

Manure management and Hardin County

By Gary L. Hillmer
District Conservationist

The swine industry is here to stay. Communities, governments or neighbors will not change the fact that in Hardin County we have large volumes of manure to deal with.

Regulation from the state and proposed regulation from the federal government will not be the answer to this issue. There are not enough enforcers to effectively be able to evaluate every operation. Thus, it is fortunate that the vast majority of swine producers are doing a good job of manure management and the regulations are or will be in place for the few that need the hard hand applied.

Water Quality is the issue of major

concern with odor, prices, family farming and unfair competition being secondary. While there are no easy answers to the secondary concerns, the water quality issue is more technical in nature making it more direct to deal with.

A management plan will help make manure a valuable resource, not a liability to simply dispose of. The Natural Resources Conservation Service (NRCS) field office staff in Iowa Falls will assist any producer in the development of such a plan. Knowing the nutrient content of the manure is a must.

Book values published for a variety of operation types provide ball park figures. However, the best managers will regularly sample and test for nutrient content.

It would be unthinkable to purchase commercial fertilizer without first knowing the nutrient content.

The sample must be representative of the product. Manure is a mixture of solids and liquids. Pit manure may be from 90% to 99% liquid and must be agitated prior to sampling. The phosphate in manure is mostly in the solid portion, the potash is mostly in the liquid and the nitrogen is split between the two portions.

It is important to apply evenly and equally to the field to assure adequate fertility. Knifing it in is the preferred method of application. This will virtually eliminate the odor problem and reduce nutrient loss from volatilization and direct runoff.

If manure is applied over bean stubble and disked under, the crop residue is almost entirely destroyed. This will subject the soil resource to erosion and loss of nutrients to surface waters.

If there is a conservation compliance plan on a field with crop residue requirements, those residue levels will be expected to be in place. Application of swine manure is not an acceptable reason for low residue levels and farm benefits will be put in jeopardy!

Establish a realistic yield goal for each field based on the soil resource and yield history. Do not fertilize for 200 bushel when good years yield 150 bushel. Then take credit for the manure applied.

A good soil sample is critical to knowing where manure application will be most advantageous. If a given field is testing high or very high in phosphate or potash, manure application could be a source of surface water pollution. Therefore, an adequate number of operating acres is critical for responsible land stewardship.



Natural resources offices

Gary L. Hillmer (District Conservationist) and Susie L. Reece (Secretary) are pictured in their Natural Resources Conservation Service offices in Iowa Falls. Kent H. Holmgard serves as Soil Conservation Technician and Christine Birks as WAE.

Pine Creek water quality project

By Jennifer Welch,
Project Coordinator

Final stages of completion

The final year of the Pine Creek Water Quality Project has been a productive one. Many improvements were made in the watershed as conservation practices were implemented, livestock producers attended manure management meetings, soils were tested to determine nitrogen fertilizer amounts. Many acres of the watershed were enrolled in the Conservation Reserve Program (CRP) and will be planted to native warm-season grasses for multiple benefits to water quality, wildlife and soil quality.

Many practices completed

Producers Bill Janssen, David Minter, and Balvanz Farms completed grassed waterway projects with a total of 5 acres or 1,600 feet of waterways constructed. Dwight Schuneman completed over 2,800 feet of terraces near Pine Lake. Lloyd Eckhoff and David Minter constructed a sediment and water control basin on a property line to stop erosion advancement. Several grade stabilization structures were completed including a shallow water impoundment at Gary Schwarz's, ponds for Keith Norris and Gary Schwarz, and two gabion rock structures for David Minter.

The dredging of Upper and Lower Pine Lakes is also complete, as well as the construction of a rock rip-rap detention dike that was constructed across the upper section of Upper Pine Lake. The dike traps sediment coming from the watershed into Pine Creek and reduces its ability to travel through Upper and Lower Pine and cause more siltation.

