mineral components of antrosols. In comparison with non-perturbed hortic antrosols, in those conditioned with polymeric materials the organic matter decomposition is restricted, the processes rate is lower and the diversity of the compounds formed by decomposition is reduced. The physic-chemical conditions from hortic antrosols, in presence of polymeric materials, restrict the organic matter decomposition until simple compounds, which favourite the mineralization and retention in soil of carbon and nitrogen. In case of non-perturbed hortic antrosol the formation of compact and impermeable horizon, responsible in most part by the degradation of hortic antrosols, assert sever segregation in organic matter evolution. In most of cases, the organic compounds situated above of this horizon are develop in oxide conditions, while the compounds situated bellow of this horizon are develop in anoxidic conditions. In case of hortic antrosols conditioned with polymeric materials the formation rate and the extension of this horizon are significant limited.
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P256
The effect of intrinsic soil properties on satiability and instability indices of aggregates

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Intrinsic soil properties are expected to case change in soil stability and aggregation. The objective of this study was to evaluate the clay (C), organic matter (OM), lime ($CaCO_3$), sand