Varel G.Bailey
55213 770th Street
Anita, Iowa 50020

December 28, 2012

Iowa Nutrient Reduction Strategy

I commend the Iowa Department of Agriculture and Land Stewardship, the Iowa Department of Natural Resources and Iowa State University for all the work to develop the2012 Iowa Nutrient Reduction Strategy.

It is important because it is timely, provides a positive approach, applies scientific principles and is all inclusive of the parties involved. It is the best strategy option to avoid government regulation of farming practices with the ultimate result; a bureaucracy based license-to-farm. It is very important to call this the 2012 version of the strategy because it must be continuously improved to show new research and new management system development to stay ahead of the pro-government regulation groups. As a farmer who has developed his own conservation plans and manure management plans and applied them for forty-six years I can state as fact that the "cookbook based" government conservation plans do **not** fit many fields when the goals are to improve the soil, reduce erosion and runoff and continuously increase production. The mandatory government "one-size-fits all prescription to farm" would be a long term disaster for Iowa agricultural production.

There is a reason to make the public aware that the 2012 Iowa Nutrient Reduction Strategy is a working document: we do not currently have the scientific knowledge to significantly alter the hypoxia in the Gulf of Mexico. If all the best management practices (BMP's) and the Natural Resource Conservation Service (NRCS) technical manual practices were universally applied, it would result in little change in the gulf. The reason is that the soil with all its unknown variables and biologically complex reactions is at the core of the nutrient translocation issue. Early recognition is needed that a major increase in soils research and the development of new crop production management systems are necessary steps to have a measurable impact on gulf hypoxia. Two presentations at the 2010 Iowa Water Conference revealed the depth of the problems. Dr. George Czapar, University of Illinois, showed the State of Illinois' research on determining the appropriate regulatory standard for phosphorus in river water. After considerable time and funds they used the Oak Ridge, TN, river biological simulator. The results are the biological activity of river water is almost static until phosphorus is totally absent; then it drops to zero. Studies of Illinois crop production nutrient balances show that Illinois farmers are removing more phosphorus in the crops they raise than they are applying in fertilizer. The research analysis show the EPA phosphorus water standard is arbitrary and restricting the use of phosphorus fertilizer will cause no affect on hypoxia. The nitrogen presentation was by Prof. Deanna Osmund, North Carolina State University. She worked with all the farmers in a single watershed containing a significant number of confinement hog production units. Her challenge was to get all the farms to use BMP's as a watershed wide nutrient management program. The project included monitoring farms management and water quality throughout the watershed.

The result, after implementation of BMP's throughout the sector, after five years, was there was no significant change of nitrate in the water leaving the watershed. Universal implementation of current BMP's will not affect hypoxia.

The Deputy Director of the EPA attended the presentations and when asked during the Q&A to explain the EPA strategy to solve the hypoxia problem based on the presentations, his answer paraphrased was; "Just because we don't know how to do it doesn't mean we shouldn't do something".

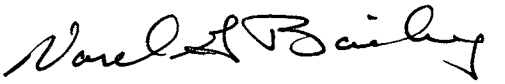
Even though this letter documents our current inability to reduce the gulf hypoxia, I am optimistic that we can do it—on two conditions.

First, we apply aggressive research efforts to discover the mechanisms that drive the capture and release of nutrients by the soil, then, create controllers for those triggering mechanisms.

Second, we find a way for environmental groups, government agencies, research institutions, agricultural organizations and farmers on the land to work together to create new nutrient management systems that utilize all the current technology. That will be much more effective than continuously calling for more government regulation. Mandating ineffective controls will be counter-productive in solving the problem and will siphon off resources necessary for a genuine solution.

In the long run, the research cost to discover and control the soil triggering mechanisms will result in a huge economic benefit—the value of all the nutrients that are not going down the rivers.

The 2012 Iowa Nutrient Reduction Strategy is great in taking a progressive first step. The real work has just begun.



Raccoon River Watershed Association

110 E Main Street, Box 218
Panora, IA 50216

www.northraccoon.org

Steve Roe, President
sroe16@gmail.com

515-229-1669

JAN 04 2013

January 1, 2013

Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, IA 50011-1010

Dear Sirs:

With regard to the Iowa Nutrient Strategy of November, 2012, the members of the board of directors of the Raccoon River Watershed Association recommend the following:

1. The Raccoon River and all other rivers and streams in Iowa should be fishable and swimmable once again.
2. The Iowa DNR or the EPA should enforce the Clean Water Act.
3. Violators of the Clean Water Act should be fined.
4. The Iowa DNR should figure out how much nitrogen and phosphorous is leaving the state.
5. The State of Iowa should seriously plan to comply with the Stoner letter request for a 45% reduction of nitrogen and phosphorus in our waters.
6. The State of Iowa should set nutrient standards for nitrogen and phosphorus at levels that will protect aquatic life and the health of Iowans who use our rivers for drinking water.
7. The Iowa governor and legislature should appropriate funds for the purpose of monitoring the amount of nitrogen and phosphorus leaving Iowa's HUC 8 and HUC 12 watersheds. Monitoring also should be put in place to measure actual progress in the reduction of nutrients in watersheds where best management practices have been implemented.
8. Watersheds that are contributing the most nitrogen and phosphorus should be targeted first for nutrient reduction.
9. The best of our cold water and warm water streams should be protected so that there is no further degradation of water quality or loss of species diversity in Iowa.
10. The Iowa governor and legislature should budget funds for the DNR to review and enforce manure management plans.
11. Since elevated nitrogen is toxic to some forms of fresh water aquatic life affecting river health and fishing, biological assessment of river health should accompany chemical assessment.
12. Point sources need to be more strictly regulated due to the toxic impact of high levels chloride, ammonia and nitrogen on aquatic life downstream.
13. The RRWA believes the analysis by Iowa State University regarding water quality benefits of best management practices is sound.
14. The assumption that Iowa land owners will voluntarily apply "best management practices" on a scale that will produce measureable results we believe to be unfounded based on observations of past behavior.
15. The RRWA believes that insurance subsidies should only go to farmers who embrace best management practices.

Sincerely,

Steve Roe, President

December 23, 2012

Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, Iowa 50011-1010

To whom it may Concern:

This strategy is not serious about cleaning up water. It is serious about maintaining the status quo, keeping some politically-powerful agricultural organizations happy, trying to keep the EPA off Iowa's back without having to take any serious action, and trying to convince the Iowa public that using the same voluntary approach to agricultural pollution that has been used for the past thirty years will somehow clean up Iowa's water in the future, although it has manifestly failed to do so and there is no reason to believe that will change.

A serious strategy would have detailed implementation. A serious strategy would have significant funding. A serious strategy would have deadlines and specific goals and standards.

A serious strategy would have a well-thought-out plan, based on sound social research, that would include effective incentives for farmers to change their practices. It would not be just a vague general proposal that amounts to announcing "From now on, we will say 'pretty pretty pretty pretty please protect water' to farmers instead of just 'please.'"

A serious strategy would recognize that a voluntary approach is not enough. A serious strategy would recognize that a good strategy needs targeted regulations, designed to curb the worst agricultural practices, to even begin to be effective.

A serious strategy would not say to Iowans, "Those of you in towns and cities will be required to pay for upgraded sewage treatment. Those of you who own and operate the farmland that is causing most of the nutrient pollution problem will not be required to do anything at all."

This is a strategy that has only one underlying purpose, and that is to keep kicking the agricultural pollution can down the road for as long as possible. If the EPA is serious about cleaning up water, the EPA will not accept this strategy.

Sincerely,

MJ Hatfield

MJ Hatfield
3079 Coldwater Creek Road
Cresco (Plymouth Rock), Iowa 52136

As an aside:
January 2, 2013

Yes, I drove a UPS truck for 26 years in part so that I could afford to do the right thing by my little piece of Iowa land. These few acres are in CRP, very diverse prairie, and yes, the land adjacent to the Upper Iowa River acts as it should in high waters. It acts as a retention sponge such that the rushing waters don't take top soil and more waters down river to flood Decorah and pollute the Gulf of Mexico.

Yes, I appreciate the taxpayer, Department of Ag, FSA/NRCS money, $115 per acre. But I also have made a commitment to quality of life in Iowa rather than plow it all up for $300 per acre corn rotated with corn and the problems to life that brings.

And yes, the flat wooded lands are still woods, not annual row crops.

It is all protected from development with a Iowa Natural Heritage Foundation conservation easement because future owners may not see the worth of habitat, flood control, and diversity of life.

I have no children to pass a bit better earth onto but others do.

Saving Soil & Flood Control - CPR- Doing What its Supposed to Do

MJ Hatfield

200 bu/A land

Flood aftermath—August 10-11, 2008

January 1, 2013

To the Nutrient Reduction Task Force:

I will simply state that I, as a crop farmer in northeast Iowa, would consider voluntary compliance the most effective course to follow in reducing nutrient runoff. There is *no quick fix* to a problem, decades in the making, that wouldn't impact my ability to produce inexpensive food for my critics. There is no simple solution that doesn't wreak havoc with the Midwestern economy.

I can respect and follow recommendations based on science. Also, give me a reasonable timeline to implement these new practices (if I'm not already doing them). This can accomplish more than will draconian ultimatums spurring lawsuits that spend years in the courts. Lastly, treat me as a partner in this process by assuming that I'm already committed to being the best steward possible to land entrusted to me by my forebears and my landlords. Don't view me as an adversary to be out-maneuvered but an ally to be enlisted.

Sustainability is an overused word but, to me, it means the ability to be around to farm another year while leaving the land in better condition with each passing season. Farming without profit is simply gardening.

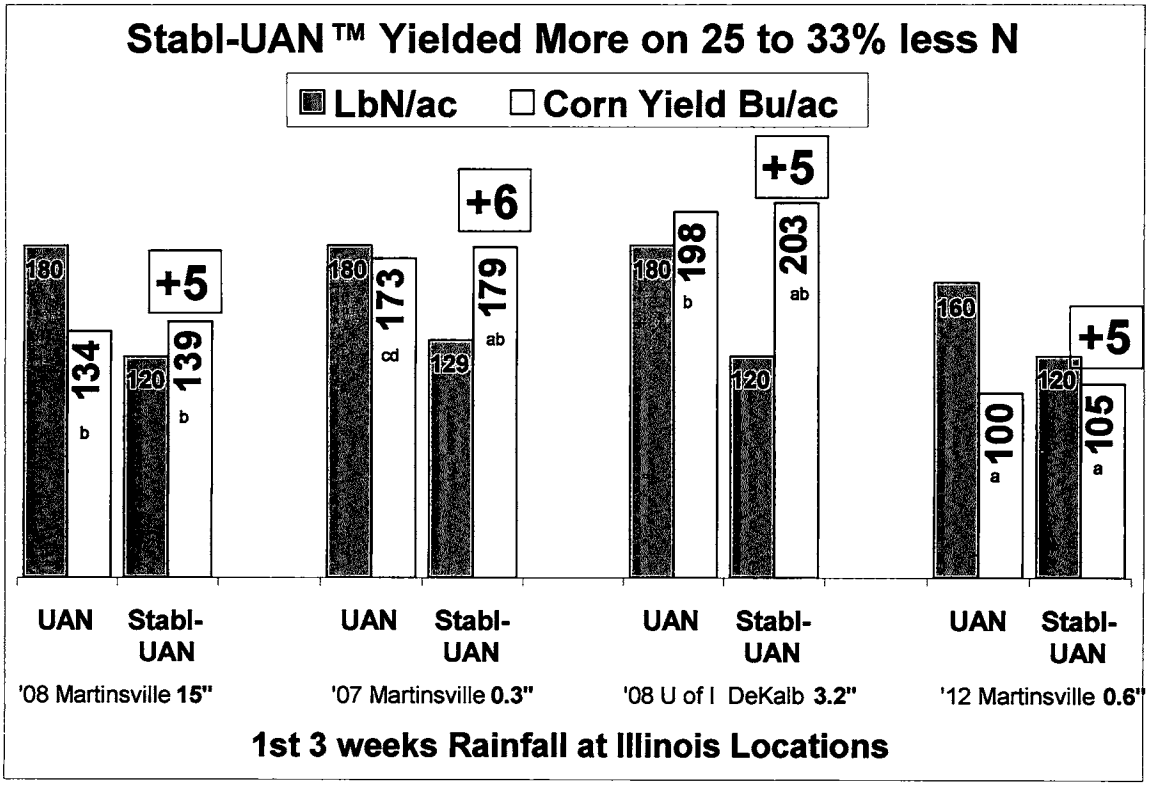
Mark J Mueller

Mark Mueller
1146 220th Street
Waverly, Iowa 50677

Response to request for comments on the Iowa Science Assessment of Nonpoint Source Practices to Reduce Nitrogen Transport in the Mississippi River Basin[1]

Summary: This graph should tell you that I believe the Nitrogen Science Team's assumptions and discussion of Source, Nitrogen Application Rate and Nitrification Inhibitors on page 5 of their report are wholly inadequate. Moreover, it is simply unprofessional that there is no discussion made in their report of soil biology, humic and fluvic acids, foliar application of nutrients or nitrogen fixing azotobacter, balance of soil minerals or systems approaches using a combination of these practices. I know there are farmers in Iowa that consistently produce over 200 bushel corn on less than100 pounds of total applied N in C/C and have yield maps showing spots with 300+ bu/ac.

The Nitrogen Science Team will undoubtedly point out that the data in this graph came from out of state, are not statistically significant, and have not been "peer reviewed". However, the counterpoint is that the results are very consistent over a wide range of environmental conditions and if there is no significant difference, then why are we continuing to use the higher rate of leachable nitrogen? At current prices, any farmer with a sharp pencil can figure out that this one change alone is worth an additional $40 to $50 per acre advantage. Any practice that uses less nitrogen but increases yield means more evapotranspiration is occurring and less nitrate-N will be available in the soil after harvest to leach.



[1] Comments by Jim Porterfield, CCA, Watershed/Water Quality Specialist, Martinsville, IL.

I must say I am very disappointed in the Iowa Science Assessment of Nonpoint Source Practices to Reduce Nitrogen Transport in the Mississippi River Basin. Having grown up on an Iowa farm, and being an alumnus of ISU with a M.S. in Water Resources and currently an independent CCA, watershed/water quality specialist, an Iowa land owner, and having worked on nitrogen use efficiency since 1996, my experience strongly suggests that we can drastically reduce Nitrate-N leaching and increase yield at the same time.

The Nitrogen Science Team produced a prodigious amount of peer-reviewed data and options for its section of the report. Given the data they used, they did a pretty balanced job of presenting a macro overview of the possibilities and cautions based upon their focused expertise, but totally missed the boat on identifying some practices that already exist for achieving the greatest opportunity for reduction in nitrate-N export.

There does exist very practical data from practices such as soil imprinting, soil biostimulants, other enhanced efficiency fertilizers, foliar feeding, azotobacter bacteria, and systems approaches that have been tested, some in Iowa and some in neighboring states. Although I have suggested it several times, researchers in Iowa have consistently ignored the challenge of systems approaches (the excuse is no money and/or it doesn't fit with the current system of the way scientific papers are reviewed and rewarded.)

Long before nitrate-N was identified as a problem in the Gulf, Dr. Bear, Dr. William Albrecht, Dr. Carey Reams and others all determined that balanced soil nutrients along with biological inoculants were the key to feeding soil microbes which, in turn, feed the plants. That has fallen out of vogue in favor of NPK, which while necessary, has exacerbated the problem because of salt bases and high application rates damaging beneficial soil microbe populations, oxidizing organic matter, eroding soil downhill and leaching valuable nitrogen out the bottom of the root zone. If the soil nutrition is in balance, there is far less need for commercial nitrogen. In my testing experience, most soils in Iowa are out of balance. They often are deficient in P, S, Na, B, Mn, Cu and Zn, not to mention any of the other 70+ minerals in the Periodic Table that are not part of most normal soil tests. The Nitrogen Science Team report does not even mention this aspect. My recent research in 2011 and 2012 had yield increases of 30 to 70 percent when soil minerals were balanced. These increases occurred despite using only120 LbN/ac of enhanced efficiency nitrogen in 3rd and 4th year corn compared to controls with 180 LbN/ac of common commercial nitrogen without mineral balancing.

Fertilizer rate studies that I have helped design and implement over the past decade strongly suggest that Lawlor's curve (page 12) can be pushed down (less Nitrate-N concentration) and to the left (reduced N application) with pushing the MRTN curve up (more profitable) and to the left (less LbN/ac needed).

Page 13 mentions a lag time for the practice to achieve water quality benefits. My leaching studies have always shown less nitrogen in tile drainage the first growing season, while increasing yields.

Page 4 states "The following section outlines only those practices that have the potential to make a significant impact on reducing Nitrate-N. Additionally, the practices are applicable to large portions of Iowa." Once again, the Science Team failed to see the possibilities of soil imprinting, soil

biostimulants, other enhanced efficiency fertilizers, foliar feeding, and systems approaches using these particular practices.

