AN: **B12A-08**
TI: Saltwater contamination in the Venice Lagoon margin. Effects on soil productivity
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AB: The Venice watershed includes a very precarious coastal environment subject to both natural and anthropogenic changes with a significant and economically important fraction of the coastal farmland presently below mean sea level. In the hydrogeological context of the Venice coastland, a large risk of saltwater contamination characterizes the southernmost area because of the geomorphological setting of the coastal plain. Salt contamination is influenced also by the activity of several pumping stations used to keep drained the area, groundwater withdrawals, irrigation and freshwater releases during summer dry months. The impact of salt intrusion from the salty water bodies on soil productivity has been studied in the years 2010-2011. In a 25 ha basin cultivated with maize crop, soil salinity (electrical conductivity 1:2) and the main physical-chemical properties of the soil (e.g. texture, pH, organic carbon and CSC) were measured along the 1.5 m soil profile in 120 positions. Maps of apparent electrical conductivity (ECa) at three different investigation depths (0 - 0.75 m; 0-1.50 m; 0-6.00 m) were also obtained in April 2010 and April 2011 with a CMD electromagnetic conductivity meter (GF Instruments) associated to a DGPS. During the 2-year period some physiological crop parameters, in particular leaf reflectance (i.e. Spectrascan, Photoresearch) and leaf ions content were monitored across the study area. Moreover, maps of NDVI were obtained by proximal sensing (three dates each year) using an active spectral radiometer (Crop Circle, Holland Scientific) and remote sensing acquiring WorldView-2 satellite images at the end of July 2010 and beginning of July 2011. Finally, maps of the crop yield were obtained at the end of the growing seasons by a yield mapping system mounted on a combine harvester. Relationships existing between soil, crop factors and crop yield were identified applying a multivariate spatial model, helping to assess plant stress at both the canopy and landscape level and proving also the risk of salinization of the coastal area.
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