



*POTHOLES: Shallow depressions where water stands during wet periods are consistently less profitable than the upland parts of row crop fields, and they often lose money.*

## **Edge-of-field conservation knowledge on the move**

*Iowa Learning Farms: Progress has been made with edge-of-field practices, but the learning continues.*

Mark Licht | Aug 16, 2018

At the intersection of the sometimes-cryptic alphabet soup of academic programs, government grants and research, real and very important work is being accomplished in the conservation field.

One project, Redefining the Field Edge, stands to prove the importance of perennial vegetation plantings in prairie potholes and natural depressional areas as a positive step in managing runoff to improve environmental impacts from crop farming.

Research grants, such as the NCR-SARE (North Central Region Sustainable Agriculture Research and Education Program) funding awarded to this project, are essential to increasing the body of work and knowledge necessary to change the negative environmental impacts from farming — and just as importantly, the alarmist negative perceptions from outside the farming community.

Tremendous progress has been made over the past decade to reduce nitrate runoff and increase knowledge regarding best management practices, but the learning continues.

### **Does it pay to farm potholes?**

When we speak of potholes and depressional areas, we're not referring to those bone-jarring holes in the road or mental health. Potholes are naturally occurring wetlands in the Iowa landscape that have proven to be fertile ground for some crops, but also are known to be crucial natural filtering mechanisms of our watersheds.

Potholes often act as temporary reservoirs for floodwaters and seasonal fluctuations in water from snow melt or severe summer storms. When drained for planting crops, the overall capacity to serve this function is diminished. These inherent filters can be very effective in reducing nitrate losses through crop uptake and denitrification, but can be overwhelmed when planted with crops and directly fertilized. Planting perennial vegetation in these areas will enhance the capability of the ecosystem to filter nitrates out before leaching and lateral flow carry them downstream.

Looking at edge-of-field conservation practices and helping farmers embrace the value of putting some arable land into biodiverse applications are critical pieces of moving the conservation conversation forward. This involves changing well-established farming and land-use practices. But through research and education, the long-term benefits are being embraced by many farmers seeking to contribute to improving overall soil health, water quality, and wildlife diversity and population.

### **Defining the real costs and benefits**

A variety of methods and structures, including grass waterways or prairie strips and bioreactors or saturated buffers, empower individual farmers to determine the best fit for their situation and land.

However, we continue to learn with every deployment, continue to sharpen our skills, and unearth new and more exciting outcomes.

But what about the lost production when pothole areas are set aside?

There is always going to be a trade-off, and studies such as the Redefining the Field Edge help to refine knowledge of those real and perceived costs and benefits. For the majority of sites identified, the potholes do not make up an overwhelming portion of the fields; thus, the loss of production area is limited, and the opportunity to gain ground on controlling runoff is substantial. In addition, since they are natural water retention zones, in wet summers like we've experienced in 2018, there's a high probability that there will be low or no yield from these high-risk parts of the field.

Considering the impacts to overall performance and profitability of the field, farmers will lose some capacity, but will enjoy savings in lower seed and chemical requirements. There will also be cost savings in years when pothole areas are reseeded after spring and early-summer floods. In our experience, farmers are concerned about the environment, and providing an opportunity to make positive strides with conservation efforts while potentially increasing overall profitability is an exciting proposition to most.

### **Environmentally sound and profitable**

The decision to seed and establish perennial plants, prairie or forage crops in the potholes depends on the needs of the individual farmer. For example, encouraging foraging wildlife such as deer may not be desirable in some parts of the state, but highly sought-after in others. The study will help assess the habitat advantages of different plantings as well as the sustainability of different cultivars in these zones. Performance in naturally filtering field runoff by different plantings will also be assessed as a part of the study.

Embracing a holistic view of issues and solutions that support the needs of farmers to operate profitable businesses, while continuing to advance improvements toward a healthier sustainable ecosystem, is a fundamental tenet for Iowa Learning Farms. Redefining the Field Edge is one more step towards building a culture of conservation in Iowa.

To follow the progress of Redefining the Field Edge and other conservation topics, visit [\*conservationlearninggroup.org\*](https://conservationlearninggroup.org).

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**Source URL:** <https://www.farmprogress.com/crops/edge-field-conservation-knowledge-move>