Page 5 says "Using slow or controlled-release fertilizer sources may have an impact on Nitrate-N leaching, but no water quality data is available to quantify this and therefore those technologies are not included." Hmmm... what have they been doing the last 12 years? As early as 2000, there was a product that reduced Nitrate–N concentrations in tile drainage by 14 ppm which was twice as much as Randall was getting in Minnesota for the same 40 LbN/ac reduction in nitrogen fertilizer. In 2004, the National Soil Tilth Lab, had plots that produced 193 bu/ac on 100 LbN/ac of the same enhanced efficiency fertilizer, compared to 170 bu/ac with 100 LbN/ac of anhydrous. The Jefferson Iowa FFA had plots in 2008 in a very wet spring that yielded 220 bu/ac on 100 LbN/ac of the same enhanced efficiency fertilizer, while plots with 25% more urea (125 LbN/ac) only yielded 205 bu/ac. The nitrogen was obviously going to yield, not to groundwater. By July 7th that year, there was 33% less nitrate at the 8-inch depth with the urea even though it started with 25% more N fertilizer. It must have leached below that depth already.

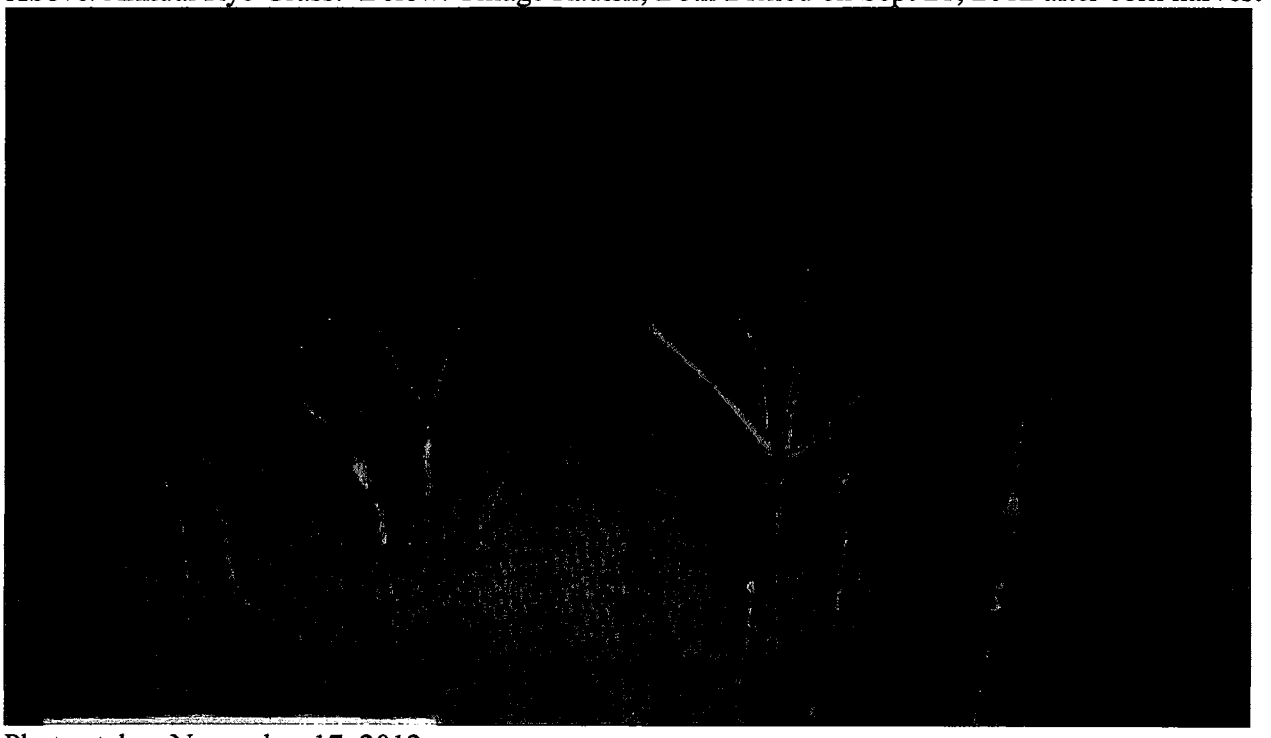
The report mentions that "... it is not possible to add together reductions from multiple practices." (page 13 next to last paragraph). True. But it fails to address the possibility that they could be multiplied together. (If two practices each produce a 50% reduction in NO3-N concentration independently, it is not likely they will produce a 100% reduction when used together, but it is quite possible that 50% times 50% would lead to a 75% reduction.)

One has only to look at the wood chip trench tile nitrate leaching research of the then NSTL that I helped initiate and get funding for when I was with the American Farm Bureau Federation back in 1999. By itself, the wood chip trench reduced nitrate-N Load by 55 percent in tile drainage. Rye cover crops in the same study reduced N-Load by 57 percent. Meanwhile, in studies run in Illinois by a contract research company, soil imprinting reduced tile nitrate levels by 44 to 66 percent by reducing both the volume of flow (32 to 47 percent) and the nitrate concentration. And it increased yields by up to18 bushels per acre while using 10 percent less N than normal. Secondly, a dry granular enhanced efficiency fertilizer reduced tile nitrate concentrations by 28 to 65 percent and has increased yields in 23 out of 25 comparisons. It did not seem to matter whether it competed against anhydrous, urea or UAN, and often did so on 17 to 25 percent less nitrogen.

Comparisons of Stabl-UAN against common UAN have been even more impressive, chalking up 5 to 6 bushel yield increases all four times it has been tested while using 40 to 60 pounds less N. It hasn't mattered whether it was a very wet spring or a very dry year, whether it was applied PPI or PE, whether it was C/Sb or C/C or whether the soil was 4 to 5% OM and high CEC or silty clay loam with 1.5 % OM and a CEC of 6 to 7.

Another benefit of Stabl-UAN was seen this fall with cover crops of annual rye grass and Tillage Radish. The control had 160 LbN/ac applied PPI as UAN in the spring. The Stabl-UAN had only 120 LbN/ac spray broadcast on the surface and incorporated. Corn yields in a very dry year were 100 bu/ac in the UAN and 105 bu/ac in the Stabl-UAN plots. The cover crops were drilled into moist soil after harvest on September 21. 2.3 inches rain fell between then and when the photos were taken on November 11. The Stabl-UAN plots were lush and green and achieved complete ground cover, while the UAN plots looked anemic and maybe achieved 50% ground cover.

Above: Annual Rye Grass. **Below**: Tillage Radish, Both Drilled on Sept 21, 2012 after corn harvest



Photos taken November 17, 2012

Fall Cover Crops from corn plots with 160 LbN/ac UAN PPI

Fall Cover Crops from corn plots with 120 LbN/ac Stabl-UAN PPI

Close-up of Control plot with UAN Close-up of Stabl-UAN plot.

Another product that I have seen work well in the less fertile soil in SE Illinois is a soil biostimulant. AgZyme, along with 157 LbN/ac, reduced NO3-N loading in tile water by 57% compared to controls using the same amount of nitrogen. AgZyme reduced nitrate-N concentrations by an average of 42% and volume of tile water by 26% while increasing yields by 11 bu/ac. Testing was conducted at Martinsville, IL over 4 years from 2004-2007 using containment bays with 3 reps/treatment/yr. Year-to-year results were amazingly consistent with 34.8, 41.6, 48.4, and 41.3% reductions in nitrate-N concentration, 20.6, 22.2, 32.5 and 36.0% reductions in drain water volume and 11.2, 9.5, 11.0 and 15.8 bu/ac yield increases.

The Nitrogen Science Team's report mentions a yield reduction with the rye cover crop. However, if the rye is killed in a timely manner, along with using enhanced efficiency fertilizer Stabl-UAN and soil biostimulants, the yield drag ought to be easily overcome. Both are commercially available and could easily be adopted in 2013 across most MLRAs in Iowa.

To be unaware of these potential N reduction, yield-enhancing practices simply because they are not in the peer-reviewed published literature is one thing. But for the Nitrogen Science Team to blatantly ignore and dismiss them[2] as not being "conducted in or near Iowa" (p 4), to only consider one inhibitor (N-Serve in fall anhydrous) (p 5), to say that no water quality data is available to quantify slow or controlled-release technologies and therefore not include them (p 5), and to totally ignore foliar feeding, soil biology and biostimulants and soil mineral balancing is a disservice to Iowa's farmers and to taxpayers across the state.

[2] The following paper reviewing Jim Baker's Paper on TMDLs in the Cedar River Watershed was shared in an email with Chuck Gipp on December 2, 2010.

Some Thoughts on What Plants and Soils Need That TMDLs and Nutrient Reduction Initiatives Can't Provide[1]

Introduction

Why would a bank want to loan money for a farming practice that was predicted to reduce yield and lose money? This dilemma will be faced with greater frequency in watersheds across the nation as the U.S. EPA and state environmental agencies draw up plans to enforce the Clean Water Act's Total Maximum Daily Load (TMDL) provisions.

In the case of EPA's intention to achieve a 45% reduction in Nitrogen loading to reduce hypoxia in the Gulf of Mexico, the outcome is projected to be reduced crop yields and reduced economic activity. If crop supply is reduced enough, grain price increases could offset the reduced yield for grain farmers. The flip side of the coin is that livestock growers and consumers will face a reduced grain supply and higher feed and food prices and more people will go hungry.

For a TMDL in Iowa's Cedar River Watershed, Baker (2009) calculated costs for several changes that might be required in farming practices. They included reducing nitrogen fertilizer rates by 50 LbN/ac, avoiding fall application, adding a rye cover crop, using drainage water management and constructing wetlands. Baker estimated these changes could result in costs ranging from $0.10 to $6.00 per Lb of reduced nitrogen loss. For a farmer that could mean a loss of 5.3 bu/ac of corn for using 50 Lbs less nitrogen per acre up to 100% loss of crops grown on land that is converted to a wetland.

Baker estimated that a 50 Lb N/ac reduction in nitrogen applied to corn following soybeans would result in only a 25% N loss reduction totaling 10.5 lb nitrate-N loss reduction over 2 years. That is far less than the 45% reduction in N stated by EPA to be needed to reduce hypoxia in the Gulf of Mexico. Baker also estimated farmers would incur a loss of 5.3 bushels corn per acre at a cost (loss to the farmer) of $0.10 /Lb N loss reduction or a cost of $1.05/ ac. All other options explored were far more costly. A $1.05/ac loss/yr doesn't sound like much wealth lost. But, multiplied by 1.6 Million acres of corn and soybeans in the Cedar River Watershed and cycled through the economy 7 times equals a reduction of $11.7 million/yr of economic activity.

So, the questions are these: Is that the best we can do? Is it impossible to reduce N application rates, produce a yield increase and make it profitable to reduce N loss?

The answers are Yes and No, and Yes and No.

Answering Yes to both questions is correct from the standpoint of the current university knowledge base which was used to look at one solution at a time. However, the answers from knowledge based upon private sector products and systems research indicate the answers could be No and No.

In fact, private sector studies of several products including Stabl-U™, Stabl-UAN™, AgZyme® and TerraStar soil imprint wheels show it is possible to increase yields with reduced N rates and make a profit from reducing N Losses far beyond 25% instead of it being a cost. None of them are a silver bullet by themselves, but they and many other innovations such as the Air Force planter, blends of new enhanced efficiency nitrogens, foliar feeding, tillage radishes and the U-Trough planting program, among others, ought to be taken into account and looked at thru the lens of a systems approach before we implement TMDLs and nutrient reduction strategies based solely on past research. We might surprise ourselves with something that is better for the soil microbes, the water and farmers' pocketbooks.

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[1] Jim Porterfield, CCA, Watershed/Water Quality Specialist, Park Ridge, IL.

Summary of Results
The following results can be faulted for having collected data only during the 5-month growing season while Baker's report integrates N loss over a full 12 months. However, any time grain yields increase, there will be increased uptake of Nitrogen and an increase in ET, leaving less nitrate in the soil with potential to leach next spring.

During the growing season **Stabl-U™** (urea stabilized with a small microchip of lime nitrogen in the center of each granule) has reduced soil nitrate levels and nitrate-N concentrations in tile water by 28 to 65%. Over 9 years of testing, corn yields with Stabl-U for 46 comparisons increased an average of 8 bu/ac while doing so using an average of 17 less LbN/ac. Test sites included 3 in Iowa and 4 in Illinois and included various comparisons with urea, UAN and anhydrous ammonia. Putting the range of 28 to 65% reductions in nitrate-N into Baker's model in Table 1 produced a profit of $2.66 to $1.15/Lb of N loss reduction, a little over $30/ac extra profit.

AgZyme (a soil biostimulant), along with 157 LbN/ac, reduced NO3-N loading in tile water by 57% compared to controls using the same amount of nitrogen. AgZyme reduced nitrate-N concentrations by an average of 42% and volume of tile water by 26% while increasing yields by 11 bu/ac. Testing was conducted at Martinsville, IL over 4 years from 2004-2007 using containment bays with 3 reps/treatment/yr. Year to year results were amazingly consistent with 34.8, 41.6, 48.4, and 41.3% reductions in nitrate-N concentration, 20.6, 22.2, 32.5 and 36.0% reductions in drain water volume and 11.2, 9.5, 11.0 and 15.8 bu/ac yield increases.

TerraStar soil imprint wheels reduced nitrate concentrations in subsoil and tile water by 44 to 62% while increasing yields by 12 to 18 bu/ac. With 145 LbN/ac of urea the imprinted plots yielded 14 bushels more corn than the control with 161 LbN/ac that was not imprinted.

Systems Approach: In 2008, in an extremely wet year with 15.2 inches of rain during the first 3 weeks after planting at Martinsville, IL, corn grown following soybeans using a system of several innovations and fertilized with only 100 LbN/ac of strip banded Stabl-U™ yielded 182 bu/ac. Control plots with broadcast urea at120 LbN/ac yielded only 150 bu/ac. The 182 bushel yield was higher than the county average of 168 bu/ac which was assumed to use state average nitrogen application rates of 146 LbN/ac. The system that produced the 182 bushel yield included matching one particular hybrid with strip banded nitrogen, twin row planting, soil imprinting and a new enhanced efficiency fertilizer.

Under the systems approach, the stabilizer in 100 LbN of Stabl-U would cost $6.52/ ac/year. Using Baker's assumption of $0.40/LbN would result in a savings of $20/ac by using 50 lb less nitrogen. $128 extra income would result from the 32 extra bushels at $4.00/bu, Table 1. Adding a $150,000 cost for a 16-row twin row planter and $16,000 for soil imprinter with their costs spread over 500 acres and 10 and 5 years respectively, the system's extra cost would be $42.92/ac/yr or a net profit of $105.08/ac, ($5.05 profit per Lb of N loss reduced.) With a potential return of $2.44 for every $1.00 invested, banks might be more inclined to loan money for a system's approach than they would be if they knew the farmer was going to lose $1.05 /ac/yr for implementing a simple 50 Lb N/ac nitrogen fertilizer reduction should it be required by a TMDL.

Side Bar As long there is a negative cost to implement a practice, then the use of dollars per Lb of N loss reduction is a useful unit of measure (the closer to zero the better). However, if the practice produces a positive dollar outcome it no longer is a useful unit of measure. For instance, a positive $10 per acre outcome might generate only a 2 Lb/ac /year N loss reduction which would be characterized as +$5.00/LbN Loss Reduction. If the same practice produced a 25 Lb/ac/yr N Loss Reduction, then it would appear that it was only slightly profitable at +$0.40 /Lb N Loss Reduction.

