

Agricultural water management for sustainable environment

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Sensible management of soil and water resources is important for long term sustainability of the agriculture as well as the environment so that it can be used by the future generations. However, poor soil and water management practices at farm level could lead to impairment of water resources and eventually cause environmental hazards such as hypoxia in Gulf of Mexico and eutrophication of Lake Winnipeg. Mismanagement practices including inefficient irrigation, excessive irrigation, improper fertilizer application (amount and timing), and uncontrolled drainage are some of the reasons for water quality degradation. Agricultural non-point source (NPS) pollution is a growing concern throughout the world which impairs the water quality of groundwater, rivers, lakes and coastal ecosystem. Major NPS pollutants that are detrimental to water quality include sediments, nutrients, organic substances, pathogens, and pesticides. This could affect safe drinking water supply, recreation, and other livelihood activities of the communities which are dependent on those bodies of water. Incorporating best management practices (BMPs) in agriculture is proven method to minimize the environmental hazards by conserving soil and water without compromising profitability. Vegetated filter strips, wetlands, riparian buffers, shelter belts, nutrient management planning, grass water ways are some examples of BMPs which can be used at farm level. Water conservation can be carried through precision agriculture, use of GIS and remote sensing, use of efficient irrigation methods, and other water conservation techniques. The effectiveness of the BMPs may vary depending on location, climate, soil type, and crops grown however through research and development, suitable BMPs can be designed. Adaptation of BMPs could be increased through cost sharing, technical assistance and economic incentives to farmers, advocacy and policy changes.

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