Best Management Practices

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Best management practices (BMPs) are used to protect and preserve natural resources. Some BMPs are used to protect water resources, while others are implemented to protect wildlife habitat, both terrestrial and aquatic or utilized to protect land resources from degradation by wind, salt, and toxic levels of metals. By controlling agriculturally derived pollutants, BMPs can reduce or prevent impacts to the physical and biological integrity of surface and ground water and the land resources. Best management practices that are used to protect water quality exert control by minimizing availability of pollutants; retarding the transport and/or delivery of the pollutant, either by reducing water or the pollutant, and thus the amount of the pollutant transported or through deposition of the pollutant; or remediating or intercepting the pollutant before or after it is delivered to the water resource through chemical or biological transformation.

Best management practices are generally designed to control a particular pollutant type from specific land uses. For example, conservation tillage is used to control sediment from cropland, either irrigated or dryland. Sometimes BMPs may also control other pollutants, depending on how the pollutant is generated or transported. For example, efforts to control sediment frequently partially control phosphorus because phosphorus is strongly adsorbed to soil particles. Thus, conservation tillage not only reduces sediment loading, but also some particulate phosphorus loading. In addition, a BMP may reduce pollution while at the same time serving an additional environmental purpose, such as affording wildlife habitat. Riparian buffers, which reduce nitrogen and often sediment, also serve as habitat for many species of birds and plants. Sometimes, however, BMPs used to control one pollutant will inadvertently increase the generation or delivery of another pollutant. Conservation tillage, because of the increased soil porosity (large pore spaces), may increase nitrate leaching in the soil.

The installation or use of one structural or management BMP is rarely sufficient to control the pollutant of concern. Combinations of BMPs that control the same pollutant are generally most effective. These combinations, or systems, of BMPs can be specifically tailored for particular agricultural and environmental conditions as well as for a particular pollutant. Systems of two or more BMPs are often required to effectively control pollutant sources in critical areas. However, even properly designed systems of BMPs constitute only part of an effective land treatment strategy.

An effective land treatment strategy must first identify the pollutant of concern and the source of that pollutant. Then properly designed BMP systems must be placed in the correct locations in the watershed (critical areas) and the extent of land treatment must be sufficient to achieve water quality improvements. Generally, 75% of the critical area must be treated with the appropriate BMP systems. If the problem derives from livestock, generally 100% of the critical area within the watershed must be treated with BMP systems. In order to assure this level of BMP implementation requires trusted advisors and cost-share availability for producer participation.