MODELLING OF AGRICULTURAL NUTRIENTS LOADS GENERATED IN THE VENICE LAGOON WATERSHED

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This paper presents an update version of a previous study (CVN, 1992) which estimated the agricultural non-point-source nutrients loads for the Venice Lagoon Watershed, VLW (NE Italy). Nutrients loads reduction is of basic importance for the restoration of the trophic equilibrium of the VL. The knowledge of the magnitude of agricultural loads allows a comparison with the magnitude of loads generated by other nutrients sources (urban, civil and industrial). The relative magnitude of the different pollution sources addresses reduction measures. In the present study the GLEAMS model (version 3.0) has been applied. The traditional use of GLEAMS at a field scale is extended to a basin scale by linking the model results with the VLW's GIS concerning updated land use and soil characteristics data. The present application have been carried out for the last 30 meteorological years and for feasible rotations of the main crops of the VLW (maize, winter wheat, soybean, sugar beet and alfalfa). Crop distribution have been based on new census data. Usual agricultural management practices have been considered. Nutrients generated with animal wastes has been considered as input data as their major portion enters in the agricultural cycle as supplementary fertilizers. The simulations' results, in terms of nutrients releases, obtained for the VLW's hydrological basins have been compared with data obtained by the nutrients loads monitoring on rivers.

Keywords: diffuse pollution, nitrogen leaching, phosphorus runoff.