Pine Creek Streambank Restoration Project Chosen

The streambank restoration project on

Pine Creek was chosen by the Trees Forever Iowa Buffer Initiative as a demonstration site. The Iowa Buffer Initiative is a statewide effort with many sponsors and cooperating partners to demonstrate the effectiveness of maintaining trees and grasses as buffers along streams and rivers.

The Pine Creek Streambank Restoration project was completed in the spring of 1996 with the assistance of students from Eldora-New Providence schools. This site is owned by Margaret Baker and operated by Mark Balvanz. The goal of the Iowa Buffer Initiative is to increase awareness and utilization of long-term land management practices and illustrate their impact on water quality, soil erosion, landscapes, and wildlife. Utilizing riparian buffer technology will improve water quality for all Iowans.

Watch for upcoming field days, tours and on-farm demonstrations at this site!

Jennifer Welch, Pine Creek Project Coordinator was transferred to the Boone Field Office in January where she is finishing the final summary of the Pine Creek Water Quality Project as well as beginning work on other water quality projects in central Iowa. She will miss the Eldora area and working with the landowners and producers in the Pine Creek Water Quality Project.

What is the impact downstream?

Although erosion is a natural process, growing corn and soybeans accelerates the rate of erosion.

Yet not all eroding soil will make its way into the lakes. Some areas are more critical because they deliver more sediment than

others. One area in the watershed targeted by the Pine Creek Water Quality Project was a 240-acre subwatershed in the upper region of the watershed.

Before the project, this subwatershed delivered 272 tons of sediment to the lake every year. That would cover one acre with a one and a half-inch layer of soil.

Producers implemented grassed waterways, a grade stabilization structure and residue management systems to reduce the amount of sediment delivered to Pine Lakes by approximately 200 tons per year, a 73 percent reduction. Now, only 74 tons travel the route to the lakes.

Pine Creek publication available

More information is available in a publication about the Pine Creek project at the Natural Resources Conservation Service office and Pine Lake State Park. It was also published in the January/February 1998 issue of the Iowa Conservationist magazine. It highlights several practices that can be used in a variety of situations, how the landscape is changing as a result of landowner and operator efforts, and a self-guided tour through the watershed.

The final summary of activities, practices implemented, soil savings, sediment delivery and impact of the special project in the watershed are being compiled. Watch for final results of this successful project.

Thanks to project participants!

A big thanks to all landowners and operators who participated in this five year project. It is their continued effort and dedication to resource management that create these positive changes in the landscape that give benefits to crop production, wildlife habitat, and water quality as well as everyone who enjoys the Pine Lake area.

We are in this together

By Kent Holmgard
Soil Conservation Technician

Working with the citizens of Hardin County has been very rewarding and we are looking forward to serving the communities of Hardin County in the future.

Disappointments for and by the citizen of our communities has had a positive effect upon Hardin County's resources. Partnerships have been formed between government agencies and private organizations in the enhancement of our environmental life.

The challenges in the future will even be greater but knowing how active our citizens are in the protection of our resources, those challenges will be met with both thought and action that will reduce or eliminate those environmental concerns. The growth of our communities is directly linked to the health of its environment.

The direction of our county's resources really rest upon the citizens and the exertion of their energies to help in the protection of our resources. We cannot sit back and be complacent about the quality of our life in Hardin County.

But the question is how can you become involved? Some of those ways are as follows: become members of local organizations that effect the environment; think about your own actions of how you apply chemicals, fertilizers, and wastes to our lawns, pastures, and fields; be an active landowner by making sure that your residence, farm, or acreage is properly controlling soil erosion, chemical and waste runoff, develop working relationships with neighbors and friends in solving neighborhood problems.

We as an agency have many programs and resources that will aid the landowner or producer to help safeguard his and his neighbor's resources. We can aid you in finding out answers and solutions to your questions and concerns.

We all must be aggressive in the protection of our resources. So please feel free to contact our office and visit with our staff.

