

NATURAL RESOURCES CONSERVATION SERVICE

WETLAND WILDLIFE HABITAT MANAGEMENT

(acre)

CODE 644

GENERAL PRACTICE SPECIFICATIONS

FOR

MOIST-SOIL MANAGEMENT

GENERAL

Water level manipulations are one of the most effective tools in wetland management, provided fluctuations are well timed and controlled.

Manipulations are most effective on sites with a dependable water supply, an elevation gradient that permits complete water coverage at desired depths over a majority of the site, and the proper type of water control structures that enable water to be supplied, distributed, and discharged effectively at desired rates. The size and location of structures are important, but timing, speed, and duration of drawdowns and flooding also have important effects on plant composition, plant production, and avian use. When optimum conditions are not present, effective moist-soil management is still possible, but limitations must be recognized.

TIMING OF DRAWDOWNS

Drawdowns are often described in general terms as early, midseason, or late. These drawdowns are considered with the context of the length of the local growing season. Early drawdowns are those that occur during the first 45 days of the growing season, whereas late drawdowns occur the latter 90 days of the growing season.

MOIST-SOIL VEGETATION

The timing of a drawdown has an important influence on the composition and production of moist-soil plants. An independent water supply for each management unit is required to optimize food production, maintain the potential to control problem vegetation, and make food resources available for wildlife.

Stoplog water control structures or flashboard risers that permit water level manipulations as small as 2 inches provide a level of fine tuning that facilitates control of problem vegetation or enhancement of desirable vegetation.

SCHEDULING DRAWDOWNS

During most years, early and midseason drawdowns result in the greatest quantity of seeds produced. However, there are exceptions, and in some cases, late drawdowns are very successful in stimulating seed production. Smartweeds tend to respond best to early drawdowns.

EFFECTS OF DRAWDOWN RATES

Slow drawdowns (2-3 weeks) usually are more desirable for plant establishment and wildlife uses. The prolonged period of soil saturation associated with slow drawdowns creates

conditions favorable for moist-soil plant germination and establishment. For example, slow drawdowns late in the growing season can result in seed yields of 700 pounds per acre. Slow drawdowns also provide shallow water over a longer period, ensuring optimum foraging conditions for wildlife. When water is discharged slowly from a unit, invertebrates are trapped and become readily available to foraging birds along the soil-water interface or in shallow water zones. These invertebrates provide critical protein rich food resources required by pre-breeding and breeding female ducks, newly hatched waterfowl, and shorebirds. Shallow foraging is required by the vast majority of species. Slow drawdowns lengthen the period for optimum foraging and put a large portion of the invertebrates within the foraging ranges of many species.

FALL FLOODING STRATEGIES

Scheduling fall flooding should coincide with the arrival times and population size of fall migrants. When flooding is possible from sources other than rainfall, fall flooding should commence with shallow inundation on impoundments suited for blue-winged teal. Impoundments with mature but smaller seeds, such as panic grass and crabgrass, that can be flooded inexpensively are ideal for these early migrating species. Flooding should always be gradual and should maximize the area with water depths no greater than 4 inches. As fall progresses, additional units should be flooded to accommodate increasing waterfowl populations and other bird groups such as wading birds. A reasonable rule of thumb is to have 85% of the surface area of an impoundment flooded to an optimum depth at the peak of fall migration.

TYPICAL DRAWDOWN SENARIO

A typical moist-soil scenario can be used for many years once competing vegetation has been eliminated through mowing, disking, burning and water level manipulation; and a diverse community of natural waterfowl food plants has been established.

1. Drawdown during late February to early March to expose soil. Drawdowns should be gradual to concentrate invertebrates for waterfowl and shorebirds.
2. Maintain drawdown through April for germination of target plant species. Standing water should not cover the area during this period.
3. In late April to early May, saturate soil to the surface by replacing lower stoplogs in the flashboard riser. Maintain until mid-October.
4. Mid-October to early November flood impoundment to an average depth of 9 to 12 inches. Delay flooding if standing vegetation is green. (Spot burns may be conducted prior to flooding, if conditions are conducive.)
5. Closely monitor water levels throughout the fall and winter to maintain an average depth of 9 to 12 inches over the majority of the area.

REFERENCES

Fredrickson, L. H. 1991. *Strategies for Water level Manipulations in Moist-soil Systems*. U. S Fish and Wildlife Service Leaflet 13.4.6. 8 pp.

Williams, R. K., R. D. Perry, M. B. Provost, and S. E. Adair. 1998. *Management of South Atlantic Coastal Wetlands for Waterfowl and Other Wildlife*. Ducks Unlimited. Memphis, TN. 29 pp.