

STRATEGIES FOR MANAGING WETLANDS TO IMPROVE SUSTAINABLE CROP PRODUCTION

Project Background

In Saskatchewan, wetlands are major hotspots for biodiversity and provide many ecosystem and cropland functions including flood control, carbon sequestration, sediment trapping, ground water recharge, water purification, soil production, erosion prevention, and nutrient retention. But wetlands present challenges for producers due to saline seep, herbicide resistant weeds and can be degraded by activities such as cropping, drainage and pesticide use in the outer wetland zones. We are aiming to try and find practical solutions to better manage wetlands in agricultural fields that harness their ecosystem benefits while minimizing producer losses to improve sustainable farm management practices and programs.

Project Goals

We are comparing multiple field management and wetland enhancement practices to

- 1) monitor improvements in salinity damage, weed and insect pests, beneficial insects, pesticide water contamination; and
- 2) evaluate crop productivity and economic costs and benefits of alternative strategies

Study Design

Researchers from the University of Saskatchewan are looking for grain producers in Saskatchewan to help conduct field-level experimental manipulations. Each producer will select 1 treatment (A, B, or C) and work with agronomists to manipulate 3 fields in canola-cereal rotation containing wetlands. Each experimental field will be matched to a Business as Usual (BAU) field for a total of 6 fields in the study. The treatments will be monitored to assess effects on wetland water quality, soil salinity, weeds and insects, crop yields, input costs and profitability. Treatments need to be maintained for a minimum of 2 years. Producer agronomic support and min of \$75/acre compensation will be provided throughout the study. These improvements may also qualify for additional environmental farm planning support payments.

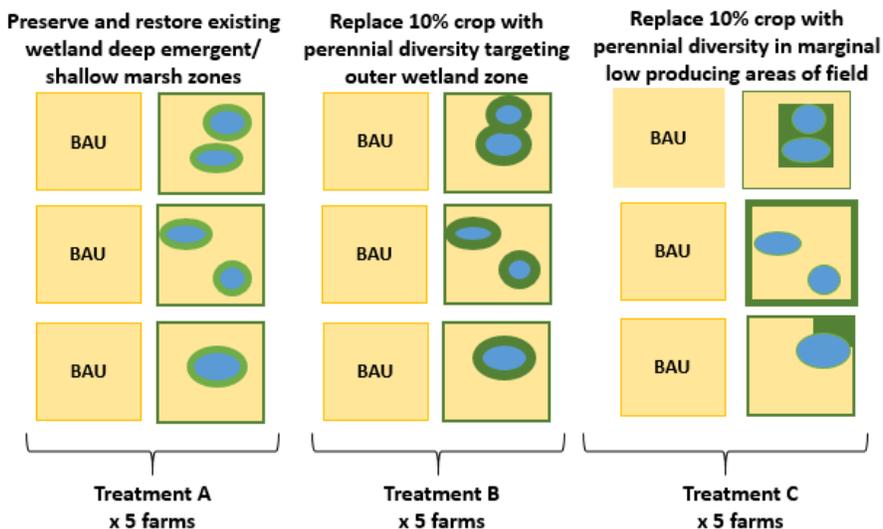


Figure 1: Study design to test 3 alternative field management practices: A) Restoration of core wetland zones, B) Restoration and planting 10% of field with perennial buffers near wetlands; C) Planting 10% of marginal land with perennials. Each treatment field is matched to a Business as Usual field (BAU) to compare effects on water quality, salinity, pests, biodiversity, crop yields and economics.