



Soil aggregates in a collapsed chestnut grove and in an instable vineyard in Tuscany

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Just like in agriculture the presence of stable macroaggregates is symptom of soil fecundity, in forestry the presence of stable aggregates is index of stability for both the soil and the living communities settling there. Such formations, ascribable to organic matter and humic compound degree, can be present in better measure in a collapsed and recolonized soil than in non fallen area grown with the same species for long time.

The mean stability in aggregates comes out to be very lower in farmed soil, yet foreseen by Tisdall and Oades (2006) which wrote that farming generates a decline in the organic content of soil. The higher instability shown in the deepest soil, where the biotic contribution is lesser, and the higher infiltration found in superficial layers are in line with the empiric verification that the slip plane in shallow landslides doesn't intersect rhizosphere, but lays under it; the fragility zone is located where the organic matter degree is lower, both in humus and root and fungi exudates, or organism parts or remains. In other words, not only deep roots could sometimes anchor the shallow soil to the bedrock, but they can also improve the strength characteristics of soil in presence of water.

In soil with aggregates, moreover, seems to recognise an improvement in the shear strength angle, accordingly with the results obtained by Graf et al. (2009) with triaxial tests on rooted soil samples. Roughly, the angle increase by 1 degree for every 5-7% in stable aggregates on the sample weight, validating the better stability of a slope with a stable and mature community.