7-Hardin County Index,
Friday, May 15, 1998

1997 Annual Financial Report

IM Fund Report			
IM FY97	Allocation	Expended	
	\$3,450.00	\$3,450.00	
	commissioner expense	\$1,197.00	
	office/postage	\$2,003.00	
	dues	\$ 250.00	

The IM budget appropriation is provided to pay soil and water conservation district commissioners and assistant commissioners actual expenses incurred. The IM budget also provides for the payment of certain soil and water conservation district office supplies and expenses.

1997 Iowa Financial Incentive Report				
Year	Allocation	Expended	Allocated	Available
1994-95	\$21,532.83	\$19,489.38	\$ 750.00	\$ 0.00
1995-96	\$34,054.27	\$27,015.94	\$7,038.33	\$ 0.00
1996-97	\$20,299.22	\$15,868.92	\$3,512.50	\$ 917.80
1997-98	\$23,937.00	\$2,946.50	\$6,000.00	\$14,990.50

The Iowa Financial Incentive Program (IFIP) is administered by the local soil and water conservation district with policy and administrative assistance of the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation. IFIP appropriations were initiated in 1973. Since that time Hardin County Soil and Water Conservation District has received over 1.4 million dollars. Landowners have spent matching funds and constructed soil and water conservation practices to protect our natural resources.

Eligible practices for IFIP include management practices, critical area planting, diversion, field windbreak, grade stabilization structure, grass strip, grassed waterway, pasture and hayland planning, terraces, and water and sediment control basins (at 50% of the actual cost or estimated cost, whichever is the lesser amount).

Only those soil and water conservation practices applied to agricultural crop and pasture land whose primary function is to control soil erosion and prevent sediment damage, will be eligible for incentive program funds. Practices will not be funded unless the site has been inspected and determined that such practice(s) are needed to reduce excessive erosion or sedimentation by technical staff. District commissioners give the final approval on the allocation of funds.

The above financial accounting represents:

- 15 water and sediment control basins
 - 5201 feet of terrace
 - 5 grade stabilization structures
 - 20.56 acres of grassed waterway
- There are monies available for allocation. Call 515-648-3463 to set an appointment to discuss areas of concern on your farm.

Resource Enhancement and Protection (REAP)			
Practices '97	Allocation	Expended	
— Allocation	\$9,345.00		
— Expended	\$5,479.74		
— Recall	\$3,865.26		
Practices '98	Allocation	Expended	
— Allocation	\$8,015.00		
— Expended	\$1,312.00		
— Allocated	\$6,703.00		

These figures represent:

- 56 acres of tree planting
- 19 acres of critical area treatment
- 2 farmstead windbreaks
- 185 acres of protected planned grazing
- 30.5 acres of pasture and hayland treatment

REAP was established by the Iowa Legislature to protect surface and ground waters from point and nonpoint sources of pollution. The funds are divided into two parts, land treatment practices and forestry and native vegetation.

These funds are allocated to soil and water conservation districts to be allocated for such practices as establishing native grasses, farmstead windbreaks, field windbreaks, tree plantings, timber stand improvement, pasture and hayland treatments, planned grazing, and critical area plantings. REAP will pay up to 75 percent of the cost to establish with limits placed on some components of the practices.

Office staff along with assistance from district forester on tree practices will work with producers to develop a plan and cost estimates. Final approval for fund obligation is given by the district commissioners.



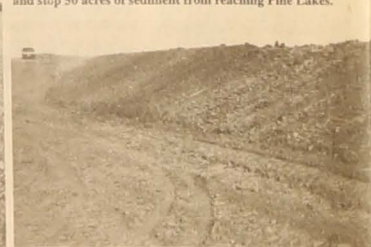
The streambank and riparian restoration project in the Pine Creek watershed has been chosen as a demonstration project for the Iowa Buffer Initiative.



This impoundment grade stabilization structure (pond) recently finished in the watershed will eliminate gully erosion and stop 50 acres of sediment from reaching Pine Lakes.



Terraces built near Pine Lakes will stop soil erosion and prevent soils in the field from moving into the lakes.



This structure is a sediment and water erosion control basin built to temporarily store water during a storm event and prevent gully erosion.

