

A strategy for 'nutrient reduction'

Can Iowa farmers make it work? How?

Iowa is one of 12 states required by the U.S. Environmental Protection Agency to reduce nitrogen and phosphorous levels in waterways that empty into the Mississippi River — “nutrients” that contribute to the Gulf of Mexico’s huge “Dead Zone.”

STRATEGY ONLINE

Iowa Nutrient Reduction Strategy plan and related information: www.nutrientstrategy.iastate.edu/

Last year, the state of Iowa finalized a Nutrient Reduction Strategy, a science- and technology-based plan to assess and reduce the nutrient load in Iowa waterways. It was developed by the Iowa Department of

Agriculture, the Iowa Department of Natural Resources and Iowa State University after two years of research. It’s the state’s first comprehensive plan for reducing nutrients in surface water from point sources, such as wastewater treatment plants and private industry, and non-point sources, such as agricultural land.

Meeting the goal — a 45 percent reduction in the nutrient runoff — is an important part of improving water quality and reducing flooding and erosion across Iowa’s watersheds. Success will depend largely on the agriculture sector and whether enough rural landowners implement the plan’s voluntary conservation measures.

Over the past several months, Jacqueline Comito, an Iowa State University scientist, has written a series of articles about various nutrient reduction methods and benefits outlined in the Iowa Nutrient Reduction Strategy. The last in the series appears today. In conjunction, we invited two area farmers to respond to the following questions regarding the strategy: Does it treat farmers fairly, will it be effective given that it’s voluntary, and are there other ideas that might be better?

— *The Gazette Editorial Board.*





GUEST COLUMN
JACQUELINE COMITO

Solutions have benefits for all

The key to the success of Iowa's Nutrient Reduction Strategy will be farmer participation. It is crucial that farmers recognize the importance of nutrient reduction and participate in the strategy to improve environmental health and safety and preserve Iowa's agricultural economy for generations to come.

Luckily, the Iowa Department of Agriculture and Land Stewardship, Iowa Department of Natural Resources, Iowa State University and various other organizations have partnered to provide Iowa producers with a variety of nutrient-reduction solutions that can be tailored to each individual farm. These organizations also provide information and financial support for farmers. The only step left is for farmers to embrace the opportunity.

Unfortunately, many in the agriculture industry think conservation efforts and business are mutually exclusive — i.e., environmental benefits hurt farm revenues. At first glance, this appears to be true. For instance, land enrolled in the Conservation Reserve Program or Conservation Reserve Enhancement Program does not earn as much money as cropland.

The benefits of conservation and environmental practices rarely “win” the economic argument because many of the costs are not factored into farmers' accounting. Water pollution from traditional farming practices results in many economic external costs, including costs to municipalities for water treatment, health care costs for surrounding communities, lost tourism revenue and costs to other economies such as the gulf shrimp industry, which is

► **COMITO, PAGE 12A**



GUEST COLUMN
DICK SLOAN

Good options to choose from

The Iowa Nutrient Reduction Strategy treats farmers honestly. I see it as a very empowering document for farmers to embrace. The science that has increased our productivity dramatically in our own lifetimes is showing everyone that the problems we have to address are not caused by overfertilizing our crops.

As illustrated by Table 2 of the strategy's executive summary, improving management of timing and source are among the least effective and most variable options for reducing leakage. Nitrogen application rate and use of nitrification inhibitors are slightly more effective, and when combined with timing and source efficiencies, should be justified on economic grounds.

So if the Gulf Hypoxic Zone isn't a result of excess applications, are we “off the hook”? Hardly. Think about what you've witnessed and participated in as we've moved from farm systems based on long rotations, livestock and perennial pastures to rectangular patches of corn and soybeans. Some places, it's just corn.

I'm not telling you how to farm and neither does the strategy. But it gives you options. Good, responsible options.

You can return to more traditional farming systems and embrace perennial crops, grazed pastures and extended rotations, as many organic farmers have found profitable. If this is not your choice, please respect that they are not the problem. Conventional farming practices are the problem.