Table 1

Cedar River Watershed TMDL: Baker Paper 2009 vs Stabl-U, AgZyme, and TerraStar							
	Corn soybean	C/sb PPI	C/sb PPI	C/sb	C/sb	C/sb	C/sb
	Baker	Stabl-U +	Stabl-U +	* Stabl-U	* Stabl-U	AgZyme w/UAN	TerraStar w/Urea
	2009 TMDL Paper	2008 System for best Hybrid	2008 System vs. Clark Co. IL Avg	All 46 comparisons for 2000-2008 28% N loss Reduction	All 46 comparisons for 2000-2008 65% N Loss Reduction	Averages of 4 yrs from 2004-2007	Imprint Wheels 2006
Assumed Initial rate LbN/ac	150	150	146	136	136	157	161
New Rate LbN/ac	100	100	100	119	119	157	145
Initial Nitrate loss LbN/ac/yr	20.8	20.8	20.8	20.8	20.8	20.8	20.8
% N Loss Reduction	25%	50%	50%	28%	65%	54%	62%
Nitrate-N Loss reduction Lb/ac per 2 years	10.5	20.8	20.8	11.6	27.0	22.5	25.8
$ Savings on reduced Lb N/ac	$20.00	$20.00	$18.40	$6.80	$6.80	$0.00	$6.40
Extra Cost of treatment $/ac	$0.00	$6.52	$6.52	$7.76	$7.76	$11.00	$0.00
Extra Cost of Machinery $/ac	$0.00	$36.40	$36.40	$0.00	$0.00	$0.00	$6.40
Corn Yield Change bu/ac	-5.3	32	14	8	8	11	14
$ Value of Yield Change at $4.00/bu	-$21.20	$128.00	$56.00	$32.00	$32.00	$44.00	$56.00
Profit or Loss $/ac	-$1.20	$105.08	$31.48	$31.04	$31.04	$33.00	$56.00
Cost or Profit $/Lb N loss reduction	-$0.11	$5.05	$1.51	$2.66	$1.15	$1.47	$2.17
Stabl-U + = Stabl-U strip banded, twin-row, 42K pop. TerraStar Imprinted							
* Stabl-U = includes comparisons with Urea, UAN and Anhydrous							

Stabl-U After a wet spring in 2001 in southern IL, Urea and Stabl-U were broadcast in containment bay plots on June 12. Plots were planted on June 13 and soil samples were taken June 27 and after harvest in October. Data in Table 2 begs the question, how could 90 LbN of Stabl-U outyield 160 LbN of urea by 23 bu/ac when soil nitrate levels were 83 percent less for Stabl-U? At both the 60 and 90 LbN rates, NO3-N concentrations in tile water went down as yield increased in the Stabl-U plots. Urea plots had 2 to 6 times more soil N available to leach after harvest.

Similar results occurred in Texas in 2004 with much lower levels of nitrate in Stabl-U plots early in the growing season but higher yields in the end. In August 2008, soil nitrate levels were 15% lower in Stabl-U plots than in urea plots in a study near DeKalb, IL, but yields were equal.

Table 2	Urea	Stabl-U	Stabl-U			Urea
Lb N/ac	60					160
Soil N Jun ppm	27					42
Soil N Oct ppm	10					38
Bu/ac	130	109	145	137	178	155
	7					12.9

Stabl-UAN™ was first tested in a fairly dry spring in 2007 and then in an extremely wet spring in 2008 at Arise Research & Discovery's Martinsville, IL facility, as well as in 2008 in a wet spring at the University of Illinois NIARC station near DeKalb, IL.

Measurements shown in Table 3 and Figs 1&2 indicated significantly higher leaf chlorophyll and sugar brix contents for Stabl-UAN than for UAN when compared at the same N rates.

Table 3.

		Martinsville 2008 PPI C/Sb			* Martinsville 2007 PPI C/Sb				DeKalb, 2008 PE C/C	
			Brix%	Brix%		Chlorophyll %				
Treatment	LbN/ac	bu/ac	20-Jul	30-Aug	bu/ac	Jun	Jul	Aug	bu/ac	bu/ac
UAN	60	123.5 c	43.5 d	46.3 d					173.6 c	173.6 c
UAN	120 (129*)	123.3 c	43.0 d	43.3 e	168.3 c	50.5 c	54.3 b	59.0 a	183.2 c	183.2 c
UAN	180	134.0 b	49.0 c	51.8 c	172.5 b	61.3 a	63 a	62 a	198.3 b	198.3 b
									0.5% SN	0.25% SN
Stabl-UAN	60	136.3 b	56.3 b	59.5 b					168.7 c	169.6 c
Stabl-UAN	120 (129*)	139.0 b	60.8 a	63.5 a	178.5 a	56.8 b	62.5 a	61.0 a	203.5 ab	193 bc
Stabl-UAN	180	152.5 a	61.8 a	62.8 a					204.6 ab	214.2 a
LSD (P=.05)		5.00	2.96	2.26	3.69	4.57	2.67	3.39	LSD (P=.10)	13.8

Fig 1

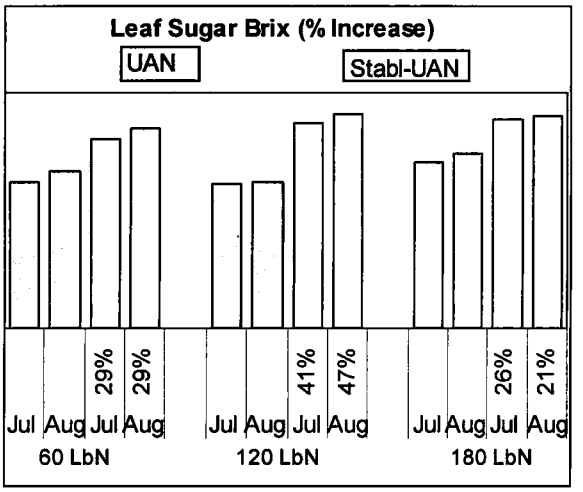


Fig 2

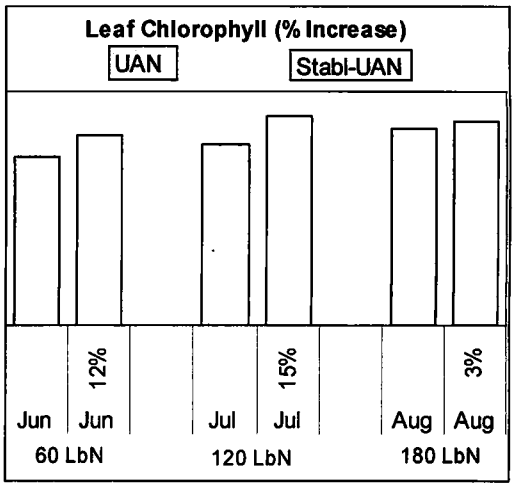
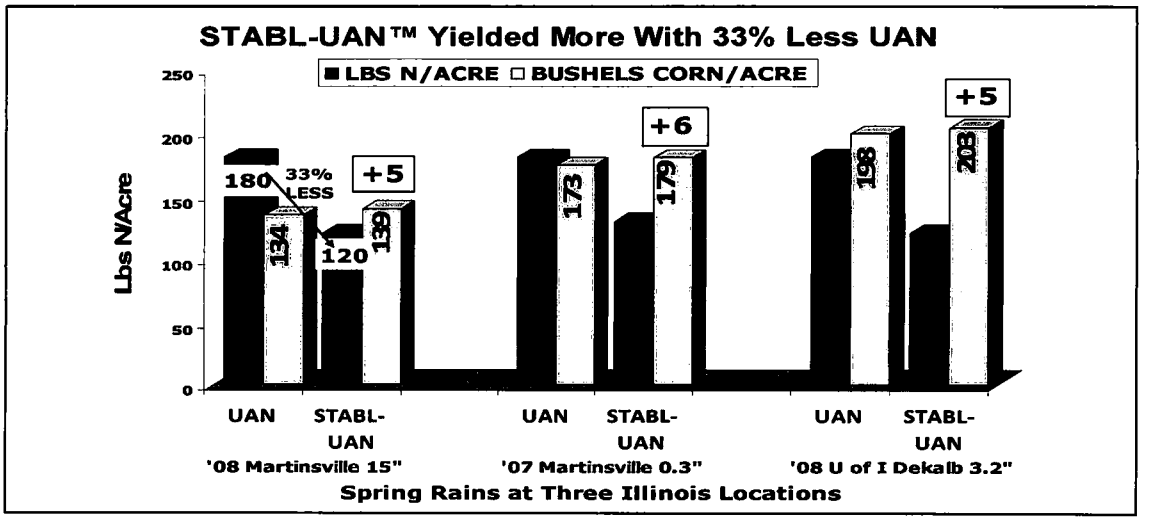


Fig 3 Yields for Stabl-UAN at 120-129 LbN/ac were consistently 5 to 6 bu/ac higher than yields from 180 LbN/ac of UAN.



Nitrate was not measured in soil or drainage water in the Stabl-UAN trials. However, a pot study in 1999 showed a 39% reduction in NO3-N leaching over 29 days. Extrapolating from studies on AgZyme where tile drainage volume was reduced 22% by an 11 bushel/ac increase in yield and from Randall's work in Minnesota that suggests a 5 to 7 ppm reduction in nitrate-N concentration in tile drainage water for each reduction of 40 LbN/ac in nitrogen applied it, would strongly suggest a 10% decrease in drain water volume and a 36% decrease in NO3-N concentrations for the Stabl-UAN studies. That would total to an estimated 43% reduction of NO3-N loss in tile drainage during the growing season. Baker's 20.8 LbN/ac/yr nitrate loss is a flow weighted average over 12 months while the 43% N Loss Reduction for Stabl-UAN is projected from a 5 month growing season. Early spring tends to be a leaky time of year as soil biological activity begins to pick up and nitrate left from the previous crop moves down with early spring rains. This accounts for some of the 20.8 LbN/ac/yr referred to by Baker. However, if the nitrogen use efficiency of the system increases yield and ET, then there should be significantly less nitrate left in the soil after harvest that would have potential to leach next spring. Therefore, the percentage N Loss Reductions in Table 4 are set at 43% based on the limited test data at hand. The Stabl-UAN situations had yield increases and profits of more than $2.00/Lb N loss reduction.

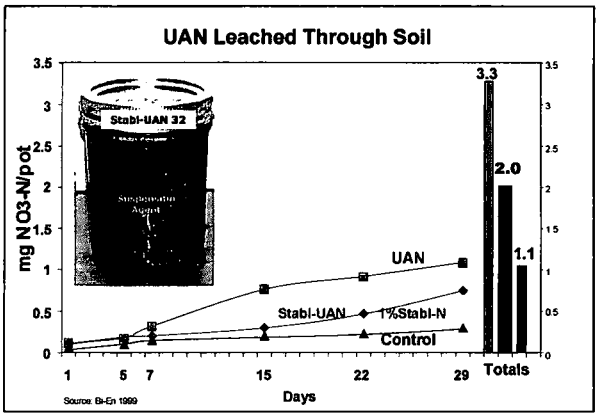


Table 4.

Cedar River Watershed TMDL: Baker Paper 2009 vs Stabl-UAN Results for 2007-2008					
	Corn soybean	C/sb	C/sb PPI	C/sb PPI	C/C PE
	Baker	Stabl-UAN	Stabl-UAN	Stabl-UAN	Stabl-UAN
	2009 TMDL Paper	Avgs. All Comparisons from 2007-2008	2008 V Wet 15.2" in 1st 3 wk	2007 Dry 0.3" in 1st 3 wk	2008 Wet 3.2" in 1st 2 wks
Assumed Initial rate LbN/ac	150	150	180	180	180
New Rate LbN/ac	100	130	120	129	120
Initial Nitrate loss LbN/ac/yr	20.8	20.8	20.8	20.8	20.8
% N Loss Reduction	25%	43%	43%	43%	43%
Nitrate-N Loss reduction Lb/ac per 2 years	10.5	17.9	17.9	17.9	17.9
$ Savings on reduced Lb N/ac	$20.00	$8.00	$24.00	$20.40	$24.00
Extra Cost of treatment $/ac	$0.00	$6.96	$6.43	$6.91	$6.43
Corn Yield Change bu/ac	-5.3	10	5	6	5.2
$ Value of Yield Change at $4.00/bu	-$21.20	$40.00	$20.00	$24.00	$20.80
Profit or Loss $/ac	-$1.20	$41.04	$37.57	$37.49	$38.37
Cost or Profit $/Lb N loss reduction	-$0.11	$2.29	$2.10	$2.10	$2.15

AgZyme®, a product of Ag Concepts in Boise, ID, is a complex of enzymes, trace elements, vitamins, and natural plant extracts. AgZyme® is designed to create a better environment in the soil while maintaining plant health and tolerance to adverse conditions.

Containment bay plots were used for the AgZyme studies from 2004-2007 at Martinsville, IL. The bays had plastic sheeting installed to a depth of 42 inches around all four sides of each plot and a tile line running under the center of each plot that discharged into a 10-foot deep by 24-inch diameter closed well. Water depths were measured and water samples collected and analyzed for nitrate each time the well was pumped out.

Table 5

Year	Lbs. N.[t]	Check Nitrate N NO3-N ppm	AgZyme NitrateN NO3-N ppm	% Reduction in NO3-N Conc.	Check Drainage Water Gal	AgZyme Drainage Water Gal	%Reduction in Drainage Volume	Check Yield bu/ac	AgZyme Yield bu/ac	Yield Increase Bu/ac
2004	157	8.9	5.8	34.8%	389	309	20.6%	219.3	230.5	11.2
2005	157	20.9	12.2	41.6%	360	280	22.2%	145.3	154.8	9.5
2006	157	12.8	6.6	48.4%	320	216	32.5%	151.0	162.0	11.0
2007	157	7.5	4.4	41.3%	189	121	36.0%	139.5	155.3	15.8
Averages		12.5	7.3	42.1%	314.5	231.5	26.4%	163.8	175.7	11.9
LbN/ac Loss flow weighted		3.3	1.4							
% Reduction in Total N Loss			57.4%							

[t] 40 gal/ac of 30% UAN applied preplant, plus 200 Lb 11-52-0 in each preceding fall and 5 Lb N with in-furrow starter.

Source: Ag Concepts® Corp http://agconcepts.com/

Summary: Nitrate concentrations and volume of tile drainage water were measured for 4 years during the growing season with 3 reps per treatment. With an average of 11.9 more bushels of grain coming of the plots there should be greater ET and nitrogen uptake. This was evidenced by the 26% reduction in water volume draining through the tiles and 42% reduction in nitrate-N concentration in that water. Taken together, it resulted in 57% less nitrate-N loading in the tile water during the growing season. At $12/ac cost, AgZyme produced a net return of $21 to $43 per acre/yr.

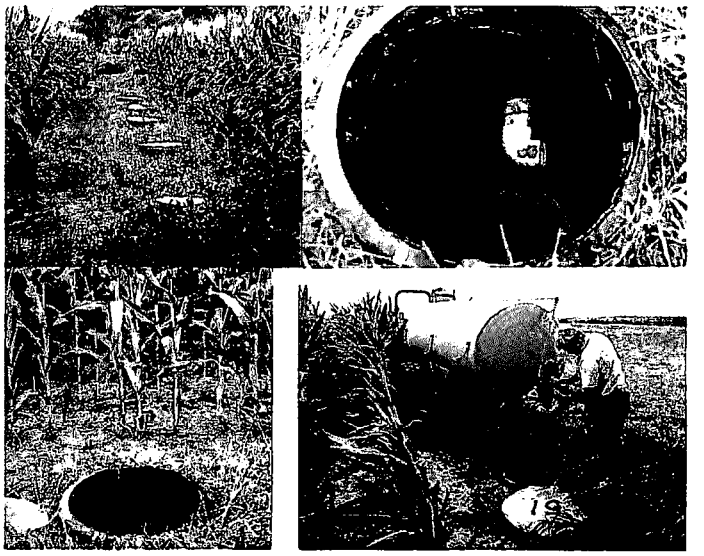
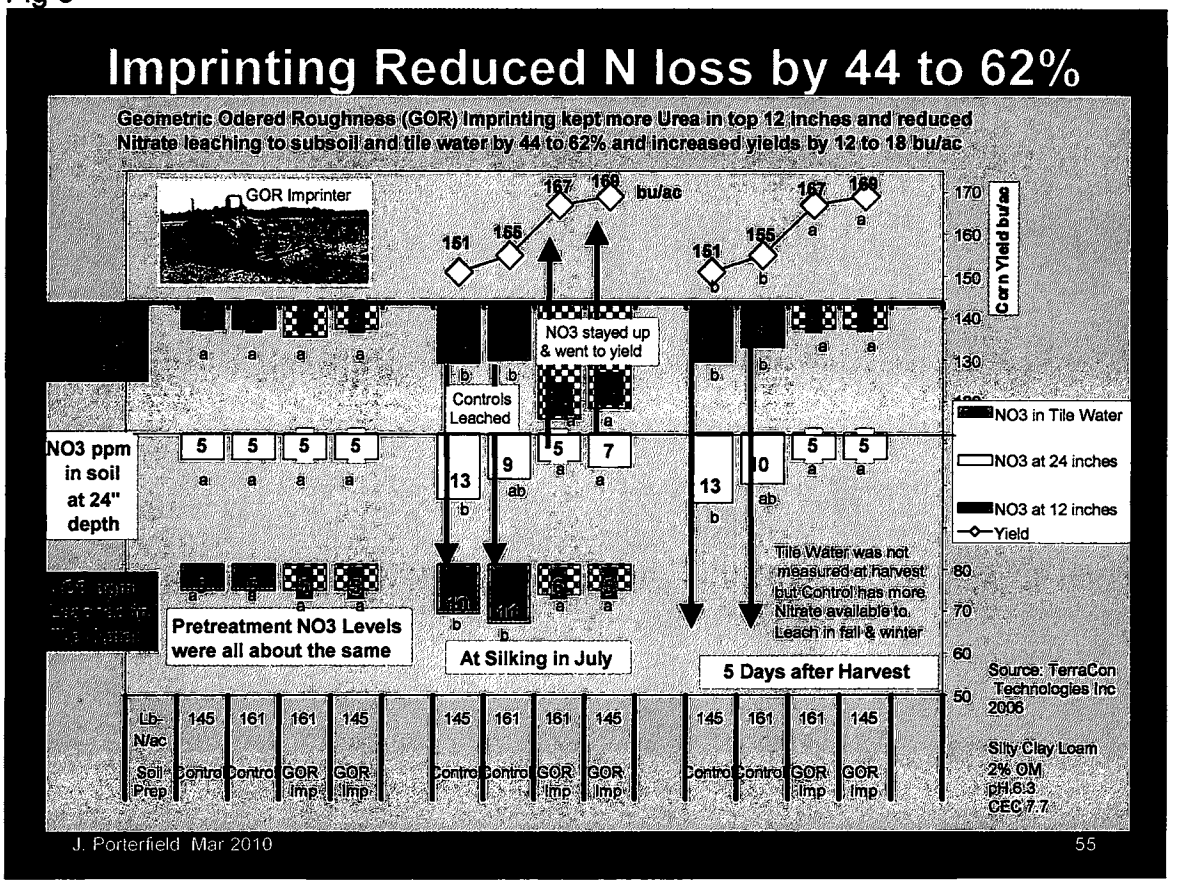
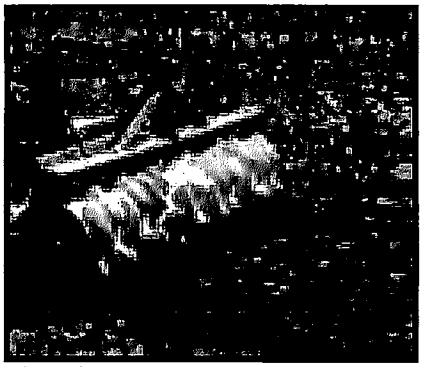


Fig 4. Photos Clockwise from top left:
1. Line of wells,
2. A 24-inch diameter, 10-foot deep solid plastic tile showing white connector to drain tile in containment bay at a depth of 42 inches.
3. Water in well being suctioned out with vacuum hose.
4. Well and corn in the plot.

