

CONSERVATION REVIEW

WILD RICE SOIL CONSERVATION

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2011 ACHIEVEMENT WINNERS



The 2011 Achievement Award winner from the Wild Rice Soil Conservation District are Kevin and Barbara Kohoutek of Geneseo.

Kevin and Barbara have three sons that all reside in the Lidgerwood area near their farm. Their sons are actively involved on the family grain farm and operate their own beef cattle operation. Their son Kelly also works at Bobcat Co and his wife Katie is a teacher at Milnor High School. Their son Travis works as an electrician for Grotberg Electric and his wife Kelly works at the New Effington Elementary School. Their son David works as a Service Technician at RDO in Kindred.

Kevin serves as President of the Board at Farmers Coop Elevator, he is a member of the Knights of Columbus and the Old time Tractor Club. Besides helping on the farm Barb works at Bobcat Co and is a member of the St, Mary's Altar Society. Kevin and Barb are active members of the St Martin of Tours Catholic Church in Geneseo.

Kevin and Barb enjoy gardening and working in their yard, building projects, photography, and collecting JD toys.

The Kohoutek's operate a diverse crop operation raising wheat, corn, soybeans, and alfalfa. Some recent successes for the operation include installation of a solar pumping plant in a grazing system and going to no-till on a portion of his cropland.

As winners, Kevin and Barbara were the district's guest at the annual district convention in Bismarck November 20-22. They will also received a framed aerial photograph of their farm.



District programs are available to all people regardless of race, color, religion, sex, national origin, age mental or physical handicap.

IS IT A WETLAND OR NOT

By Roberto Luciano

In general terms, **wetlands** are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil. Wetlands are more numerous in the eastern Great Plains than in the drier western plains. Wetland hydrology indicators are used in combination with indicators of hydric soil and hydrophytic vegetation to determine whether an area is a wetland.

Hydrophytic plant is any plant growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Hydrophytic vegetation decisions are based on the wetland indicator status of species that make up the plant community. Freshwater emergent marshes are found throughout the region in depressions, as fringes around lakes, and sloughs along slow-moving streams. These wetlands range from temporarily to permanently inundated and may be dominated by floating-leaved plants in deeper areas (e.g., *Lemna*, *Potamogeton*, *Brasenia*, *Nuphar*) and sedges (*Carex*, *Cyperus*, *Rhynchospora*), bulrushes (*Scirpus*, *Schoenoplectus*), spikerushes (*Eleocharis*), cattails (*Typha*), rushes (*Juncus*), and grasses (e.g., *Phalaris*, *Spartina*) in seasonal wetlands. A list of wetland plants is available at <http://plants.usda.gov/wetland.html>.

Most hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days. **Hydric soils** are soils that are wet long enough to periodically produce anaerobic conditions, thereby influencing the growth of plants. Saturation or inundation, when combined with microbial activity in the soil, causes the depletion of oxygen. This anaerobiosis promotes certain biogeochemical processes, such as the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements. These processes result in distinctive characteristics that persist in the soil during both wet and dry periods, making them particularly useful for identifying hydric soils in the field. Local Hydric Soils Lists have been compiled into a National Hydric Soils List available at <http://soils.usda.gov/use/hydric/>.

Hydrology indicators are often the most transitory of wetland indicators. Those involving direct observation of surface water or saturated soils are usually present only during the normal wet portion of the growing season and may be absent during the dry season or during drier-than-normal years. During the annual dry season, and particularly during drought periods, some wetlands in the region may lack hydrology indicators. However, the lack of an indicator is not evidence for the absence of wetland hydrology. On the other hand, some indicators may be present on non-wetland sites immediately after a heavy rain or during periods of unusually high precipitation, river stages, reservoir releases, runoff, or snowmelt.

Some wetlands can be difficult to identify because wetland indicators may be missing due to natural processes or recent disturbances. To identify and delineate these wetlands may require special procedures or additional analysis of factors affecting the site, including recent changes in hydrologic conditions that may not be reflected in the current vegetation on a site. For more information or technical support contact your nearest USDA-NRCS Service Center.

BURNING CORN STUBBLE

Tom Jones District Conservationist

This fall I have seen a significant amount of burning happening in corn stubble as ground preparations for next year's crop. In today's environment of extremely high nutrient prices, I felt the following input is very relevant to Sargent County Producers thinking about using burning of crop stubble as a management tool.

Nutrients Lost By Recent Field Fires From Purdue Univ. and The Ohio State Univ.

