



CONSERVATION ENHANCEMENT ACTIVITY E449114Z4

CONSERVATION STEWARDSHIP PROGRAM

Intermittent flooding of rice fields

Conservation Practice 449: Irrigation Water Management

APPLICABLE LAND USE: Crop (Annual & Mixed)

RESOURCE CONCERN ADDRESSED: Insufficient Water

PRACTICE LIFE SPAN: 5 years

Enhancement Description:

This enhancement consists of managing irrigation water on rice fields by allowing them to “dry down” between full flood conditions to a saturated soil condition prior to re-flooding the field. The dry periods result in less water used over a growing season, and potential energy savings.

Criteria:

- Install a permanent-mounted flow meter on the well or re-lift pump supplying the irrigation system.
- Deliver water to individual rice paddies through a “multi-inlet” or “side-inlet” distribution system, or the field has been graded flat.
- Prepare and plant the fields using typical agricultural practices.
- If necessary to germinate seed, flood the field, then allow the field to dry down and plants to reach the fifth leaf (first tiller) stage before establishing full flood.
- Flood the field based on typical triggers such as plant growth stage, presence of weeds, and soil moisture.
- Implement a cyclical drying-wetting regime throughout the growing season as follows:
 - Terminate irrigation and allow the field to “dry down” to a saturated soil condition. For sloping fields, the upper 10% of each paddy should reach saturated soil condition prior to the next flood cycle.
 - After dry-down, resume irrigation flooding to typical levels.

- Repeat the cycle throughout the growing season.
- Near the end of the season, terminate irrigation based on plant growth stage as recommended by local Land Grant University personnel and allow the field to “dry down” prior to harvest.
- Comply with the requirements of the Irrigation Water Management (449) and your site-specific Irrigation Water Management Plan.

Documentation Requirements:

- Record irrigation data such as location, date, duration, and flow rate of all irrigation operations.
- Utilize dated digital photography to document “dry down” conditions. Each photo should indicate the location and field where the photo was taken.

Reference:

Linguist, B. A., Anders, M. M., Adviento-Borbe, M. A. A., Chaney, R. L., Nalley, L. L., da Rosa, E.F.F. and van Kessel, C. 2014. Reducing greenhouse gas emissions, water use, and grain arsenic levels in rice systems. *Global Change Biology*. doi: 10.1111/gcb.12701