Case Study:
Multiple Erosion Control Structures

Narrow-based berms are permanently vegetated but can be cropped on either side.

The Sauder family lives on a 100 acre cash crop farm in Oxford County. The land is no-tilled following corn and soybeans and lightly tilled following wheat. The farm backs onto Wildwood Conservation Area property and Trout Creek.

Concerns:

Concentrated runoff at different areas on the farm was causing rill erosion. The Sauders were also concerned that climate change may bring more frequent and intense rain storms, creating future erosion issues.

Solution:

Over the years, the Sauder family has implemented several water and erosion control structures to alleviate erosion problems. A narrow-based berm was constructed in one area of the field in 2009. A broad-based berm, diversion terrace, and grassed waterway were constructed in another area of the field in 2015.

Benefits:

The various erosion control structures Steve and Cobi have installed are reducing soil erosion and improving the water quality of Trout Creek.

- The berms and diversion terrace control erosion by intercepting runoff, temporarily ponding the water and slowly releasing it through the tile drainage system. Rocks placed at the tile outlet reduce the velocity of the tile-drained runoff, preventing scour erosion at the outlet.
- The grassed waterway controls erosion by allowing runoff to move as it normally would across the land, but the vegetative cover slows the flow of the runoff and filters out sediment.

This broad- based berm was constructed in 2015. Signage is useful to notify custom farm operators of the location of erosion control structures.

Take into consideration where you are in your crop rotation when planning the installation of the erosion control structures. Steve took advantage of an early wheat crop harvest in the summer of 2015 to construct his broad-based berm, grassed waterway, and diversion terrace that same fall.

A plan-view of some of the agricultural best management practices that have been implemented on the Sauder farm to date.

"Between the diversion terrace, broad-based berm, grassed waterway, and the original narrow-based berm we put in, we're hoping that our farm is in good shape for the future."

By the numbers:

$3,113.25 for the narrow-based berm (2009). Eroded soil was redistributed from the bottom of the field to construct the berm, resulting in project savings of about $1,000.

$3,803.35 for the broad-based berm, grassed waterway and diversion terrace (2015). All the dirt for the berm was obtained for free from a local road construction project, which resulted in a savings of about $3,000.

Maintenance:

Steve periodically uses a **weed trimmer** on the berms to keep large leaf weeds down. Large leaf weeds will shade out and kill the grass cover which would affect the integrity of the berm.

Additional BMPs:

Steve and Cobi have also established field windbreaks on their farm to reduce soil erosion; the first windbreak was planted when they bought the farm in 1994, and the second windbreak was completed about five years ago.

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