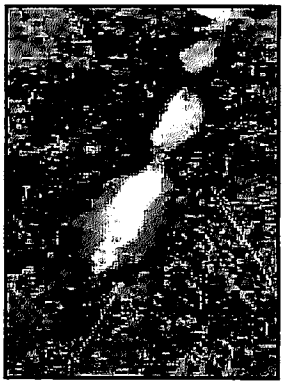
Photos by Jim Porterfield

TerraStar Wheels for Geometric Ordered Roughness for Soil Imprinting.
Fig 5





TerraStar soil imprint wheels are made of a somewhat flexible resin. The wheel is shaped like a serrated disc with specifically designed curvatures on the leading and trailing edges of each protruding serration. They work best in tilled soil. They consolidate the tilled soil, but do not compact it. They leave thousands of liter-sized indentations per acre which increases the soil surface area by 30 percent. The imprints act like small ponds to capture and infiltrate rainfall, thus reducing runoff and erosion by 50 to 90%. The moist bottoms of the imprints become microwells of biological activity.



Summary: TerraStar soil imprint wheels reduced nitrate concentrations in subsoil and tile water by 44 to 62% while increasing yields by 12 to 18 bu/ac. At 145 LbN/ac of urea the imprinted plots yielded 14 bushels more corn than the control with 161 LbN/ac that was not imprinted. Soil nitrate levels in imprinted plots had returned to preplant levels at harvest while control plots still held twice as much nitrate in the top two feet of soil which could contribute to excess nitrate leaching next spring. Spread over 5 years and 500 acres per year, TerraStar's initial cost is less than $6/ac

Bio-Gold from Global Chem LLC, is a 100% organic bacteria product containing a wide variety of aerobic and anaerobic micro-organisms including those that are nitrogen-fixing. Bio-Gold naturally produces plant growth activators within the soil such as auxins, indoleacetic acid, and gibberellins (gibberellic acid) which support function of growth and maturity in plants. Since Bio-Gold contains both organic matter and micro-organisms, it develops its own compost which contains humates, producing a healthier fertile soil. Bio-Gold microbes convert atmospheric nitrogen to a usable form for the crop and metabolize enzymes organically, assuring an "On-Demand" supply of nitrogen for the plant.

Global Chem LLC suggests commercial nitrogen rates can be reduced by up to 50-75% and Bio-Gold will still maintain yields within 3% of normal nitrogen fertility programs. Best results have occurred when applied early with pre-emerge herbicide or incorporated at planting. All Bio-Gold applications in this study were done in pre-plant situations for corn following soybeans.

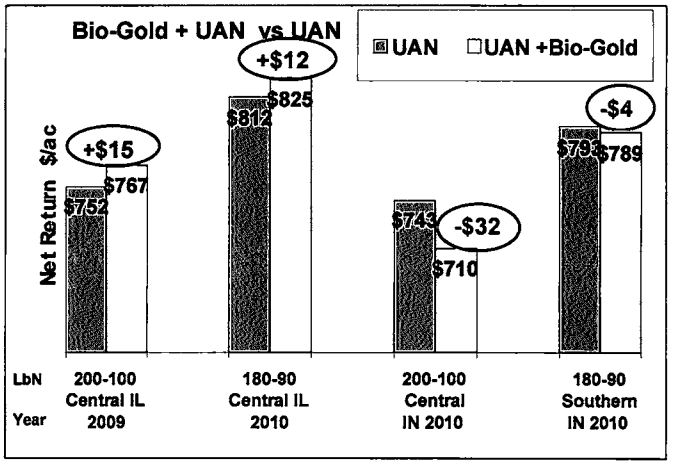
Table 6. Bio-Gold Results from 3 of Beck's Hybrids PFR Locations

		Central IL 2009		Central IL 2010		Central IN 2010		Southern IN 2010	
Product Applied	28% UAN Lbs. N.	Lbs.N.	Bushels† Per Acre	Lbs.N.	Bushels† Per Acre	Lbs.N.	Bushels† Per Acre	Lbs.N.	Bushels† Per Acre
None (control)	180 – 200	200	219.5	180	233.2	200	217.0	180	228.0
Bio-Gold	180 – 200	---	---	180	240.3	200	195.6	180	236.3
None	90 - 100	---	---	90	196.8	100	184.7	90	197.5
Bio-Gold	90 - 100	100	218.5	90	232.7	100	203.6	90	223.2
			net $/ac		net $/ac		net $/ac		net $/ac
None (control)	180 – 200	200	$752.10	180	$812.36	200	$742.60	180	$792.60
Bio-Gold	90 - 100	100	$766.80	90	$824.86	100	$710.18	90	$788.76
Bio-Gold Net Return $/ac[A]			$15		$12		-$32		-$4

Sources: http://beckshybrids.com/research/2010/pg170.pdf
http://beckshybrids.com/research/2009/pg112-113.pdf
†Bushels per acre corrected to 15% moisture.
[A] Net Return based on $3.80/Bu. corn, $232/ton 28% nitrogen, Bio-Gold $22.50/ac

Summary: After an initial surprisingly good "look see" test in 2009 at their Practical Farm Research facility in central IL, Beck's Hybrids evaluated Bio-Gold at three of their PFR locations in 2010. They saw a yield benefit from Bio-Gold 5 out of 6 times in 2010, when compared to the same nitrogen rate without Bio-Gold. When comparing the higher 180 to 200 LbN rate of UAN with the Bio-Gold at the lower 90 to 100 LbN rate of UAN there was a positive economic advantage for Bio-Gold at the central IL site of $15 and $12/ac. The two Indiana locations showed a disadvantage of -$32 to -$4/ac for Bio-Gold.

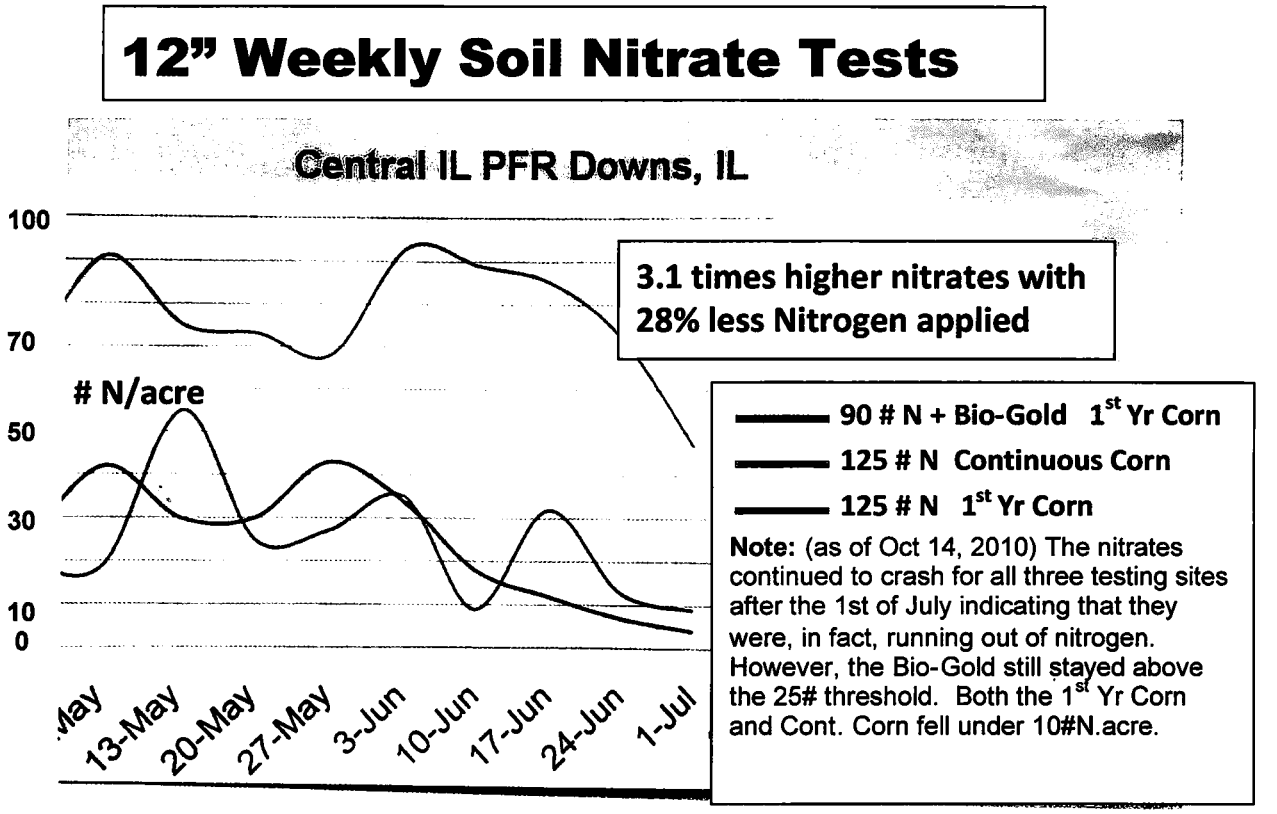
Fig 6



To be successful with Bio-Gold, producers must understand the nitrogen cycle and watch the crop closely during the growing season. Growers should also investigate stabilizers for urea and UAN, look for ways strip band more of the N in the main root zone, find ways to get more oxygen into the soil and be prepared to sidedress if N deficiencies do develop, see soil nitrate graph in Fig 7on next page

Fig 7 Photo taken at Beck's Hybrids Practical Farm Research Location, Downs IL 2010.

180 #N + Bio-Gold	180 #N	90 #N+ Bio-Gold	90 # N



Photos Taken 8-18-2010 by Jim Porterfield
Iowa Watershed Projects/ ideas2010.doc

Systems Approach: What do plants need that farmers can do something about?

All Fertility and Agronomic Practices are Based on Just 4% of all Plant Growth Activity !!! The other 96% of plant growth is related to oxygen, carbon and hydrogen, most of which comes from air and water. An ideal soil is 25% water, 25% air, 45% mineral and 5% organic matter, and oh yes, lest we forget about them, millions of microorganisms per gram of soil. What is the first thing that often happens to freshly tilled soils? We come along with wheel tracks that smash the air and water out of them. Even the microbes do not like that, and plant roots don't function so well in those areas, either. So, how can the products described in the previous pages help solve this paradox?

Think of how they might interact as a system. First of all, the soil microbes would benefit from the TerraStar imprint wheels being used with each and every tillage trip. The wheels consolidate the loose soil, but do not compact it, and they create 30% more soil surface area. Instead of the soil surface being flat, it would have thousands of side walls that let air and water enter laterally as well as in a downward direction. The bottoms of the imprints warm up earlier and stay moister creating conditions favorable to microbes so they can flourish and dissolve minerals with their organic acids and take nitrogen out of the air, making them more available to the plants. Since we continue to push increased plant populations, they will need more water and roots will need more air, too.

AgZyme's complex of enzymes, trace elements, vitamins, and natural plant extracts is designed to create a better environment in the soil while maintaining plant health and tolerance to adverse conditions. In-furrow placement via the planter gets young plants off to a good start.

Stabl-UAN contains a bioactive calcium that strengthens cell walls. There is not much of it since there is only a little over 2 pounds of calcium in a ton of UAN, but every little bit helps as the seeds germinate and begin to grow. Stabilizing the urea in the UAN saves it for later use as the plants begin their rapid N uptake stage, rather than having it turn to nitrate too soon and leach beyond the root zone in the early part of the season. Since the stabilizer itself is also a fertilizer, plants benefit directly from it. Placed in a 9 -inch strip centered on the row would put it in the main root zone. Limited testing suggests higher plant energy levels that were documented as higher chlorophyll levels and sugar brix readings.

Bio-Gold's blend of aerobic and anaerobic bacteria tends to do better as the soil warms up, so it could be sprayed before or at planting at a half rate on the 21 inch interrow areas where roots will reach later in the growing season. With the better aeration and moisture patterns of the geometric ordered soil roughness created by the TerraStar imprinter wheels, it would seem logical that Bio-Gold's bacteria would do well in that environment.

With the system's approach, it appears quite possible to take much of the risk out of making more efficient use of nitrogen fertilizers while increasing yields and income and reducing total nitrate loads leaching to streams and rivers. At $35/ac cost for all four products it only takes a 10 bu/acre yield increase to break even and all indications are that the system should do better than that.

References:

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Stabl-UAN™, Bi-En Corp www.bi-encorp.com
TerraStar, TerraManus Technologies
http://www.terramanustech.com/terrastar-technologies/benefits-of-imprinting/compelling-results/

To whom it may concern:

I am writing in response to the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water.
The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

Iowa's nutrient reduction strategy needs to clearly state how all of those who are responsible for causing this problem will be held accountable for helping to permanently and sustainably protect Iowa waters. The strategy's approaches for municipal and agricultural pollution sources will be different. But they should share a unified commitment to real action and meaningful results. Mandatory water treatment action by cities will not produce meaningful results without more significant engagement from agriculture.

The strategy needs to establish some mechanism for accountability, such as clear numeric goals for nitrogen and phosphorous pollution reduction that are tailored to the unique needs of Iowa waters. The strategy should also describe the state's response if those reductions do not occur according to a reasonable timetable. The goal of the strategy should be to achieve meaningfully cleaner water in Iowa.

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515-232-1484
rsdietz@yahoo.com

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conservation@mediacombb.net

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Relying on voluntary conservation efforts won't work! Please do something more than a voluntary nutrient reduction approach to protect our waters!

Please reconsider a tougher plan of action for cleaning up Iowa's valuable water resources. When the proposed plan to clean up Iowa's water resources offers language directly linked to Farm Bureau, then you know Iowa's future is being dictated by corporate agriculture. Profits, not conservation is at the top of their agenda. It seems embarrassing that those experts in the know, those out monitoring our water quality across the state appear to have had little input in development of a plan to help clean up our waters. If this is the best we can do then its time to bring in the EPA to do it for us.

The slow destruction of the landscape and our water is a cultural flaw that runs deep, but is not irreversible. It would take courage at both the state and federal levels to correct, maybe even a conservation revolution of the people who, unfortunately, are generations out of touch with their actual connection to the land. The conservation revolution would have to begin by redefining "land stewardship" as "giving something back to the land" and redefining "landowner rights" as "landowner responsibility"

A large part of Iowa's problems also stem from the lack of courage by Farm Bill legislators to enforce existing conservation compliance or to tie conservation compliance to programs such as Federal Crop insurance. An example of how out of touch our legislative farm leaders are comes in the form of a quote at a recent Chuck Grassley town hall meeting. When a local farmer voiced concern with soil erosion, Senator Grassley responded: "You tell who ever told you that, that the problem of soil erosion ended 25 years ago when farmers were required to have a conservation plan as part of being in the farm program."

