

Stopping Ditch Erosion

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Erosion is most common at the outside of a curve and in friable soils. Woven wire fencing properly nailed on posts will stop it in either case.

I shall describe what we did at a curve on the main ditch in Dane County Farm Drainage No. 6 (Springfield, Middleton). We had a 90 degree turn with a radius of only 100 feet. To complicate matters the upper tangent was at the side of a road, and there was a tile outlet at the outside of the curve.

Before the ditch had been completed a year the outside of the curve began to erode, and the inside to fill up. In another year this deposit would have been so great that the water would have to make a reverse curve to get around it. On the outside of the curve, both the highway and the tile outlet were in danger. Something had to be done.

We dug away the bar on the inside of the curve by hand so that the curve was where we wanted it. Then on the outside set cedar posts, 10 feet long and 6 inches through at the top. We set them 4 feet deep and 8 feet apart, and nailed a 2 x 8 on the front of each, half below water and half above it. At the top of the posts we nailed a 2 x 6 girt and another half way down the side of the post.

On the inside of these posts and girts we stapled woven wire fencing. First strong hog wire with a 4" mesh and over it chicken wire with a 1" mesh. A flap of the woven wire was staked down to the bottom of the ditch to prevent undermining.

Upstream, the beginning of the fence was about 10 feet above the beginning of the curve and the end of the fence was bent over to the bank and fastened there. The downstream end of the fence was at the end of the curve and also anchored to the bank.

The theory is that the hog wire reinforces the lighter chicken wire. Both allow the water to flow through, but with a checked velocity. This not only stops the erosion of the outer bank but causes the sediment to drop between the fence and the bank.

The first flood ~~after~~ the fence was constructed did no damage at all. The channel was left clean where we had put it and there was a deposit of silt on the outside of the fence. It appears that this big space that formerly eroded will soon be completely filled up with silt.

By that time the fence may begin to weaken, but it will have served a good purpose. While it still has a few years of life left is the time to plant a row of willows in its place, to prevent erosion on the outside of the curve after the fence is gone.

Perhaps we are anticipating too much trouble. Our fence hasn't begun to weaken yet. It may last 20 years. While logs have floated down the ditch, they have not yet damaged the fence materially.

I forgot to tell what we did with the tile outlet. We had to extend ~~it~~ through the deposit of silt on the outside of the fence to a point below the down end of the curve. It is behaving itself all right now. About three feet of silt has settled over it.