If a harvested field catches fire, no-till farmers should assume at least some of the field nutrients went up in smoke, according to university researchers writing about the topic recently.

Jim Camberato, from the Agronomy Department at Purdue Univ. in West Lafayette, Ind., says occasionally a field catches fire after a harvest and questions arise on how much nutrient loss occurs.

The answer? "Nearly 100% of the nitrogen and 70-90% of the sulfur are lost to the atmosphere during stover combustion," Camberato says. "These nutrients are lost directly to the atmosphere in various gaseous forms and are not retained to any appreciable extent in the ash."

In a soil fertility update from the university dated Sept. 27, Camberato says most other nutrients are retained in the ash and will be available to the next crop if they remain in the field.

"However," he adds, "these nutrients can be lost if the ash is blown off the field by wind." Previous research documented that 20-40% of the phosphorus and potassium in several types of stover drifted away from the fire, presumably in smoke and particulate matter.

Nutrient content of stover can vary based on many factors, so the stover in a field may differ from these average values.

Rainfall and microbial decomposition will remove nutrients from the stover, lowering the potential for the loss of these nutrients from fire. Potassium in particular leaches easily from plant tissue, even before grain harvest.

In the Crop Observation and Recommendation Network (C.O.R.N.) newsletter from The Ohio State Univ., Robert Mullen and Peter Thomison reported similar results from field burns.

N is volatilized and lost when plant material burns. Phosphorus and K remain and return to the ground with ash. However, P and K could be lost if ash is blown away from the field during or after the fire.

"Fire damage in a field is usually variable in scale," they add. "Not all material is completely turned to ash, and rarely is the entire field burned. Understanding what was burned and how much area was affected has an impact on the total amount of N lost."

To estimate how much N was lost, the grain yield level for the previous year must be considered. The harvest index (in corn, the ratio of grain weight to total plant dry weight) is another piece of information that must be known (if unknown – assume 0.5).

"Providing a relatively accurate measure of the area affected is obviously important," the authors write. "Additionally, recognizing the residue remaining and adjusting the material burned can provide a more quantitative measure of the actual damage (if this is unknown - assume 100%)."

The table below provides a simple estimate of N lost based on the previous year's corn yield (assuming a harvest index of 0.5 and yield adjusted to 15.5% moisture). (Remember: the N contained within the corn residue would not have been released and made plant available for next season's crop.)

Along with the loss of N, carbon contained in the plant material is lost as well. It would have been incorporated into the soil organic fraction. This, too, has value.

While there is no specific dollar amount tied directly to a loss of organic matter, an Iowa State University article recommends that one dollar per acre should be claimed.

"Unfortunately, the economic impact associated with the loss of residue cannot be fully realized until later, especially in fields with high erosion potential," the authors write.

Yield (bu/A)	N lost (lb/A)
120	40
130	44
140	47
150	50
160	54
170	57
180	60
190	64
200	67

Table 1. Nitrogen, phosphorus (P₂O₅), and potassium (K₂O) content of corn and soybean stover.

Crop	Yield	Nitrogen	P ₂ O ₅	K ₂ O
	Bushels per acre	Pounds per acre in stover		
Corn	200	119	28	221
Soybean	50	36	5.7	30

Calculated from the USDA-NRCS crop nutrient removal tool - <http://plants.usda.gov/npk/main>.

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“An Apple a Day”

Trace Hanson, District Technician

Apples are a member of the rose family, and there are over 2,500 varieties grown in the United States. Americans consume about fifty pounds of fresh apples every year. At 70 calories for a medium sized apple, the fruit is a portable and nautical snack.

Most of us have heard the expression that begins with “an apple a day.” Throughout history, many health benefits have been associated with apples, ranging from relief of stomach problems and nervous conditions to beauty products. Researchers have reported that regularly eating apples can help lower blood cholesterol, which reduces the risk of stroke and heart disease. Apple peels provide fiber, Vitamin C and natural antioxidants.

The Wild Rice Soil Conservation District, encourage voluntary conservation practices among farmers, ranchers and other land users. The District this next spring will be selling 5 different varieties of apple trees, and an abundance of other fruit and vegetables (please see enclosed tree list).

Things to remember about apple processing, when making apple juice you should be sure to heat the juice to 160° F to kill harmful bacteria. Also, when picking an apple from a tree, try to avoid pulling. You should, lift the fruit towards the sky to release the stem from the tree. This helps avoid damaging the apple tissue and can lengthen the apple’s storage life, this practice will also help prevent breakage of the apple tree branch.

Reference: Journal of the American Heart Association, and the FDA website.