Now back to the Iowa landscape. If you drive across the Iowa landscape, it doesn't take a rocket scientist to evaluate the broad scale noneffectiveness of voluntary conservation efforts. Examples of voluntary efforts are on visual display for all to see in the form of smoldering tree piles, tiling machines, blanket fall tillage, manure spread on snow covered fields, and anhydrous ammonia tanks that dotted the countryside this past fall. A whole host of payment-based conservation programs and proven practices have been available for years. Where are all the stream filter strips and buffer strips along streams and rivers? Where are the shelter belts, field borders, and restored wetlands?

A few years back an Iowa State University Ag Economist told the joint Fish & Wildlife Society that we should not worry because as commodity prices climb higher farmers will not feel as pressured to till less productive and vulnerable land. What has happened instead is that more producers have gone road ditch to road ditch to till every acre possible. Even the smallest of vital areas of habitat are being cleared at an unprecedented rate to join the monoculture that includes one or two species that have been genetically modified to be the only living thing that can survive on a once diverse landscape when sprayed with a companion chemical specifically designed to kill every other living thing. Aldo Leopold would turn over in his grave and I can't fathom what he would have to say about this. Nothing less than ecological suicide!

Streams and rivers are the ultimate measure of what happens on the land. Water quality has not improved. The gulf hypoxia zone continues to increase. Rivers are inundated with fine silts on the floodplains and excessive sand loads in the channel that covers critical habitat of aquatic organisms like a barren flowing desert. Flooding has worsened due to continued alterations in the watersheds and that trend will become glaringly more evident when heavy rains return. The barometer of the streams and rivers are trying to tell us something and it seems that message is not what we want to hear. So we simply ignore the visual facts that things are not improving and will continue to get worse.

If a factory can't have a pipe dumping effluent into public waters than why should the business of agriculture? We don't offer industry billions of dollars in funding and then hope for the best in their voluntary efforts. Agriculture is a multi-trillion dollar industry that is degrading the common resources of the people and species we share the land with. Agriculture receives billions of dollars in Federal aid and subsidies and is required to give nothing back in the way of conservation or a land ethic in return. Its time for industrialized agriculture to do its part by being mandated to reduce nutrients and other impacts to land and water resources in its pursuit of maximum profits and guaranteed subsidies. A recent survey showed that nearly 75% of Iowa farmers are completely debt free. They bid up land to unprecedented prices and buy larger expensive equipment, while giving little or nothing back to the land or to the common land or water resource from which their profits have been extracted from. Why should additional public funds have to be invested for them to clean up their act?

Any one of us could get a citation and be fined for the most simplistic and meaningless social violation of not having a life jacket along as we paddle down river in a canoe, yet the much larger ecological tragedy to the landscape, the water, the aquatic species, and the people goes unnoticed and unregulated. Its' time to put the industrialized agricultural model on a level and moral playing field by having the regulatory courage to stand up for what is right by forcing the agricultural industry to reduce its negative impact on the land and water. Modern agriculture has already had the chance to do that voluntarily and has failed miserably.

I have provided some visuals to show first hand the impacts to water quality. These are from Iowa's largest spring, Big Spring, which show the water quality impairments that have made their way into one of the nations most studied underground aquifers. Huge silt loads and organic material with very strong manure orders come out of the spring after heavy rainfalls and during spring snowmelt. Water samples during snowmelt show ecoli bacteria levels in excess of 3,000 organisms per liter. Beach closing occur at levels above 270. Nitrate levels of water from the spring have soared in recent years as additional acres of land have been converted to row crop production. Although a few landowners in the watershed do a great job and understand their connection in the watershed, most do not even realize the impacts or their connection to the spring.

Gary Siegwarth

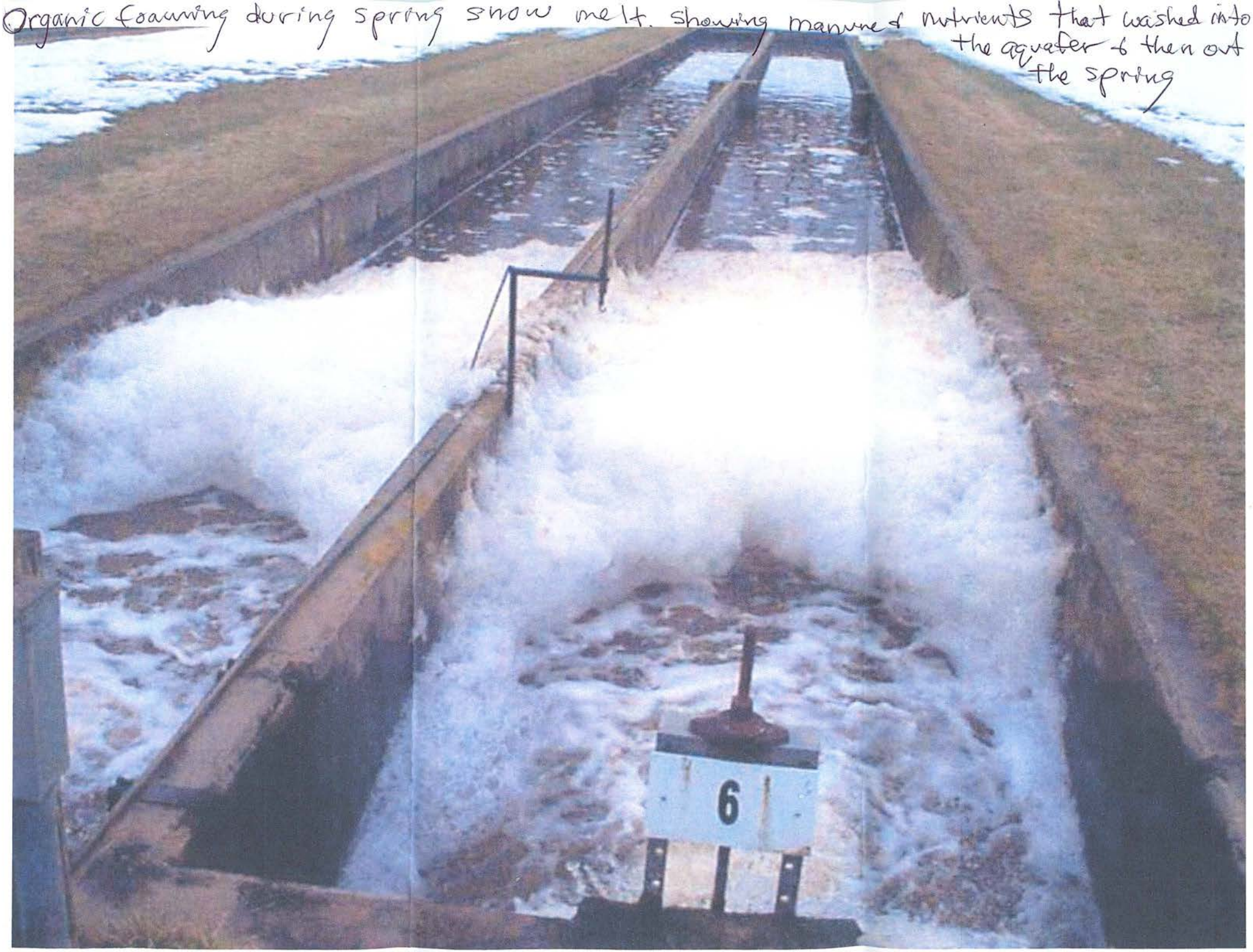
The root of the ~~Re~~ Problem, The cumulative impact of a 5-ton / acre average soil loss

The Ongoing Iowa Oil Spill

(Turkey River following a 1.3 inch rain last night)

Rainwater comes down like this...crystal clear!!

That water leaves Iowa carrying an average of **14,770,333,320** barrels of topsoil every year!!



Organic foaming during spring snow melt. Showing manure & nutrients that washed into the aquafer & then out the spring


organic material being scooped out of fish raceways that came through the spring after
Snow melt. It had a strong odor of manure.

Water quality coming out of Big Spring after a 2 inch rainfall.

JAN 07 2013

January 3, 2013

City of Storm Lake
PO Box 1086
Storm Lake, IA 50588
p (712) 732-8000
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Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, Iowa 50011-1010.

RE: Comments on the Proposed Iowa Nutrient Reduction Strategy

To Whom It May Concern,

I am the City Manager for the City of Storm Lake. I am concerned that the State is ready to accept this as "the best solution" and move on. I understand why since we do not want the EPA solution. It is true that IF the EPA signs off on this plan and implementation program that this would be less of a burden on cities. BUT the IDAL's representative questioned if EPA can be tolerant and/or the environmental groups will not try to push the time lines. With that said, there is a lot that can be cleaned up in the overall plan.

I am concerned that the DNR and IDALS are trying to get this through under the State radar. This plan was kept secret for a long time and now the State is giving us a month to read it and comment back before January 4, 2013. This does not feel right nor does it give the public an opportunity to truly understand the magnitude of the problem and the fiscal impact it will have on the State, Cities, and agricultural interests. DOT did a better job hearing the public and explaining transportation funding last winter. I understand why DNR wants to keep this in rule making and not legislative, but legislators are already asking questions as to what gives DNR the right to impose this policy since they have not been informed nor do they understand. Why does this have to be done so quickly and quietly? I would be interested in the time line they are working on.

DNR/EPA needs to know the background (naturally occurring) phosphorus and nitrate that will be there regardless of city or agricultural efforts. This has been and will continue to be a problem. That needs to be factored into the potential solutions and target goals.

I am in full agreement that cities can do a better job treating wastewater, but what about a cost benefit analysis? Where is that point of diminishing returns? Storm Lake is undertaking a $10 million treatment plant upgrade and while we will be moving toward biological nutrient removal, more could have been planned if we would have known earlier or the time line was not so stringent. IDNR talked about treating to the ability of a city to pay if a city can't afford the 10/1 standard. I do not see that in the plan. It seems that if 80% of the phosphorus is from the stream banks (page 8 and 9 of the study), and

is released in three events (IDAL's presentation), that maybe there should be an effort to find a way to remedy that release to get more bang from the buck spent. Should the State control 35 feet either side of a stream or river and insure buffer strips are in place? Section 2.1 of the plan, page 2 under Phosphorus (last sentence on the page) states "Edge of Field practices through buffers or sedimentation basin/ponds show potential for dramatic reductions in phosphorus, 58% and 85% respectively. Section 2.2 page 29 and 30 states that a 35 foot buffer on all crop land has the potential to reduce elemental P loading by 3,090 tons/year, which is about 18% of the overall phosphorus load reduction. Page 29 states that buffers would also reduce nitrate-N load from shallow ground water. I would suggest that the cost/benefit would be much better.

There is over $300 million available right now in the Mississippi River Basin initiative to incentivize farmers to use conservation methods to reduce nutrient loading. The problem is that farmers get more out of farming so many of them do not want to volunteer for conservation methods, in fact, they are plowing up buffer strips to put more of their land into production. This is compounded by the fact that there are many absentee land owners, many out of State, and the tenant is interested in making money – not conserving soil. In the proposed "Voluntary" program being promoted, there is no accountability and no teeth. The IDAL's presenter is right, it will be hard to herd 90,000 farmers and insure they are doing the right thing. To achieve 41% reduction from this voluntary program will not work (IDAL's words). If it does not work, maybe something should change in the plan or maybe some of those funds could come to cities to upgrade the plants to remove 4% of the problem if agriculture can not do it. Page 11, Section 1.3 of the non-point study summarized that "EPA is not targeting agriculture." Why, because it is to hard and easy to regulate permit holders?

As the DNR looks at new technologies for city POTWs, is there technology available to manage streams and rivers? The report speaks of bioreactors for nitrates. There is sand/iron filing filters to remove phosphorus that works at 80% efficiency for storm water. A portion of the $1.5 billion diverted from new treatment plants to install wetlands and new technology may be more beneficial. Please understand that I think cities should do a better job but state of the art technology to achieve small incremental improvements does not serve anyone and does not make a significant contribution to nutrient removal. This is the easy way out by applying pressure to permitted polluters and not adequately addressing the real problem. There needs to be meaningful change to agricultural practices beyond a voluntary program as well as improvements at city plants.

I am concerned about the cost to cities for new/upgraded BNR plants and then the added operational costs. In the case of Storm Lake, a BNR plant would help remove nitrates and phosphorus. Having had the best BNR plant in the country in Montana, I know that in winter the bugs need to be treated with care. With the high protein loading received by Hillshire, it is possible to significantly upset the plant. If a system is in compliance 99% of the time yet has one significant excursion, they could be in non-

compliance for the better part of a year with the annual average limit or be forced to chemically treat at a very high cost/return. Is there an alternative to this? (DNR did not have an initial response to this).

Solids handling concerns me also. Since solids will increase with the use of alum or ferric polymers, the operational costs will also increase for solids handling. Will the DNR/IDALS change the land application regulations and rates to keep nutrient loading down so that we need to expand the area to be able to land apply solids? I would anticipate the need to expand the solids storage and handling capabilities which may not have been calculated in the annual operational budget.

This will limit the growth of cities since there is no head room. As cities expand, new technology will be required to stay within the permitted numbers.

Again, I think that this needs more thought and comment with more involvement from cites.

The following is an excerpt from "MURKY WATERS: Farm Pollution Stalls Cleanup of Iowa Streams" executive summary pages 6 and 7. If you would like a copy of the complete report, let me know and I will forward an electronic copy. Again, this is not to say that cities are off the hook, we have a role to play but if we are going to fix the nutrient loading it has to be a holistic approach and we are not there yet.

It Doesn't Have To Be This Way

Iowa's rivers and streams can be clean, but only if Iowans take concerted action to reduce the nitrogen and phosphorus overload from agricultural operations. The good news is that experience and science make it clear that concerted action does result in major improvements. Iowa's voluntary programs could work much better if they were revamped to be more effective and were provided with a larger and more secure source of funding. The governor and the legislature must act to implement the Iowa Land and Water Legacy amendment endorsed by 63 percent of Iowans in 2010. The state's citizens voted to tax themselves to provide funding to clean up their water. It is time for Iowa's politicians to follow through. The Department of Agriculture and Land Stewardship must revamp the way voluntary programs are implemented to increase accountability, target resources to the right places, monitor and report on the farming and conservation practices used by farmers and make use of highly trained professionals to advise producers and make programs work. Revamping the way conservation programs are implemented will produce better results more quickly. But even the most focused and best-managed voluntary programs will not be sufficient to solve the water quality problems associated with agricultural production if they remain entirely voluntary. More money will help, but even massive increases in funding will not overcome the inherent weaknesses of relying solely on voluntary action.

It is time to face facts -- decades of working only with farmers who volunteer to reduce their polluted runoff has not achieved any overall improvement in Iowa's streams and rivers. This report shows that 40 years of the voluntary approach have failed to improve nitrogen and phosphorus pollution. EWG's 2011 report, "Losing Ground," similarly showed that 80 years of the voluntary approach had failed to adequately reduce pollution from sediment flowing off farm fields. The state must put in place smart and narrowly targeted regulations that curb poor farming practices. Regulations should phase out particularly risky practices such as planting crops right up to stream banks or allowing livestock unmanaged access to streams. Landowners and managers should be expected to control the ephemeral gully erosion that creates a direct pipeline for mud, fertilizer and manure flowing into streams and rivers. Many, if not most, farmers would agree that these activities are simply bad business practice and bad for agriculture's brand.

Since the boom in corn and soybean prices, simply driving across Iowa provides compelling evidence that voluntary programs must be buttressed with smart regulation to ensure that proper conservation practices don't lapse. Conservation will have to become far more durable for there to be any hope of cleaning up Iowa's streams and rivers.

Such regulations would establish a basic standard of care that comes along with the rights of land ownership. Voluntary programs can then be used to support those landowners and managers who meet these basic standards and want to do still more to clean up Iowa's rivers and streams. Precisely targeted regulation coupled with a strengthened voluntary program would set Iowa on a path toward cleaner water for our children and ourselves.

Sincerely,

James Patrick
City Manager
City of Storm Lake

cc.: Mayor and City Council

IOWA FARM BUREAU
PEOPLE. PROGRESS. PRIDE.®

JAN 07 2013

January 4, 2013

The Honorable Bill Northey
Iowa Secretary of Agriculture
Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, Iowa 50011-1010

RE: Iowa Draft Nutrient Reduction Strategy Comments

Dear Secretary Northey:

EPA has asked states to establish a strategy to reduce nutrients in surface water. This is because EPA has recognized that restrictive, unachievable numeric water quality standards is not an effective option for further nonpoint and point source reductions. The Iowa Farm Bureau Federation, the state's largest general farm organization with more than 153,000 members, agrees with the EPA that a state strategy is best near-term and long-term option. The IFBF supports the draft Iowa Nutrient Strategy and will work with the Iowa Department of Agriculture and other agencies to help implement it by prioritizing resources and programs for effectiveness, and communicating to our members and the public about the strategy so that it can be successful.