You can decide if you need a wetland or biofilter to convert your leaking nitrates to nitrogen and oxygen

► **SLOAN, PAGE 12A**



GUEST COLUMN
CURT ZINGULA

No 'easy street' for farmers

The hot-button concern about the Iowa Nutrient Reduction Strategy is voluntary participation. But like any project, leadership will be the difference between success and failure. So far, leaders are stepping up to the plate.

Strategy must distinguish between what does and doesn't work. The Iowa Department of Natural Resources, Iowa State University and the Iowa Department of Agriculture and Land Stewardship are in agreement that a one-size-fits-all regulatory approach would be like trying to use a Band-Aid for a severed foot — better than nothing, but leaving much to be desired.

Farming practices and land differ considerably across Iowa. Scores of different soils, topographies, fertilizers, tillage and cropping systems don't lend themselves well to one-size-fits-all regulations. Throw in weather extremes, and the task of reducing nutrient runoff becomes monumental.

Many farmers are adopting technology to manage fertilizer. Variable-rate technology uses GPS and fertilizer trucks with onboard computers to apply fertilizer according to the soil's fertility test results. The same can be done when soil-incorporating manure slurries from livestock confinement facilities.

Phosphorous leaves my farm primarily by erosion as an attachment to soil molecules. I manage this in two ways; by reducing tillage, which leaves more protective crop residue on the surface, and by using subsurface drainage, which allows more rain to be absorbed into the ground.

Reducing nitrogen pollution will

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Comito/Embrace ideas

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directly affected by Midwest water pollution.

There also are the long-term economic benefits to conservation that are often ignored, including erosion control and soil retention, flood control, natural filtration of pollutants, carbon sequestration, animal and plant habitat for sportsmen and birders, natural areas for recreation and tourism and ecological stability for future generations.

Once the narrative that conservation and business are in competition is dismissed, it is easy to see that there are opportunities for win-win solutions between business and the environment. In fact, various industry, government and citizen organizations around the country are working together to find innovative, economically efficient and environmentally beneficial ways to solve problems. Sustainable solutions — meeting needs without compromising the needs of future generations by examining the economic, environmental and social dimensions of a given problem — are becoming increasingly common.

For instance, a non-profit organization in Oregon recently partnered with a municipal wastewater treatment plant to take an innovative approach to reducing a local river's temperature. The treatment plant's options for mechanical solutions, such as cooling towers, would have cost almost \$20 million. However, through the state's water quality trading program, the treatment plant was able to obtain credits for a downstream riverbank restoration project. The trees planted on the stream bank provided shade for the river,

reducing its temperature and protecting endangered salmon habitat. This solution cost significantly less than mechanical temperature controls and provided additional benefits such as habitat for other plant and animal species, stream bank stabilization, erosion control, and recreation and tourism opportunities.

Here in Iowa, there are innovative approaches to pollution problems that can result in a win-win-win for industry, regulators and the community. Nothing can happen until the majority of Iowa farmers, agricultural business leaders and industry groups embrace these new ideas and work together toward large-scale adoption of the practices recommended by the Nutrient Reduction Strategy.

The support that organizations such as the Iowa Farm Bureau and the Iowa Soybean Association have shown for the strategy is a good sign that industry groups are taking the need for change seriously. Positive change can come in the form of big efforts such as restoring or constructing wetlands or implementing a water-quality trading market, implementing buffer strips and cover crops or moving acres into conservation program.

The most important thing to remember is that we all live together and share the same resources, and there are many ways for us to work together for the benefit of all. Participation on everyone's part cannot be optional.

● Jacqueline Comito, an Iowa State University anthropologist, is the program manager for Iowa Learning Farms of the ISU Extension Service. This is the last in a series of op-ed articles about the new Iowa Nutrient Reduction Strategy. To read previous articles, visit the Iowa Learning Farms web Strategy and the costs site: www.extension.iastate.edu/ilf/content/ilf-opinion-articles.

