4.0 BMPs for Agricultural Water Users

BMPs for agricultural water users are combinations of site-specific management, educational, and physical practices that have proven to be effective and are economical for conserving water. BMPs have been developed which focus on increasing the water use efficiency of water users such as producers of agricultural crops and of water suppliers such as irrigation districts. BMPs have been developed which focus on conserving rainwater, such as land owners managing and controlling brush species. BMPs provide a means of measuring the success of agricultural water conservation programs, their costs, and schedules of implementation. Good agricultural water conservation practices can provide benefits to wildlife resources.

Irrigation of crops accounts for the great majority of agricultural water use in Texas. The amount of water used in irrigation of a specific crop or in an agricultural practice varies with the location, climate, type of crops grown, local cropping practices, type of irrigation systems, and institutional constraints. Likewise, the amount of water conserved by implementing a BMP for such crop or practice will also vary.

Agricultural Water Use Management BMPs may include Irrigation Scheduling to determine when to irrigate crops, Volumetric Measurement of Irrigation Water Use to provide information regarding the performance of irrigation systems, Crop Residue Management and Conservation Tillage to preserve soil moisture and On-Farm Irrigation Audits to increase water efficiency in irrigation.

Land Management Systems BMPs can include Furrow Dikes to reduce water runoff from agricultural row crops, Land Leveling to increase the uniformity with which water is applied to an irrigated field, Conversion of Supplemental Irrigated Farmland to Dry-Land Farmland which uses rainfall to irrigate agricultural lands, and/or Brush Control/Management to reduce evapotranspiration in order to improve water quality and water yield.

On-Farm Water Delivery Systems BMPs include lining of on-farm irrigation ditches and replacement of on-farm irrigation ditches with pipeline, Low Pressure Center Pivot Sprinkler Irrigation Systems for irrigation of land with flat to modest slopes, Drip-Micro Irrigation Systems for more efficient irrigation, use of Gated and Flexible Pipe for field water distribution, Surge Flow Irrigation to apply irrigation water to furrows to aid in reduction of deep percolation, and the use of Linear Move Sprinkler Systems for more efficient irrigation of certain shaped field and/or fields with elevation changes.

In Water District Delivery Systems, lining or replacement of the irrigation canals with pipeline improves efficiency and reduces or eliminates seepage, facilitating conveyance of water to a group of users.

Finally, other systems that aid in efficient use of water include Tailwater Recovery and Reuse Systems, which make use of the irrigation water that runs off the end of an irrigated field and Nursery Production Systems, which improve the efficiency of water use in the production of nursery crops.

The quantity of water and cost savings provided in each BMP are estimates, and actual values vary with location and site specific conditions.

Best-management practices contained in the BMP Guide are voluntary efficiency measures that save a quantifiable amount of water, either directly or indirectly, and can be implemented within a specified timeframe. The BMPs are not exclusive of other meaningful conservation techniques that an entity might use in formulating a state-required water conservation plan. At the discretion of each user, BMPs may be implemented individually, in whole or in part, or be combined with other BMPs or other water conservation techniques to form a comprehensive water conservation program. The adoption of any BMP is entirely voluntary, although it is recognized that once adopted, certain BMPs may have some regulatory aspects to them (e.g., implementation of a local city ordinance).