The numeric water quality standard approach that results in labeling people, farmers and businesses as "polluters" has real financial consequences. The current science behind developing more restrictive numeric water quality standards for nutrients in surface water is flawed, and the ability to adjust them as new science is developed is limited. Iowa shouldn't set arbitrary numbers to address nutrients. Arbitrary numeric standards only lead to more Total Maximum Daily Loads (TMDLs) or restrictive watershed plans that limit economic growth of businesses and communities, like in the Chesapeake Bay, resulting in more pressure on Congress to regulate agriculture through the Clean Water Act, and the opportunity for more activist lawsuits. These regulatory approaches have not been effective at reducing nutrient impairments, but have merely redefined the definition of pollution and labeled partners as "polluters."

That's why a different approach, as described in the draft Iowa Nutrient Strategy, is necessary to address nonpoint sources, including farms. EPA, as evidenced in its 2011 "Stoner memo," allowed for this new path forward, and specifically for state-federal partnerships to address nutrients as an alternative approach. These targeted, focused voluntary water quality efforts have been successful in Iowa when they have been tried. We believe these successes should be duplicated using the tools we know will work, such as strategically targeted conservation measures. While the state has supported these efforts to some degree, the state has not put its full efforts in a comprehensive way behind this approach to maximize progress.

5400 University Avenue, West Des Moines, IA 50266-5997 / (515) 225-5400

IDALS and DNR have now put its full support behind this realistic approach – the Iowa Nutrient Strategy - that will prioritize the top watersheds and focus resources to make improvements in cooperation with landowners, long before numeric standards are necessary. Iowa State University has developed a comprehensive, peer-reviewed science and technical assessment of the best management practices available to reduce nutrients, their effectiveness and implementation cost. Because IDALS has experience in working with farmers and using their knowledge to gain trust, IDALS is taking the lead in establishing and implementing the nutrient strategy with nonpoint sources. The DNR is working with the point sources to determine the cities and industries that will use new, effective biological nutrient removal treatment processes.

The IFBF supports the strategy and the process used to develop it. It was refreshing to see point sources and nonpoint sources working together with the state agencies to develop it. We appreciate the leadership provided by Iowa Secretary of Agriculture Bill Northey and Iowa DNR Director Chuck Gipp in developing this strategy.

Since the EPA did not dictate how to move forward with the strategy development process, the state reviewed what worked and what didn't for other states. Clearly, states that had too many advocacy groups at the table right in the beginning became mired down in politics and reached a stalemate without any progress or pathway forward to show for their efforts. It is unfortunate that some groups, after calling on agriculture to do more, have already made a decision to support the scientifically-challenged numeric criteria approach. The negative, regulatory rhetoric expressed regarding the draft strategy is unfortunate, but not unexpected. It should, however, be rejected by the State of Iowa in establishing its policy on this issue. The Clean Water Act does not provide the government with regulatory authority over agricultural stormwater for good reason. Nonpoint source issues, which are heavily influenced by variable weather conditions, are not best resolved with mandating a specific practice on every acre. The science assessment demonstrates this would be a huge waste of financial resources. Rather an adaptive management approach that encourages innovation for new methods of addressing problems is what Iowans do best.

The Iowa strategy outlines how the state will make real, additional, meaningful progress with better coordination and synchronization of our current state and federal conservation programs. This is the first 'real-world' comprehensive state assessment that will lead to prioritized watersheds and the best use of our limited state and federal resources. The scientific assessment by Iowa State University reinforces that conservation is not a 'one-size fits all' approach. To be the effective, and to avoid a Chesapeake Bay situation in Iowa and the Midwest, conservation choices should suit the soil, terrain, crops and the demands for food, energy and fiber. What works on one farm in Northwest Iowa may not be as effective (and could cost more) on a farm in Southeast Iowa, for example. Understanding the differences in conservation methods will help save the state and Iowans money, but most importantly, increase the likelihood of success.

Right now, farmers are using their own funds to match with limited cost-share dollars for conservation. The demand for these funds exceeded funds available by more than $100 million

last year, proof that farmers are willing to do more. But those additional actions need to be guided by this comprehensive nutrient strategy to be as effective as possible.

Thank you for the opportunity to comment. The IFBF looks forward to working with the Water Resources Coordinating Council, state and federal conservation partners, and other organizations to further develop this dynamic strategy into more detailed implementation plans as new scientific information comes forward in the future.

Sincerely,

Craig Hill
President

NACWA
A Clear Commitment to America's Waters

January 2, 2013

Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, IA 50011-1010

Re: Iowa Nutrient Reduction Strategy – Comments

The National Association of Clean Water Agencies (NACWA) appreciates the opportunity to comment on the State of Iowa's Nutrient Reduction Strategy released in November 2012. NACWA represents more than 280 public wastewater treatment utilities across the country, including several in Iowa. Nutrient issues are a top priority for NACWA and its public clean water agency members. Nutrient-related impacts are arguably the top water quality challenge currently facing our nation's waters and NACWA is committed to working toward science-based and rational approaches that will help achieve water quality standards in a cost effective manner.

NACWA commends Iowa for taking a multi-faceted approach that seeks to address both point and nonpoint sources. NACWA's members in Iowa, and nationwide, recognize that wastewater treatment plants are an important part of any nutrient reduction effort and stand ready to do their fair share. Indeed, many of the gains in nutrient control made to date are because of the investments and efforts already made by publicly owned treatment works (POTWs). By crafting balanced nutrient management plans, states can ensure that the point source community, including POTWs, is not disproportionately burdened.

The Iowa Nutrient Reduction Strategy is being released into a national regulatory environment that is highly focused on how states will address, or are currently addressing, nutrient pollution. The U.S. Environmental Protection Agency (EPA) and national environmental groups have been paying special attention to mitigating nutrient pollution in some of the country's most important and complex water bodies, such as the Chesapeake Bay and Mississippi River Basin. This has, in turn, focused attention on the states that contribute to these national water systems. Recent efforts at the state

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level provide promising examples of how the challenge of controlling nutrients, even where numeric nutrient criteria have not been developed, can be handled nationally.

While NACWA acknowledges the Iowa Strategy's approach to nonpoint sources is a good first step, it nevertheless underscores the limitations of the current authorities in the Clean Water Act to address all sources of nutrients. Without clear federal authority to regulate nonpoint sources, provisions in the Strategy address agricultural runoff in a voluntary manner. The accountability and verification measures highlighted for these practices remain vague. In the absence of permit tracking, as will be used for the point source community, the strategy should clearly identify the tracking and reporting methods for the nonpoint community. Additionally worrisome, the funding sources for agricultural water management programs noted in the strategy, are shrinking – and NACWA is not confident that the Strategy does enough to address the reality of the available funding for the suggested agricultural practices, and how that will affect the nonpoint community's "voluntary" participation.

Within the constraints of the Clean Water Act, the Iowa Nutrient Reduction Strategy focuses on reducing nutrients from both nonpoint and point sources in "a scientific, reasonable and cost effective manner". NACWA applauds the State's efforts to attempt to address both point and nonpoint sources of nitrogen in ways that more equitably distribute the responsibility for improving water quality by reducing the release of nitrogen and phosphorus. Recent nutrient reduction efforts in other parts of the country have disproportionately sought reductions from POTWs because those reductions are more certain and quantifiable. In an effort to make reductions and show progress, point sources are being pressed to remove nutrients to the limits of technology and still face further reductions through backstop provisions if nonpoint source reductions are not made. Iowa's Strategy, on the other hand, recognizes the relative contributions from the point and nonpoint source communities and offers a reasonable and clear path forward for the point source community. In addition, NACWA strongly agrees with the Strategy's authors that flexibility through watershed prioritization and opportunities for future water quality trading are important elements.

Iowa's strategy clearly indicates how the technology-based nutrient requirements will be implemented within the clean water community, providing POTWs with greater certainty in terms of their long-term investments. Based on the National Pollutant Discharge Elimination System (NPDES) permit cycle, future POTW permits will specify technology based limits, guaranteed to not be more stringent than 10 mg/l total nitrogen (TN) and 1 mg/L total phosphorus (TP). Furthermore, these limits will not to be made more restrictive "for a period of at least 10 years" once the nutrient reduction process is installed. The proposed TN and TP limits are reasonable and achievable and also reflect the clean water community's relative contribution of nutrients to Iowa's waterbodies. By providing assurance to the POTWs that the biological nitrogen removal treatment (BNR) technology approved in the permit will be in compliance for a certain period of time, POTWs will have the confidence they need to make the investments necessary to meet their permit requirements. POTWs must have certainty that they will not be asked to do even more in the next permit cycle, before any concerted effort has been made to address other sources.

NACWA appreciates the opportunity to provide these comments. Please do not hesitate to contact me at chornback@nacwa.org if you would like to discuss any of these comments further. NACWA appreciates Iowa's leadership on this issue and looks forward to continuing to voice the clean water community's perspective in the evolving national conversation surrounding nutrient reduction.

Sincerely,

Chris Hornback
Senior Director, Regulatory Affairs

Comments on the Nutrient Reduction Strategy
Comments on:

1. Policy considerations
2. Non-point source pollution

The Nutrient Reduction Strategy will not work as written. Voluntary compliance on the part of farmers has not worked in the past. We have some of the most polluted waterways in the country because agricultural interests have been allowed to do nothing-voluntarily for years. We need regulations and consequences for those who don't follow them. The Farm Bureau has no business writing policy on this issue. DNR pollution experts should have been consulted. Writing public policy in secret is wrong-the public needs to have a say, after all we are strongly affected by filthy waterways.
There are no timelines in this Strategy for cleaning up pollution sources nor are there real "strategies" for getting the job done. We don't need more studies-they seem to be only good for delaying action and we know what needs to be done, politicians and a lot of farmers just don't have the will to do it. While it is a good idea to develop new technologies, I think that will come if needed-and it won't be needed if we don't hold ag interests accountable. This study needs to be scrapped and rewritten with public input and without the undue influence of big ag.

Barbara Radcliffe
2901 Wessex Dr
Ames IA 50014

Comments on the Nutrient Reduction Strategy
Comments on:

1. Policy considerations
2. Non-point source pollution

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Barbara Radcliffe
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DES MOINES WATER WORKS
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January 2, 2013

JAN 09 2013

Dean Lemke
Iowa Department of Agriculture and Land Stewardship
Wallace Building
502 E. 9th Street
Des Moines, Iowa 50319

John Lawrence
Iowa State University
132 Curtiss
Ames, IA 50011

Adam Schnieders
Iowa Department of Natural Resources
Wallace Building
502 E. 9th Street
Des Moines, Iowa 50319

RE: Nutrient Reduction Strategy Comments

Des Moines Water Works (DMWW) strongly supports a nutrient reduction plan for Iowa waters. The Nutrient Reduction Strategy has brought to light numeric values for nitrate and phosphorus contributions and necessary reduction levels by point sources and non-point sources. These values are based on Iowa State University's extensive research and literature review. This is the first time this comprehensive information has been brought to light. The strategy however:

- does not establish a numeric nutrient standard, The Nancy Stoner "Framework Memo," #8 states, "Develop work plan and schedule for numeric criteria (water quality standards) development"
- is void of any level of regulation for non-point source contributors
- lacks vision – (such as land use changes) – it is a reflection of where we are today with nothing new or innovative
- provides a lot of suggestions, but no specific action plans
- does not identify measurable outcomes – how is success or failure defined and measured
- lacks urgency, no timelines or goals have been articulated
- is not part of a comprehensive state water plan

The public has greatly benefited from the regulatory requirements of the point source community. Four decades later water policy needs to establish regulatory requirements for the non-point source community. Requirements that set standards to be met, options for meeting the standards, tools for determining compliance and the cost of non-compliance.

DMWW is a public drinking water utility owned by the citizens of Des Moines and governed by a Board of Trustees. Des Moines citizens have entrusted the utility with the protection of their infrastructure and to diligently operate the utility in a manner that provides safe drinking water to approximately 500,000 people in Central Iowa.

Primary water sources for DMWW are the Raccoon and Des Moines Rivers and the infiltration gallery that runs adjacent to the Raccoon River. Land use in the Raccoon and Des Moines River Watersheds is overwhelmingly agricultural. About 1.7 million of the 2.3 million acres in the Raccoon River watershed are cultivated for corn and soybeans. Much of the corn-soybean system requires constructed drainage (agricultural tile drainage) to maximize yields. Application of manure and

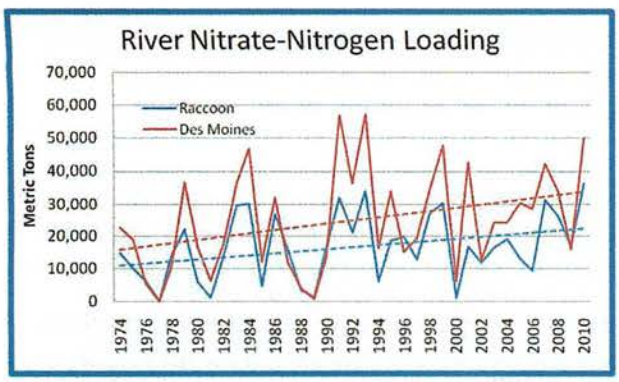
commercial fertilizers are transported in run-off events and through tile drainage. All of these factors have resulted in various consequences for water quality.

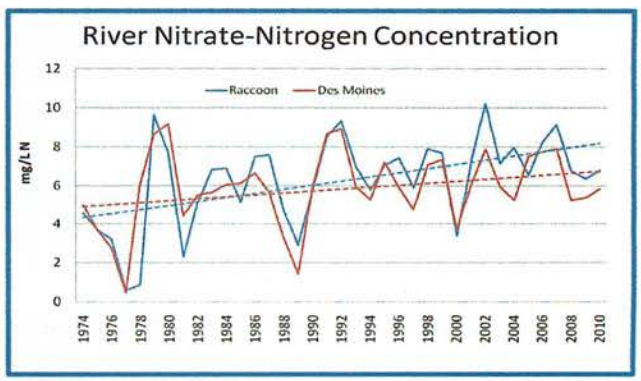
Contaminants of concern for DMWW are nutrients, bacteria, algae blooms, cyanobacteria, and disinfection by-products, the bulk of which are a result of non-point source nutrients in the source waters. Nutrients in water are necessary for healthy watersheds. But in high concentrations they can adversely affect aquatic life and human health. For a drinking water utility, increasing nutrient loads cause difficult and costly challenges at the source, in the treatment process, and at the tap.

It is not our intent to tell people how to farm or what they can and cannot do on their land. But it is our intent, to rigorously advocate for establishing a comprehensive nutrient reduction plan by first setting numeric standards to aggressively reduce non-point source nutrient contributions in Iowa's surface and groundwater resources. In a 2007 report by the Center for Agricultural and Rural Development (CARD) and Department of Economics, Iowa State University, *Conservation Practices in Iowa: Historical Investments, Water Quality, and Gaps*, it states, "Water quality indicators we (CARD) focused on in this study are nitrogen and phosphorus. …In the model outputs, stream flow was estimated to increase in all watersheds, indicating that the existing conservation practices allow faster movement of water." When 80-90% of land use in the watershed is agricultural, these findings raise concerns regarding placement and effectiveness of current conservation practices. And, it only makes sense that to improve water quality in a watershed your emphasis has to be where it will be the most effective and maximize the prudent use of tax payer money.

Also in the 2007 CARD report, *Conservation Practices in Iowa: Historical Investments, Water Quality, and Gaps*, "We (CARD) estimated that the statewide cumulative annual cost was about $435 million for 7 major conservation practices on the ground and accounted for part of 1997-2004 data sets." (The breakdown of cost figures by conservation practice is expressed in Table 3.) In other words, at least $435 million dollars of taxpayer money has been spent annually over the last 15-20 years for voluntary implementation of conservation practices to protect Iowa's water and soil resources. The measurable outcome of those conservation programs is that according to the Environmental Working Group report, *Losing Ground,* more than 50% of Iowa's top soil has left Iowa. DMWW water monitoring results exhibit water quality continues to trend downward. Voluntary, incentive based practices have not worked for the past 30-40 years. The Nutrient Reduction Strategy (Strategy) brings nothing new or innovative to generate change. DMWW is extremely disappointed that the Strategy does not even mention regulation as a possibility for today or in the future.

Monitoring trends in the Des Moines and Raccoon River since 1974 show the increasing trend of nitrate-nitrogen loading and concentrations.





All waters in Iowa are "*public waters and public wealth*" of its citizens and is for the beneficial use of all citizens. It is the policy of the State of Iowa to protect existing water uses and to protect and

maintain the existing physical, biological and chemical integrity of all waters of the state. The past piece meal approach to nutrient management will not effectively decrease non-point source nutrient contributions in Iowa's surface and groundwater resources. To generate the necessary change that improves water quality the state needs bold strategies that can be implemented immediately. These strategies need to have defined goals (numeric standards) and measurable outcomes.

