

## **Limits and Perspectives of cultivation of Biomass crops in marginal areas of Campania Region: the case of the so called “Terra dei Fuochi”.**

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The definition of a soil contamination is a 2 step process, based on screening values and risk analysis. The variability of values of screening values across Europe casts some doubts about the ecological and toxicological meaning of such values.

In the case of agricultural soils, the situation is more unclear since there is not a clear process for evaluation of the suitability of a soil for food production. Different methods have been proposed (i.e metal bioavailability by using different extracting agents), but the final response is given by plant analyses that can assess if the contaminants have been accumulated in edible organs.

The study case of the so called Terra dei Fuochi (plainy area of Campania Region, Southern Italy) is presented, since in this area the LIFE-Project Ecoremed was developed with the aim to identify the contaminated soils in the perspective of their phytoremediation with biomass crops that could be used as source of renewable energy, thus avoiding competition for land between energy and food crops.

At the end of assessment activities, the contaminated agricultural soils in this area resulted too few (about 30 ha) for satisfying the exigence of a bio-refinery. Therefore in Terra dei Fuochi area there aren't perspectives for biomass crops, because there is an intense production of high-value, healthy and safe vegetables and water buffalo mozzarella cheese, that are exported worldwide.

Instead other marginal areas are very spread in internal hilly arable land of Southern Italy where 100,000 ha of durum wheat are not sustainable both from economic and environmental points of view. In particular, yields are very low (2-3 t/ha) and income (4-600 €/ha) doesn't cover the cultivation costs; soils are vulnerable to soil losses due to water erosion (not covered from tillage in August to germination in November) in the months in which rainfall erosivity is higher. A reasonable percentage of this area (i.e. 10%) could be used for producing biomasses, this justifying the construction of commercial-scale biorefineries in this area.