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## Common Ground: The Case of Seasonally Inundated Cropland

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Increasing waterfowl migration habitat has been a goal of many groups and individuals for decades. Individuals have provided money for habitat by supporting private organizations such as Ducks Unlimited, and through the purchase of hunting licenses, duck stamps, and habitat stamps. All these activities have helped, but funds have been limited so it has not been possible to provide enough wetland space for the migrating waterfowl.

Multiple use considerations have been the central feature of water use decisions in the United States. Yet the concept of the multiple use of wetlands combining both agricultural production and wildlife habitat has not been a feature of recent legislative activity relative to wetlands. Many programs for the provision of wetlands for migrating waterfowl remove land permanently from crop production. That approach is relatively expensive because the resource owner must be reimbursed for a complete loss of use of the land for crop production.

A cost effective way to provide more waterfowl migration habitat may be to use seasonally inundated cropland for this purpose. The seasonal strategy could provide habitat for geese and ducks during the spring and fall migration periods, and the land could be farmed during the cropping season.

### **The Seasonal Strategy: Environmental Aspects**

Seasonally inundated cropland would provide habitat at the time of the year when it is most needed for migrating geese and ducks. More habitat is needed particularly for the spring migration to help waterfowl meet the demands of migration and to avoid outbreaks of fowl cholera. During a typical year the highest concentration of geese and ducks in Nebraska occurs during March and the first half of April. If seasonally inundated cropland was provided for the ducks and geese and then drained in late April, it would provide a resting and feeding site for geese and ducks. Seasonally inundated cropland could be provided in the fall by flooding the land after harvest and prior to the peak migration of ducks and geese in November.

Certain limitations to environmental enhancement are associated with a system that allows crop production. Many species of birds and other animals require natural vegetation and would not be served by seasonally inundated cropland. Some birds migrate at a different time of year than waterfowl, so they would not be provided with a resting area.

The environmental amenities provided by naturally vegetated wetlands would need to be compared with those provided by seasonally inundated cropland where corn is produced. The seasonally inundated cropland may provide during part of the year other environmental amenities similar to naturally vegetated wetlands. These might include flood control, groundwater recharge, a pollutant trap, and a recreation site.

### **Seasonal Strategy: Agricultural Aspects**

Only recently has the opportunity to combine waterfowl migration habitat and row crop production on the same land become possible. The shift to minimum tillage practices and to no-till planting in recent years makes it possible to eliminate nearly all field operations after harvest and prior to planting the next year. In the past it was necessary for the farmer to perform several tillage operations in the fields after harvest and prior to planting, so no time was available to share land with ducks and geese.

An important consideration for this type of strategy is the amount and location of cropland that might be suitable for seasonal inundation. The land must have an appropriate soil type that is not highly permeable. The farm operation must be able to control both the flooding and the drainage of the field. Nebraska has a greater opportunity than other states to double crop ducks and corn because an extensive irrigation system exists, with wells and pumps already in place to flood the fields if necessary.

### **Economic Considerations: Society**

Society would benefit through the continued private management of the seasonally inundated cropland by the farmers. Since the land would not need to be purchased and converted to naturally vegetated wetlands, the cost of increasing waterfowl migration habitat would not require reimbursing the land owner for the full economic value of the asset.

The local community benefits from combining seasonal inundation waterfowl migration habitat with continued agricultural production. Sales of agricultural inputs and products would continue to provide jobs and economic activity in the community that might be lost if the land was converted to naturally vegetated wetland. Revenue to local business may increase from expenditures by visitors to the waterfowl migration habitat.

### **Economic Considerations: Farmers**

To evaluate the cost of providing seasonally inundated cropland, a farmer must decide when to provide it and how much water is needed for it. For example, a farmer may decide to provide it during both spring and fall migration seasons. He would provide an average water depth of 18 inches, flood the land on November 10, and drain it on April 10. The farmer would then need to estimate the amount of water needed to be pumped, if any. The amount of supplementary water depends upon the amount of rainfall and snow melt that occurs naturally, the amount of water that drains into the field from other land, evaporation, transpiration, and the permeability of the soil.

To evaluate the duck and corn double crop, it is essential to consider how it impacts the total farming operation. Each farm has a size of machinery complement and labor availability which permits it to

plant or harvest a certain number of acres on each suitable field day. It would be unfair to compare any delayed planting that might occur with double cropping ducks and corn to the optimum date for corn alone. Instead, the seasonally inundated cropland alternative should be compared with the actual date a farmer would be able to plant the specific field, given the existing labor and the equipment constraints.

Costs to the farmer of changing from current cropping programs to one that includes seasonal inundation might include lower crop yields due to late planting, water pumping costs, and drainage costs. Providing habitat might change crop drying costs if fall inundation of the land required early harvest of higher moisture corn.

A reduction in yield due to late planting is the cost most people cite first when evaluating the risk of providing waterfowl migration habitat. But it may not be a major cost of double cropping ducks and corn. If the land could be drained early enough to permit planting corn during the April 20 to May 10 optimum planting period no yield penalty would occur. If a delay in planting was necessary, other factors that affect yield might be adjusted to compensate for it. Other factors that influence yield include the variety planted, the date of harvest, the crop rotation, the width of row, and the tillage system.

Pumping and drainage costs may be the major expense for provision of habitat. In many situations when habitat is provided only in the spring, pumping would not be necessary because snow melt and rainfall would provide sufficient water. During a dry season or when habitat is provided in both the fall and spring, it may be necessary to pump much of the water needed by the ducks and geese. If natural drainage is too slow to remove water promptly from the field, pump drainage might be required to permit timely planting of crops.

Benefits of providing the waterfowl migration habitat might include lower weed control costs, having adequate water in the soil profile at the beginning of the irrigation season and any fees charged hunters for use of the wetland in the fall. By comparing benefits to costs a farmer can determine the net additional expense for providing water-fowl migration habitat for geese and ducks.

## **References**

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