The Nutrient Reduction Strategy should include:

Numeric Nutrient Standard –

DMWW can concur with the scientific findings that one standard does not fit across the state. Soils, weather patterns, farming practices, and monitoring data all vary. However, the Gulf Hypoxia Action Plan includes a numeric standard and the proposed Nutrient Reduction Strategy also sets numeric standards.

All point source entities are required to meet the same statewide numeric standards. Wastewater discharges can vary from one city to another (i.e. Cedar Rapids versus Iowa City) yet each must meet the same prescribed discharge standard. Nowhere does the standard prescribe approaches for meeting the standard. But, based on individual variances (wastewater characteristics, volume, receiving stream, etc.) the wastewater utility selects the type, size, and number of treatment processes that will allow them to meet their discharge standard (limit). Therefore, it does not preclude the state's ability to set a statewide numeric standard or multiple numeric standards each at a smaller scale, such as HUC (Hydrologic Unit Code) 8 or 12. Either way, a numeric standard can and should be set to meet the goals of the Gulf Hypoxia Action Plan and the proposed Nutrient Reduction Strategy.

Monitoring may not be available for every stream in Iowa, but many including the Raccoon and Des Moines Rivers have been monitored extensively. Numeric standards can be set and while work begins in one watershed, monitoring can be focused on streams where additional data is needed.

- The **Gulf Hypoxia Action Plan** set a numeric standard of 45% nutrient reduction of riverine nitrate and phosphorus load.
- The proposed **Strategy** sets numeric standards for nitrates at 41% reduction from non-point sources and 4% from point sources. The numeric standard for phosphorus reduction is 29% from non-point sources and 16% from point sources.
- Through data analysis **the state can set numeric standards statewide or by HUC 8 and/or12 watersheds**. This will force point and non-point sources to work together toward an identified goal (the nutrient reduction standard), prioritize watershed needs most critical to reach the goal, opens up the opportunity to work in partnership for nutrient trading within the watershed, and is a prudent use of taxpayer money.
- Integrated solutions on a watershed scale, and involvement of all stakeholders in the decision making is critical. Producers, wastewater and storm water entities are making isolated decisions, even when those decisions are having consequences that impact others.
    - All crop insurance, conservation and funding programs administered by the state should require a total system approach to planning, prioritizing and implementation of practices on farms to integrate with watershed planning and not end at the edge of a field.

- All installation of agricultural tile drainage systems and drainage district upgrades and maintenance should be incorporated into a total watershed system approach including planning, prioritizing, mapping and implementation.
- Waste water and storm water entities should require a total system approach to planning, prioritizing and implementation of treatment technology and other infrastructure that is integrated with watershed planning and not end at the city limits.

It is difficult for the average individual to see how these drainage systems differ. Are they different? No, they both manage water.

Wastewater Treatment Plant Discharge
Point Source
Regulated
Location is mapped
Treated Discharge
Permitted with Discharge Limits
Potential Contaminants discharged, nitrates, phosphorus, microbial, and pharmaceuticals

Agricultural Tile Drainage
Non-Point Source
Not Regulated
Location is not mapped
Non-Treated Discharge
Non-Permitted with No Discharge Limits
Potential Contaminants discharged, nitrates, phosphorus, microbial, and pharmaceuticals

Integrated solutions on a watershed scale, and involvement of all stakeholders in decision making is critical to meet prescribed standards. It is common knowledge that successful watershed projects are locally driven. By providing a nutrient standard to a watershed community it identifies the end result needed, and allows local decisions on how it can be achieved. This process needs to bring a sense of community and stewardship back into the demeanor of every landowner – urban or rural.

Compliance and Enforcement –

Compliance and enforcement maximize results. An effective compliance and enforcement process ensures fair, consistent, timely, and expected enforcement of laws and regulations and applies them to everyone equally. Environmental laws are the foundation for protecting public health.

- A nutrient reduction plan must include legal requirements to be met by all entities equally. Rules and regulations are only the first step, but they are the foundation for protecting public health.
- Compliance is step two. Without compliance, rules and regulations will not achieve the desired results. Compliance compels the majority to change behavior.

Compliance and enforcement affirmatively promotes compliance and identifies and imposes legal consequences on the minority who voluntarily choose not to comply. In any regulatory situation some people will comply voluntarily, some will not comply, and some will comply only if they see that others are penalized for noncompliance. Many people ask, "Would community and industrial waste discharges be protective of human health if it had not been for the Cuyahoga River fire in 1969 and the regulations that

followed?" Would voluntary, incentive based initiatives have brought the Cuyahoga River or any other water body back to life? The general consensus is no.

Point Sources are required to comply with permit limits. Non-point Sources are not required to comply with anything – implementation is all voluntary. This is not a level playing field. By taking a watershed approach both entities should expect some penalty if the watershed nutrient standard is not achieved. An example is that point sources might receive a notice of violation and be fined by a pre-determined amount set in rules. A non-point source example is that they receive a notice of violation and lose all or some portion of their agriculture land tax credit which again would be pre-determined in rules. Fines and forfeited taxes would be placed in an account dedicated to watershed improvement projects and awarded through a competitive grant application process.

To reduce nutrients (both commercial fertilizer and animal waste), the state must measure what is being applied and where. It was stated at the public meeting presenting the Strategy in Ames, December 19, 2012 that producer's identities must be protected. However, there were comments that it is possible that the amount of fertilizer and manure applied could be reported by watershed. A Nutrient Management Plan could be developed by watershed and should require:

- Mapping of all commercial fertilizer and manure applications by watershed.
- Identification of nutrient loads (commercial fertilizer and manure) the watershed can support and still meet the nutrient reduction standard.
- Assume all land has generous amounts of phosphorus and the only time it can be applied is when soil tests determine a phosphorus deficiency. The Strategy states, "The soil test levels being maintained often exceed those recommended by Iowa State University, which explains the high proportion of soils testing high and very high in the state as suggested by soil test summaries (Mallarino et al)."

Funding –

Funding for point source technology is limited to rate payers, State Revolving Loan Funds (which must be paid back), and limited grants from USDA-Rural Development. Non-point sources have multiple cost-share programs (EQIP, CRP, etc.), and producer funding. Additional new money must be secured to assist both municipalities with infrastructure needs and increased cost share for agriculture. If not, the state will remain at status quo.

Market driven approaches are attractive, but non-point to point sources has not been overly successful when tried in other states across the country, while point source to point source has had some success. How will Iowa's approach be different to generate success?

Other –

Agencies should prepare annual reports of nutrient reduction progress by watershed. Results should be measurable and meaningful and available to the public.

Social scientists should be engaged to determine why conservation practices are not implemented across the landscape.

Market the long-term value of conservation practices, to water, soils and producer income. (What are the influences – absentee landlords, amount of rental land, increased prices of crops, etc.?)

The proposed Strategy lacks credibility due to the dramatic differences between compliance by regulatory means versus voluntary approaches.

We strongly encourage support for development of a comprehensive nutrient reduction plan including numeric standards. Standards that protect Iowa's water resources, promote economic development, and enhance the quality of life necessary to attract workers and jobs to Iowa. To truly go down the road together, both point sources and non-point sources have to be on a level playing field that emphasizes responsibility and accountability. We need to find ways to manage nutrients effectively, efficiently, economically and fairly.

Sincerely,

Linda Kinman

Linda Kinman
Public Policy Analyst/Watershed Advocate

CC: Chuck Gipp, Director, Iowa Department of Natural Resources
Bill Northey, Secretary of Agriculture, Iowa Department of Agriculture and Land Stewardship
Karl Brooks, Administrator, U.S. Environmental Protection Agency
Thomas Vilsack, Secretary of Agriculture, U.S. Department of Agriculture

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
11201 RENNER BOULEVARD
LENEXA, KS 66219

JAN 09 2013

OFFICE OF
THE REGIONAL ADMINISTRATOR

Mr. Chuck Gipp, Director
Iowa Department of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319

Mr. Bill Northey, Secretary
Iowa Department of Agriculture and
Land Stewardship
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319

Dear Mr. Gipp and Mr. Northey:

The Environmental Protection Agency appreciates the opportunity to comment on the draft Iowa Nutrient Reduction Strategy released on November 19, 2012. The EPA commends the Iowa Department of Agriculture and Land Stewardship and the Iowa Department of Natural Resources for reaching this important milestone as Iowa moves to fulfill its Mississippi River/Gulf of Mexico Watershed Nutrient Task Force (Hypoxia Task Force) commitment to develop a nutrient reduction strategy. This agency notes appreciatively that the draft strategy, developed jointly by your agencies, embraces a specific, ambitious nutrient reduction target.

I applaud Iowa for engaging Iowa State University to conduct a scientific analysis of conservation practices and for evaluating wastewater treatment technologies for municipal and industrial dischargers as two key components of the draft nutrient reduction strategy. The EPA views the draft Iowa Nutrient Reduction Strategy as a great start to set in motion actions that will begin to yield measurable nutrient pollution reductions from point and nonpoint sources.

I am pleased to see that the draft strategy addresses elements in the EPA March 16, 2011, memorandum "Working in Partnership with States to Address Phosphorus and Nitrogen Pollution through Use of a Framework for State Nutrient Reductions." The framework envisions states working with stakeholders to achieve near and long-term reductions in nitrogen and phosphorus pollution in water bodies through a combination of reduction measures for nonpoint sources and strengthened permits for point sources while developing a schedule for numeric nutrient criteria implementation.

The EPA looks forward to working with IDALS and IDNR along with other stakeholders to develop detailed implementation plans for the draft nutrient reduction strategy. The comments below include recommendations for revision to the draft nutrient reduction strategy and specific points to be addressed in implementation plans.

Nonpoint Source Comments

- The EPA recommends integrating the Clean Water Act Section 319 nonpoint source program into the strategy, including the Iowa Nonpoint Source Management Program approved by EPA Region 7 in August 2012. The final version of the policy document should address how activities like watershed prioritization and measures of success, both of which are included in the NPSMP and the nutrient reduction strategy, will be coordinated to avoid duplication of effort and effectively utilize limited resources. The EPA is committed to partnering with IDNR and IDALS on coordinated implementation of the nutrient strategy and the NPSMP.

- The EPA believes the strategy could be even more effective if it examined how proven conservation systems could be targeted for use on the most vulnerable lands. There are a variety of tools, including several from the United States Department of Agriculture, available to determine optimum placement of best management practices. We recommend the strategy describe how BMP optimization will be established at the watershed and farm scale, including integration into existing Nine Element Watershed Plans developed under Iowa's NPSMP. There are a number of watersheds where local stakeholders have developed watershed plans at the HUC-12 scale that target the most effective practices in the watersheds. Are there opportunities to expedite nutrient reduction practices in these watersheds by focusing on already-identified priorities and evaluating whether additional BMPs for nutrient reduction are needed? Additional BMPs could be used in optimal locations to provide nutrient reduction and the most effective return on investment.

- The EPA recommends providing more detailed information to support the BMP effectiveness estimates, particularly where confidence intervals are broad.

- The strategy mentions that Iowa has restored 250,000 acres of wetlands, but does not mention the National Resources Conservation Service Wetlands Restoration Program. Monitoring of WRP sites has shown nitrogen reduction benefits that meet or exceed benefits from current Conservation Reserve Enhancement Program designed wetlands. The WRP sites also have habitat benefits. The strategy should more clearly explain how WRP wetlands fit into the overall nutrient reduction strategy plans in Iowa.

- The EPA recommends that Iowa describe how data from the Major Land Resource Area level assessment-such as nitrogen and phosphorus loads-will be translated to the watershed scale and ultimately field scale to determine BMP placement and effectiveness.

- The EPA recommends that the final version of the strategy address the contribution of phosphorus pollution from streambank erosion. When and how will data on streambank

erosion phosphorus contributions be developed? Is there an opportunity to review and utilize/adapt information from other sources, such as Minnesota presented at the Davenport workshop, to determine phosphorus contributions from streambank erosion?

- The draft strategy points out the significant potential of cover crops to reduce both nitrogen and phosphorus while also pointing out the estimated corn yield loss with rye cover crops. The strategy is silent on additional benefits, including economic benefits, to be gained by using cover crops. These benefits include increased water infiltration, minerals held in the soil, additional organic matter accumulation, and suppressed weed growth.

The EPA recommends Iowa consider several questions in framing its final strategy:

- The nonpoint source section of the draft strategy costs/benefits for each BMP focus on costs to the producers and, where benefits were identified, also focused solely on the producer. At the Davenport workshop, there was a recognition that the analysis of other benefits were not within the scope of the science assessment. Are there plans to analyze other benefits associated with BMPs?

- Were other programs/approaches, such as the USDA Soil Health Initiative and changes to Conservation Reserve Program, evaluated for nutrient reduction impacts?

- Was there modeling of perennial vegetation nutrient reduction benefits on marginal lands?

Point Source Comments

After meeting with IDNR staff to discuss the point source technology assessment section of the draft strategy, the EPA recommends the following clarifications:

- Revise strategy language to clarify that schedules of compliance will not be used for meeting technology-based effluent limits.

- Unless impracticable within the meaning of 40 CFR 122.45(d), monthly and short-term permit limits, based upon annual limits, would be required in National Pollutant Discharge Elimination System permits.

- Clarification should be included that there may be exceptions to the 10-year moratorium where water-quality based nutrient effluent limits could be added to permits, per the regulations, if a Total Maximum Daily Load with nutrient wasteload allocations is established, or if nutrient criteria are promulgated by IDNR.

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General Comments

- While the draft strategy does address all framework elements the EPA has identified to maximize progress in reducing nutrient pollution, the section "*Numeric Nutrient Criteria Limitations*" does not reflect the EPA's current thinking about numeric criteria development and implementation. The EPA views numeric criteria as important tools for effective water quality management of nutrient pollution. Many of the concerns with numeric nutrient criteria described in the strategy focus on the EPA ecoregional criteria published in 2000, which were intended to be a starting point for states and others to develop more refined criteria that fully reflect localized conditions and protect specific designated uses. We have made a lot of progress working with states and authorized tribes since the 2000 document was issued to identify a range of options available to them in developing and implementing numeric criteria. This agency is available to work with you on the scientific underpinnings of numeric criteria that would be appropriate for water bodies in Iowa and that represent best available science. Such approaches may include: derivation of numeric nutrient criteria using stressor-response approaches, use of mechanistic models currently used in TMDL development, and approaches that better link biological responses to numeric nutrient criteria assessment procedures.

- The Iowa draft strategy highlights the costs to dischargers of complying with nutrient standards but does not recognize the wide range of water quality standards and permitting implementation flexibilities the EPA has been exploring with states that have protective numeric criteria in place. These tools include site-specific criteria, revisions to designated uses, permit compliance schedules, water quality standards variances, and trading. Which regulatory tool is appropriate depends upon the circumstances.

- This agency is pleased to see that the accountability and verification measures and public reporting sections of the draft strategy outline a number of actions that meet the objectives of the March 2011 EPA memorandum. The final strategy should include a schedule for putting these actions in place.

- The draft strategy tasks the Water Resources Coordinating Council to develop indicators of success and annually evaluate the need for updates to the strategy. The EPA requests the opportunity to participate in the Water Resources Coordinating Council activities related to the nutrient reduction strategy.

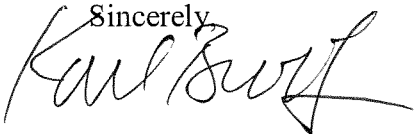
- The strategy should explicitly establish how progress will be monitored/measured. For example, will measurements be applied to the quality of water leaving Iowa? We recommend evaluating existing data and measures from state and federal agencies to develop indicators of success. For example, since the NPSMP and nutrient reduction strategy goals are the same-improving water quality-there are opportunities for similar/same measures and joint reporting.

- The draft strategy is unclear where nutrient reductions will be measured and/or modeled as there are references to "edge of state" and "edge of watershed." Please provide clarification about how and where nutrient reductions will be measured or quantified. (Is there an inventory of nutrients entering/leaving Iowa?)

- The draft strategy references operational plans. Are these operational plans for action items listed in the strategy? The strategy should include specific action steps, milestones and timelines for implementation of actions included in the strategy.

In conclusion, we appreciate the opportunity to comment on the draft Iowa Nutrient Reduction Strategy. The EPA looks forward to working collaboratively with IDALS and IDNR on implementation of the strategy to achieve our mutual goals of water quality improvement in Iowa. Any questions on these comments should be directed to Karen Flournoy at 913-551-7782 or flournoy.karen@epa.gov. We would be pleased to meet with IDALS and IDNR to discuss any questions you may have regarding these comments.

