4.3 Conversion of Supplemental Irrigated Farmland to Dry-Land Farmland

Applicability

This Best Management Practice is applicable to agricultural producers who supplement rainfall by irrigating crops with groundwater or surface water in geographic areas where agricultural crops can be produced without irrigating. This Best Management Practice is not applicable for the conversion of farmland to non-farmland or to geographic areas of Texas lacking sufficient rainfall for production of an agricultural crop.

Description

Dry-land farming produces agricultural crops using precipitation as the sole source of soil moisture. Sufficient and timely precipitation can result in successful yields for certain crops in various parts of Texas. Typically crop yields produced by dry-land farming are less than half the yields produced by irrigated farming. Crop yields from dry-land farming vary season to season depending on the amount and timing of precipitation.

Permanent pasture, or a grass seed and/or forage crop mixture, is one of the more common types of dry-land farming. This dry-land cropping practice can survive longer periods between rainfall events compared to typical dry-land row crops such as grain sorghum, corn, or cotton. In the High Plains and Lower Rio Grande Valley regions of Texas, low water use crops such as cotton have been successfully grown without irrigation. However, irrigation of such crops in those regions reduces the risk of crop failure from lack of soil moisture and increases crop yield.

Some crops such as sugar cane, rice, and many vegetable crops cannot be successfully grown anywhere in Texas without supplemental irrigation.

Implementation

Information from nearby dry-land farming on crop yields, production costs, and farm profits should be used to evaluate potential effects of conversion from irrigated cropping practices. After evaluating the increased risks associated with dry-land farming, a producer should determine how many acres can be converted from irrigated to dry-land farming.

Scope and Schedule

This practice may be used with other Best Management Practices that can improve water use efficiency in dry-land farming such as conservation tillage and furrow diking.

Conversion from supplemental irrigated farmland to dry-land farmland may be implemented at the beginning of the crop growing season on a field by field basis. However, considerations should be made for herbicide residual from the previous crop.

Measuring Implementation and Determining Water Savings

To track this Best Management Practice, the agricultural water user shall gather and maintain the following documentation:

1. Copies of records of crop yields and crop production expenses;
2. Any U.S. Department of Agriculture Farm Service Agency or other governmental agency evaluation and assistance reports documenting that specific fields were not irrigated; and
3. Irrigated water use and rainfall measurement records from the periods before conversion to dry-land farming.

The quantity of water saved by conversion from supplemental irrigated farmland to dry-land farmland can be estimated based on historical water use records for the specific crop and location.

Cost-Effectiveness Considerations

The cost-effectiveness of conversion to dry-land farming requires complex economic and climatic analysis. Dry-land farming can be significantly less costly than irrigated farming; however, as crop yields are often lower and the risk of crop failure may be significantly higher, the amount of profit per acre of dry-land is usually less than irrigated land.

References for Additional Information

1. P. W. Unger, T. V. Sneed, W. R. Jordan, R. Jensen (eds.) "Proc. Intl. Conf. on Dryland Farming, Challenges in dryland Agriculture - a Global Perspective", Aug. 1988, Amarillo/Bushland, Texas. TAES, p. 965.
2. Pena, Jose, 1997, "Texas Crop Enterprise Budgets", Southwest Texas District, Texas Agricultural Extension Service, Uvalde, Texas.
3. "Texas Crop and Livestock Budgets", http://agecoext.tamu.edu/budgets/
4. United States Department of Agriculture, National Agricultural Statistics Service, 2009, "2007 Census of Agriculture", http://www.agcensus.usda.gov/

Determination of the Impact on Other Resources

The benefits of this practice are primarily water saving. As with many practices that save water, energy is also conserved. Conversion to permanent pasture can potentially provide wildlife cover, reduce soil erosion, and improve infiltration rates resulting in reduced runoff and improved water quality.