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IMPACT OF PESTICIDES TO GROUNDWATER RESOURCES IN AN ALLUVIAL PLAIN USING A GEOGRAPHICAL INFORMATION SYSTEM

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SUMMARY

A methodology to evaluate the Impact of pesticides to drinking water resources in an agricultural region has been applied in an Italian alluvial plain using a Geographical Information System (GIS). With this technology it is possible to store, process and represent geographical data and update them according to the environmental characteristics.

The studied area, covering a surface of 500 km^2, is located immediately south of Milan, in the alluvial plain of the Po river.

The DRASTIC model (1) has been utilized in order to evaluate the intrinsic vulnerability of aquifers. DRASTIC is a quantitative method proposed by EPA to identify pollution potential especially referred to pesticides in USA. The application of this model, combined with data of land use has provided maps identifying areas at risk for groundwater pollution.

Information derived from risk maps is of primary importance in territorial planning such as: selection of areas to be monitored, identification of areas to be protected, correct management of agricultural practices and use of pesticides. These maps should provide an useful instrument for agricultural and territorial management.

Key words: pesticide pollution, GIS, aquifer vulnerability, groundwater

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