Sincerely,



Karl Brooks

cc: Nancy Stoner, Acting Assistant Administrator for Water, EPA HQ

Submit comments

Your comments on the Iowa Nutrient Reduction Strategy are welcome. Deadline for comment submission has been extended to January 18, 2013. There are two methods to submit comments.

- **Electronic**: Please use the form below to submit your comments. As with other public comments please include your name. Fields with a red asterisk (*) are required for submission.
- **Mail**: Comments may be mailed to: *Nutrient Reduction Strategy, ANR Program Services, 2101 Agronomy Hall, Ames, Iowa 50011-1010.*

Comments and contact information submitted here are considered public and are subject to Open Records Law requests from the media or others.

Name *

Email

City **State** - None -

JAN 14 2013

I am commenting on the following section(s): *

- ☐ Executive Summary
- ☐ Policy Considerations and Strategy
- ☐ Nonpoint Source Nutrient Reduction Science Assessment
- ☐ Point Source Nutrient Reduction Technology Assessment

Comments *

Submit

JAN 14 2013

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
11201 RENNER BOULEVARD
LENEXA, KS 66219

JAN 09 2013

OFFICE OF
THE REGIONAL ADMINISTRATOR

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Sincerely,

Karl Brooks

cc: Nancy Stoner, Acting Assistant Administrator for Water, EPA HQ

IOWA CORN GROWERS ASSOCIATION

JAN 15 2013

January 14, 2013

Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, IA 50011-1010

Dear Sir or Madam:

The Iowa Corn Growers Association (ICGA) supports the voluntary and science-based approach of the current draft of the Iowa nutrient reduction strategy. ICGA represents over 7000 members who care about their land and water and utilize nutrient management practices every day. Our policy supports a voluntary watershed approach to nutrient management rather than a regulatory approach.

The science assessment is unprecedented and should be praised for being thorough and objective. The effectiveness and costs of best management practices vary widely and show that the one-size-fits-all approach of regulations is ineffective, costly, and burdensome to farmers, or in some cases, may be counterproductive in terms of achieving the desired goals and outcomes. Current regulations such as federal regulations regarding wetlands and ditches are already an impediment to best management practice implementation.

The strategy addresses the need for more research, targeted resources, and outreach to farmers and agribusiness. By incorporating both point and nonpoint sources of nutrients, the strategy shows the need for actions from all Iowans. Because this affects all Iowans, more funding from the State is needed to properly implement the strategy.

Thank you considering our comments. The Iowa Corn Growers Association looks forward to working with the State of Iowa to implement the nutrient reduction strategy.

Sincerely,

Bruce S. Rohwer
President
Iowa Corn Growers Association

5505 NW 88th Street, #100
Johnston, IA USA
50131-2948

Phone (515) 225-9242
Fax (515) 225-0781
E-mail corninfo@iowacorn.org
Website www.iowacorn.org

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January 11, 2013

Nutrient Reduction Strategy
ANR Program Services
2101 Agronomy Hall
Ames, IA 50011-1010

To Whom It May Concern:

Congratulations to everyone involved in the creation of the Iowa Nutrient Reduction Strategy. Iowa has long been a worldwide leader in agricultural production with a sincere concern for our natural resources.

I am excited by your vision to create off-farm water quality benefits through on-farm conservation practices, in an effort to hold down future point-source-compliance costs and pay for environmental performance that is measurable and meaningful.

With the advancement of this bold strategy, you demonstrate a commitment to position Iowa as a leader in developing and implementing a market-based solution to finance, construct, maintain, and manage agronomic and structural conservation practice on working agricultural lands.

Our nation's current cost-share based conservation delivery system has served us well to this point, but the credit trading section you have included in your strategy indicates to me that you clearly recognize that innovative funding streams are necessary to incentivize private landowners to move to a new level of conservation stewardship.

We encourage you to provide the leadership required to develop an environmental credit trading program to efficiently and cost effectively improve water quality, reduce flooding, improve wildlife habitat, support our agricultural industry, and improve the quality of life for current and future generations of Iowans and our downstream neighbors.

Respectfully,

Charlie Schafer, President
Agri Drain Corporation

CITY OF SPENCER, IOWA
City Hall
418 2nd Avenue West
SPENCER, IOWA 51301-3801

Telephone: (712) 580-7200
FAX: (712) 580-7236

January 16, 2013

Nutrient Reduction Strategy,
ANR Program Services,
2101 Agronomy Hall,
Ames, Iowa 50011-1010

To Whom It May Concern,

The City of Spencer is very concerned about the proposed nutrient reduction strategy and the impact it will have on our residents. We are currently under an EPA consent order to eliminate combined sewer over flows in Spencer. We are in the last phase of an 8,000,000 dollar construction project that captures CSO events and directs the flow to a retention pond for treatment at our WWTP. The direct impact of the project to the resident is an additional ten dollars per month over their normal sewer charge. It appears that proposed nutrient reduction could increase the monthly bill by an additional twenty five dollars.

Take into account that the effluent disinfection may be required when our permit is renewed at a cost of approximately one million dollars; you can see that additional mandates will have a significant impact on our community.

Until such time that non-point contributors can become regulated through a fair system that does not impede agriculture, I feel it is unfair to increase the regulation of point contributors that operate responsibly in a highly regulated industry.

Yours truly,

Mark White
Public Works Director

JAN 17 2013

Dear Sirs,

I am writing you concerning nutrient reduction strategy plan. My wife and I have farmed in North Central Iowa for forty three years. When we started framing the soil was plowed and we realized this caused erosion. The plow was sold in 1974 and minimum was begun. There was visual reduction in soil and water erosion when the tillage system changed. Twenty years ago chicken litter and liquid hog manure were purchased in our operation. We are always concerned with keeping the nutrients in our soil and not having any runoff from wind and or water. We have experimented with no till over the years and have not been able to make it work on our farm. Grass water ways and buffer strips have been put in where appropriate. We are committed to saving our soil for future generations.

Ray Arndt
Janice Arndt

To whom it may concern:

I am writing in response to the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water.
The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

Iowa's nutrient reduction strategy needs to clearly state how all of those who are responsible for causing this problem will be held accountable for helping to permanently and sustainably protect Iowa waters. The strategy's approaches for municipal and agricultural pollution sources will be different. But they should share a unified commitment to real action and meaningful results. Mandatory water treatment action by cities will not produce meaningful results without more significant engagement from agriculture.

The strategy needs to establish some mechanism for accountability, such as clear numeric goals for nitrogen and phosphorous pollution reduction that are tailored to the unique needs of Iowa waters. The strategy should also describe the state's response if those reductions do not occur according to a reasonable timetable. The goal of the strategy should be to achieve meaningfully cleaner water in Iowa.

Robert Bernard
8834 Meredith Drive
Urbandale, IA 50322-7205
bearbernard46@gmail.com

To whom it may concern:

I am writing in response to the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa and expect a plan for prevention to begin immediately. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water, maintain clean waters, and specific enforcement actions to be taken for all polluters, without exceptions. The current version fails completely in achieving these goals, and it fails to provide any confidence this goal will be achieved by providing funding.

Iowa's nutrient reduction strategy needs to clearly state how all of those who are responsible for causing this problem will be held accountable for helping to permanently and sustainably protect Iowa waters. The strategy's approaches for industrial, municipal, and agricultural pollution sources will be different. But they should share a unified commitment to real action and meaningful results. Mandatory water treatment action by cities will not produce meaningful results without mandatory requirements of agriculture, which is our biggest polluter by far. Iowa has had 40 years to clean up its waters and has made only token improvements thus far with voluntary actions. We need everyone, individuals, municipalities, industry, and agriculture to be involved without exceptions.

The strategy needs to establish some mechanism for accountability, such as clear numeric goals for nitrogen and phosphorous pollution reduction that are tailored to the unique needs of Iowa waters. The strategy should also describe the state's response if those reductions do not occur according to a reasonable timetable. The goal of the strategy should be to achieve meaningfully clean water in Iowa. After 40 years of waiting for Iowa to get serious about clean water, I'm in favor of having the EPA step in and take over the job as Iowa obviously is going to continue to let our biggest polluters continue to pollute with little or no regulation or enforcement.

Susan And Norm West
1551 Curry Blvd
Fairbank, IA 50629-8579
319-827-3013
normwest@jtt.net

To whom it may concern:

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Sandra Leaders
82 Lakewood Drive
Council Bluffs, IA 51501
sgravert@msn.com

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Mike Carberry
2029 Friendship St.
Iowa City, IA 52245-4553
319-594-6453
mikecarberry@gmail.com

To whom it may concern:

I am writing in response to the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water.
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Karin Sandahl
5925 Ep True Pkwy#7
West Des Moines, IA 50266-2811
ksandahl@mchsi.com

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Brooklyn Davis
2315 SW 11th St
Des Moines, IA 50315-1004
brooke.l.davis@wellsfargo.com

To whom it may concern:

I fish, I kayak, I swim. So do my kids. All of those activities require clean rivers and lakes. I spend money throughout the state in pursuing those activities and hope to do so well into the future if we can protect and enhance Iowa's water quality. I'm tired of our state's government looking the other way when in comes to agricultural pollutants - farm inputs and runoff should be controlled just as industrial runoff is.

I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

The strategy needs to establish some mechanism for accountability and describe the state's response if those reductions do not occur according to a reasonable timetable. The goal of the strategy should be to achieve meaningfully cleaner water in Iowa.

Pete Eyheralde
339 Science Hall II
Iowa State University
Ames, IA 50011-0001
pete@iastate.edu

To whom it may concern:

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Holly Hart
PO Box 2473
Iowa City, IA 52244-2473
319-337-7341
hhart11@gmail.com

To whom it may concern:

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Nathan Unsworth
115 N 2nd Ave E
Newton, IA 50208-3241
nunsworth@gmail.com

To whom it may concern:

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Margaret Weiner
2525 Patricia Drive
Urbandale, IA 50322-5275
515-331-1666
meyweiner@q.com

To whom it may concern:

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Eileen Lundberg
9850 SE Vandalia Dr
Runnells, IA 50237-2075
515-966-2595
gaejl@earthlink.net

To whom it may concern:

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James Bermel
2982 Highway 61
Muscatine, IA 52761-9732
563-299-7786
bermelj@gmail.com

To whom it may concern:

It is time to make all Iowa's rivers and streams clean!

I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water and who is responsible. The current version falls far short.

Iowa's nutrient reduction strategy needs to clearly state how all of those who are responsible for causing this problem will be held accountable for
helping to permanently and sustainably protect Iowa waters. Mandatory
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Kathryn Hansen
1 Oaknoll Ct
Iowa City, IA 52246-5250
319-351-3375
kwhansen@ia.net

To whom it may concern:

I like to present my feelings about the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an life-long Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water. The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

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Gail Barels
400 Hillview Dr
Marion, IA 52302-5842
319-329-5585
gailbarels@aol.com

To whom it may concern:

I agree with all of the following comments. I am writing in response to the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water. The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

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Dianne Blankenship
737 Buckwalter Dr
Sioux City, IA 51108-9506
712-255-3447
bennaid@hotmail.com

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Victoria Szopinski
3710 Ross Road
Ames, IA 50014-3966
515-292-4165
victoria28@mchsi.com

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Kevin Kolbe
468 390th Ave.
Grinnell, IA 50112-8072
kevin@ramseyweeks.com

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Eric Payne
1133 2nd Street
Jewell, IA 50130-1031
515-460-3993
paynetopia@gmail.com

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Steve King
2908 Orchard Dr
West Des Moines, IA 50266-2142
steveking@mchsi.com

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Patricia Timmens
20913 578th Street
Cincinnati, IA 52549-8746
641-658-2359
ptimmens@hotmail.com

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Dee Kimmel
2944 Tiffin
Des Moines, IA 50317-8747
dee_kimmel_6@hotmail.com

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Matthew Roth
6613 Scenic Ridge Court
Johnston, IA 50131-4900
mroth720@gmail.com

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Joanne Wilkins
1619 Mahogany Ave
Fairfield, IA 52556-8934
jswilkins@lisco.com

To whom it may concern:

Regarding: Iowa Nutrient Reduction Strategy As an Iowan, I can say that water quality consistently remains poor despite years of failed efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water. The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

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Joyce Otto
3342 50th St
Grinnell, IA 50112-8360
641-236-5417
jotto@iowatelecom.net

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Lori Howe
815 S. 11th St.
Adel, IA 50003-2054
515-707-3084
Lorihowe@sharemktg.com

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Catherine Simpkins
1401 Kentucky Ave
Ames, IA 50014-3080
515-292-1617
csflute54@gmail.com

To whom it may concern:

I am writing about the strategy outlined in the Iowa Nutrient Reduction Strategy. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water. The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

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John Muehlman
1835 Stagecoach Trl
Fairfield, IA 52556-9033
641-472-8625
jmmuehlman@gmail.com

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Leigh Adcock
PO Box 611
Ames, IA 50010-0611
leigh@wfan.org

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If we cannot produce agriculture that doesn't pollute our waterways, then our ag industry deserves to suffer. I'm sure our state-funded universities would be happy to help address this problem, if they haven't already.

Brion Hurley
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Iowa City, IA 52245-2812
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Ingrid Stukerjurgen
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Mary Fanter
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Clarence Kreiter
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Michael Lavalle
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Gary Nell
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Michael Hummel
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Jan Grant
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James Yungclas
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Ames, IA 50010-9241
bbakevich@yahoo.com

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Amy Alesch
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amyalesch@gmail.com

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mayfive@aol.com

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Carole Mapes
PO Box 444
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carole.b.mapes@gmail.com

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Steve Semken
205 N Front
Nortth Liberty, IA 52317-9302
steve@southslope.net

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Doug Kuhlman
318 E Iowa Ave
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712-433-2400
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It is embarrassing and disturbing to live in a state listed as having some of the worst water quality in the nation. There is no denying that our poor water quality is due to protection of farmers and agribusiness. Farmers are currently doing very well economically - they can be held responsible for protecting ALL of our water quality and land. Please stand up to powerful lobbying interests, such as the Farm Bureau, and do what is right for ALL of Iowa's citizens.

Susan Fritzell
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Ames, IA 50014-3881
515-292-4277
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Simpson College
Indianola, IA 50125-1202
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Michael James
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To whom it may concern:

Let me share an embarrassing story about Iowa. A professional colleague of mine driving through our state decided to camp at my local state park.
Setting up his tent with his family at Rock Creek, they were appalled at how bad the lake smelled. The water was too dirty to swim in and it smelled like a cesspool. For the remainder of his trip, his kids referred to the lake as "stink creek".

I know his report to be true. I can't take my kids to swim at the Rock Creek Lake because the water is too dirty. Similarly, my canoe goes unused because what should be our very beautiful local rivers are too polluted to make the trip enjoyable. I have tried multiple times to canoe Iowa waterways. The few exceptions make it clear that we COULD make the water cleaner, but we have chosen to allow (or even encourage) people to pollute these waterways. The polluted riverways clearly have an economic impact, effecting whether our talented young people decide to stay in the state, whether we can recruit excellent people to work at growing Iowa businesses, and even whether a tourist decides to travel to our state and visit.

I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water. The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

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Vida Praitis
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Linda Gobberdiel
5416 Boulder Drive
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The strategy needs to establish some mechanism for accountability, such as clear numeric goals for nitrogen and phosphorous pollution reduction that are tailored to the unique needs of Iowa waters. The strategy should require sediment controls including vegetative buffers along waters of the State and a plan to remove all drain tiles from the State. The strategy should also describe the state's response if those reductions do not occur according to a reasonable timetable. The goal of the strategy should be to achieve meaningfully cleaner water in Iowa.

Ronn Beebe
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Fairfax, IA 52228-7600
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Hannah Papineschi
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To whom it may concern:

I am writing in response to the policy considerations and strategy outlined in the Iowa Nutrient Reduction Strategy. As an Iowan, I live in a state where water quality consistently fails to meet my expectations and remains poor despite years of efforts. I support the development of a cleanup plan for nitrogen and phosphorous pollution in Iowa. I expect the plan to clearly state how Iowa will achieve meaningfully cleaner water.
The current version falls short of achieving this goal, and it fails to provide any confidence this goal will be achieved.

Iowa's nutrient reduction strategy needs to clearly state how all of those who are responsible for causing this problem will be held accountable for helping to permanently and sustainably protect Iowa waters. The strategy's approaches for municipal and agricultural pollution sources will be different. But they should share a unified commitment to real action and meaningful results. Mandatory water treatment action by cities will not produce meaningful results without more significant engagement from agriculture.

The strategy needs to establish some mechanism for accountability, such as clear numeric goals for nitrogen and phosphorous pollution reduction that are tailored to the unique needs of Iowa waters. The strategy should also describe the state's response if those reductions do not occur according to a reasonable timetable. The goal of the strategy should be to achieve meaningfully cleaner water in Iowa.

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