
Geographic Information System (GIS) Database

Last Updated Thursday, 15 January 2009

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Database Mapping Project Methods ranging from sophisticated satellite photos to observation from pickup trucks have used to create a database of land use information which will help growers become more efficient and better stewards of local resources. The GIS Database Project describes significant features of the cultivated acres in Grant, Adams and Franklin counties and provides a mechanism to help guide farmers in their application of fertilizer and irrigation water. Beyond creating colorful and appealing wall maps, GIS (Geographical Information Systems) is a method of relating spatial data with associated characteristics, such as soil types, across a specific field. GWMA is using USGS digital photos with a resolution of one meter to delineate field boundaries in the three counties and to identify the irrigated and dryland portions. Field data on crops and irrigation methods, as well as results from the well sampling undertaken by GWMA in the fall of 1998, are being integrated with the database and as overlays to the digitized maps. The entire database is organized in such a way that it provides maps and summary reports for use in offering supporting data for GWMA's recommended best management practices, in keeping with GWMA's quest for hard science as a basis for findings and recommendations. The GIS project also gives farmers a formula to calculate the vulnerability of their ground to penetration by nitrate and other undesirables. The project's Leaching Index is a calculation of nitrate leaching potential based on soil conditions, amount of applied nitrogen, effective rooting depth, allowable water depletion and efficiency of the irrigation system.