Sloan/Improve soil

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gas. Wetlands could provide some buffer to flooding and habitat to a few species that have called Iowa home for a few thousand years. And a little basic erosion control should meet phosphorus reduction goals.

I am afraid some policy changes will be mandated if we don't voluntarily plan to pull our tile outlets out of the streams. Current policy encourages farmers to maximize dollars per acre farmed while neglecting the invaluable resources degraded in the process.

Or if you can embrace some of the practices of the soil health movement, you may be able to reduce the leakiness of your farming system. When nothing is growing in your soil seven months out of the year, water and nutrients will drain out of the system and important microorganisms will starve. Cover crops can cost \$30 to \$50 an acre for seed and planting but should gather nutrients from soil to build organic matter and resilience. Some soils benefit from strip-till, which can complement cover cropping as my strip-injected liquid hog manure applications do.

My plan is to grow multi-species, nutrient-scavenging cover crops on all of my no-

till corn-corn-bean rotated acres. I'll also grow 20 acres of cereal rye in a bean-rye/legume, cover crop-corn three-year rotation. I'm confident I will build soil quality faster this way on some small fields of my operation, improving profitability, sustainability and yields of corn and beans.

It qualifies as a resource-conserving crop in the Conservation Stewardship Program by drastically reducing energy requirements to produce commercial fertilizer. I will use the rye for my cover crop seed or trade some with a neighbor for some oats for diversity.

Use of third crops in targeted locations drastically could improve soil erosion problems in Iowa, opening up possibilities for summer construction of waterways and berms.

Whether farmers will implement the strategy depends on cues we get from our communities. If we decide that money is the only arbiter of success, then I think we are denying some of the responsibilities that go with our rights.

We can't continue to farm the way we have been farming.

● Dick Sloan, a Buchanan County farmer, is a farmer partner with Iowa Learning Farms and a member of Practical Farmers of Iowa. Comments: sloan_richard@yahoo.com

Zingula/Changes will be most dramatic since the automobile

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be a much greater challenge.

Nitrogen fertilizer is broken down by soil bacteria into unstable forms such as nitrates. Seasons characterized by heavy rainfall will spike nitrate runoff even with government intervention. In addition, nitrates occur naturally in water due to the decomposition of organic matter, such as leaves and aquatic vegetation.

In my farming operation, I knife-in nitrogen during late fall on soybean stubble and accompany it with a bacteria in-

hibitor. By spring, the ground disturbance is negligible, and I can plant corn directly into those fields without tillage.

Increasingly, other farmers are choosing to spend time on splitting their nitrogen applications in order to minimize the loss of that nutrient to adverse weather.

Filtration beds filled with wood chips and located at the outlet of subsurface drainage lines are effective for reducing nitrates. However, requiring landowners to install filtration beds would ignite a firestorm of conflict over who foots the

bill when drainage lines traverse multiple properties and most were never recorded.

Post-harvest cover crops rapidly are gaining farmers' attention. Cover crops have the potential to improve soil health and retain nitrogen for future crops. The challenge will be to convince farmers that cover crops can help pay their bills. So far, the subsequent yields I've read about have been less than convincing, but seasoned cover crop users point out that experience will lead to success. It's widely recommended

that farmers use CRP vegetative buffer strips to filter nutrient runoff. The problem with depending on CRP is

that neither Congress nor President Barack Obama see the need to maintain budgets for agricultural conservation programs. On the other hand, government could enhance voluntary conservation by offering significant tax incentives for conservation-qualifying tools in the same regard as they do for energy-saving building materials. Voluntary change must deal with mindset. Regula-

tions alone will fall short of the Environmental Protection Agency's goals without greatly multiplying administration and subsequent policing — and subsequent struggle to obtain funding for other environmental priorities.

Whichever route farmers choose, the changes will be the most dramatic since horsepower arrived on wheels.

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