Wetland Wildlife Habitat Management (644A), Cropland – Winter Flooding with Variable Drawdown

644A – Specification **May 2015**

Definition

Flooding fields after harvest, holding water during the winter, then implementing a variable drawdown in February. Variable drawdown is the practice of gradually draining managed fields/wetlands to slow the pace of drainage while creating a matrix of mudflats and shallow water (1–4 inches) on the landscape at a time when flooded habitat is limited. Extending the availability of shallow-water and mudflat habitat into February and March provides benefits to both migratory and resident waterbirds. This practice applies to any field that contains at least 60% residue from a grain crop or vegetated fallow fields.

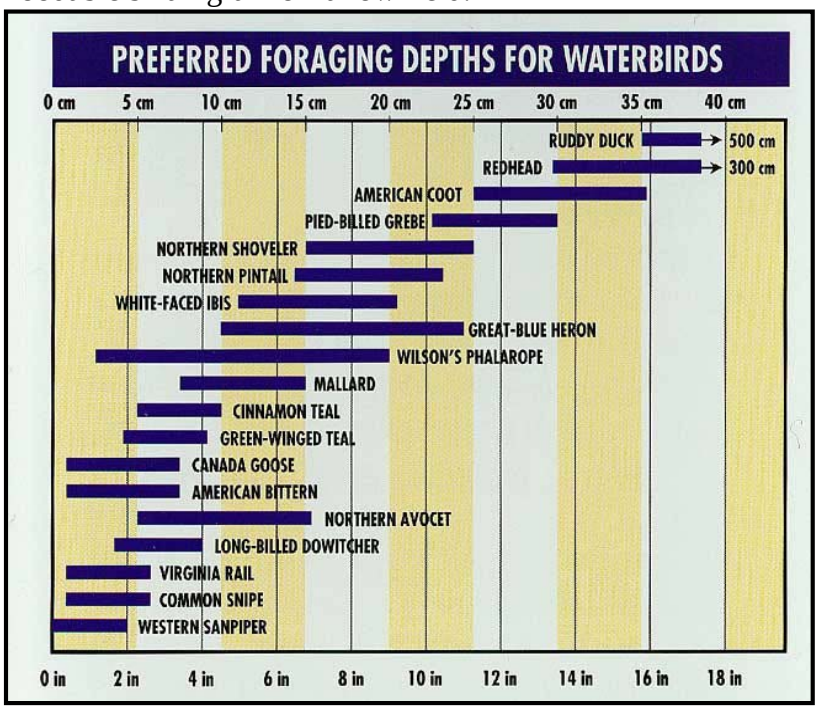
Requirements

- Vegetation management: Prior to flooding in fall, crop is removed/harvested and the field is baled, burned, stomped, rolled, or has one pass of light tillage that leaves at least 60% residue on the surface. The objective is to create a smooth surface with shallow incorporation of straw/stubble.
- After flooding up, water control structures remain closed until at least February 1st at which point the "variable drawdown" process begins.
- Variable Drawdown: Each week, over a 4 week period, approximately 25% of field(s) are drained by opening water control structures. There are two ways to accomplish this:
    1. Remove water control structures in 25% of enrolled fields each week. If you have 4 fields enrolled, you can remove the control structures from one field each week. This is the preferred option.
    2. Gradually decrease the total water depth water by 25% each week using the boards in the control structures. This may require deeper water at the starting point and more precise management of water depth via water control structures. This is an appropriate option for fields with some elevation gradient.
- *Variable Drawdown - Low*:
    a. Fields are flooded with at least 6 inches of water immediately after harvest.
    b. The "variable drawdown" process begins on February 1 with whatever water is available at the time.
- *Variable drawdown - High*:
    a. Fields are flooded with at least 6 inches of water immediately after harvest, with water depths maintained at 4-8 inches.
    b. The "variable drawdown" process begins on February 1, with a minimum starting depth of 4 inches of water.

Existing Water Management	*Alternative Management Options*
Fields are flooded once immediately after harvest. Water depths may vary throughout the winter, depending on evaporation and precipitation. Fields are drained simultaneously.	Variable Drawdown – Low Variable Drawdown – High
Fields are not typically flooded after harvest, but producer is willing to apply water immediately post-harvest.	Variable Drawdown – Low Variable Drawdown – High
Fields are flooded more than one time and water is purposely held into January. Fields are drained simultaneously.	Variable Drawdown – Low

Planning considerations

- If flooding harvested corn fields in Sacramento and San Joaquin counties, total area enrolled should not exceed 20% of the producer's total grain acreage.
- Where water supply is controlled by an irrigation district, water supplies may be reduced or withdrawn prior to February 1st. To ensure the starting water depth of at least 4 inches on February 1 (for Variable drawdown High), consider overfilling the fields prior to water shutoff to a depth of at least 12 inches.
- Rates of water loss and water retention may vary across fields. Soil texture should be considered to ensure flooding duration meets requirements.
- To better maintain water in the fields, prevent leakage through water control structures by placing plastic and/or packing soil on the upslope side behind the structures.
- Priority areas: rice fields throughout the Central Valley, but can be successfully applied on any floodable small grain or fallow field.



• Targeted water depth is dependent on the target species. Smaller species of shorebirds such as dunlin, western and least sandpipers require water depths from 0–2 inches (mudflats) whereas longer-legged shorebirds such as black-necked stilts and dowitchers prefer depths greater than 3 inches. Dabbling ducks that tip to feed like mallard, pintail, and teal cannot feed effectively on the seeds and invertebrates found on pond bottoms if the water is deeper than 18 inches. The optimum feeding depth for these ducks is 5 to 12 inches. Source: Fredrickson and Dugger, 1993.

Operation and Maintenance

- Implementation of this practice will include a plan for monitoring and maintenance of structural, hydrologic, and vegetative measures.