United States Department of Agriculture

Conservation Effects Assessment Project (CEAP)

Walnut Creek Watershed, Iowa: 2004-2007

**CEAP Assessment**

Determine which combinations of conservation practices, and respective placements within the watershed, will achieve local water quality goals for sediment and nutrient loads.

**Watershed Description**

- 12,860 acres
- More than 80% cropland
- Nearly 3,000 cropland acres recently converted to native prairie at the Neal Smith National Wildlife Refuge.
- Participant in the Clean Water Act Section 319 Nonpoint Source Pollution Program.

**Issues:**

Walnut and Squaw Creeks are affected by many agricultural nonpoint source pollutants, including sediment, nutrients, pesticides and bacteria. Streambank erosion contributes to significant sedimentation in the creeks.

**Approach**

**Water sampling:** Nitrogen, phosphorus, pesticides, sediment, fecal coliform, pH, oxygen, turbidity, conductivity, and temperature

**Watershed models:** SWAT (Soil and Water Assessment Tool), GFLOW (Groundwater Flow model), and a grid-based sediment delivery model based on the Modified Universal Soil Loss equation.

**Water monitoring:** EPA Nonpoint Source National Monitoring Project

**Assess practices:** Grass plantings, conservation tillage, terraces, grassed waterways, strip cropping, and contouring; also nutrient management and other production practices.

**Communicating Results**

Share results with watershed and commodity groups, environmental groups, state government, and other interested parties through a variety of activities.

**Native grasses planted on highly erodible land offer wildlife habitat, improved water quality, and protection against soil erosion.**

For small tributary near Treynor, Iowa, hydrologist Mike Burkart (left) and farmer Bill Vorthman (right) draw water from a 30-foot-deep sampling well to test for herbicides and nitrate.

**Timeline**

- **2003:** Initial funding
- **2004 August:** CEAP bibliographies
- **2005 May:** Wetlands peer review
- **2005 July:** Wildlife literature review (program-based)
- **2005 October:** Cropland literature reviews
- **2006 February:** Preliminary habitat quality models—Prairie Pothole wetland region
- **2006 March:** Preliminary National Assessment Report
- **2006 November:** Wetlands Work Plan
- **2007 Fall:** National Assessment Final Report
- **2007 January:** CSREES Watershed final reports
- **2008 December:** Draft findings—Prairie Pothole region

**Cooperative State Research, Education, and Extension Service**