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Conserving Our Soils

By Gordon Dreier
Hardin County Commissioner
 Conserving our productive soils has been a concern of Hardin county farmers for decades, if not generations. The state and federal governments have shared our concerns and encouraged us to conserve our soils with programs that offer the "carrot and stick" approaches. After classification of soils as to either highly erodible or non highly erodible, an emphasis was placed on making management decisions to reduce erosion to acceptable levels.

Some would say we were forced to make changes. I must admit to doing some grumbling too. But we've learned a lot in a fairly short period of time. More importantly, we've tried these more cropping practices on some of our more productive fields and found that they leave more profit and soil for producers.

One of the newer programs offering financial assistance directs our attention to field borders. The continuous CRP sign-up established in 1997 offers yearly rental rates based on soil type and average rental rates for comparable land in Hardin County. These can run into the \$180 per acre range.

Another big plus is that the Farm Service Agency offers you the rental rate. You don't have to offer the land at a rate and then wonder if you are too high or too low. For years there has been cost sharing on construction of waterways but using the continuous CRP you can receive rent on those acres taken out of production too. This is one of the few instances where you can "have your cake and eat it too."

A new area of emphasis is filter strips along streams. The primary intent is to prevent pesticides, field sediment

and fertilizers (both commercial and livestock waste) from entering streams. The increase in water quality will benefit down stream municipalities, fish populations, and other aquatic life. Filter strips may be up to 100 feet wide and seeded to cool or warm season grasses. As land in other CRP enrollments comes back into production, these acres along our streams will greatly benefit pheasants and other wildlife.

A more complex plant community including trees and shrubs along a stream is called a riparian buffer. Besides the benefit to surface water, riparian buffers can intercept contaminants in shallow ground water. Studies have found that streamside forest as narrow as 75 feet wide can remove up to 80% of the nitrogen in runoff and shallow groundwater.

A similar percent of the phosphorus found in the suspended sediments is removed by a riparian buffer. Phosphorus is usually the limiting factor in aquatic plant growth and reproduction. When excess phosphorus applied to the land finds its way into bodies of water, blooms or overabundant growth of algae and other aquatic plants can result. Algae blooms at the surface can interfere with photosynthesis of submerged plants by preventing sunlight penetration and thus causing the submerged plants to die.

Without photosynthesis, oxygen is not being produced. The decomposition of dead plants by bacteria requires oxygen to be used. This environment of low oxygen favors organisms which release hydrogen sulfide and methane when they flourish. Hydrogen sulfide and methane are toxic to fish. Besides this direct fish kill, the food chain is



Direct Natural Resources

John Gilbert (left) of Iowa Falls serves as chairman of the Natural Resources Conservation Service. Other commissioners are, from left: Mark Seward of New Providence, Carroll Hobson of Eldora and Mark Balvanz of Eldora, vice chairman. Not present, Gordon Dreier of Hubbard, treasurer.
 6-Hardin County Index, Friday, May 15, 1998

disrupted leading to the loss of other animals.

Riparian buffers offer land owners more than aesthetics, environmental, financial, and wildlife habitat benefits. There is also the opportunity to explore rotations greater than those associated with annual crops. Black walnuts and other high value trees could be planted in these areas. Hybrid hazel nuts are being developed that have native hazel nut resistance to European filbert blight and larger nuts than the native shrub.

Besides waterways, filter strips and riparian buffers, there are other buffer practices eligible for the continuous CRP sign-up. They are shelterbelts, field windbreaks, living snow fences,

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All construction and excavations are covered by a "one-call law". Some of the law's features are as follows:

- Utilities are required to belong to the one-call system.
- The contractor or person excavating is responsible for notifying the one-call.
- The toll free telephone number to the one-call center is 1-800-292-8989.

shallow water areas for wildlife, and contour grass strips. With high rental rates and 50% cost sharing of establishment cost, you owe it to yourself to stop by the NRCS office and explore the possibilities!

Stretch our horizons

By John Gilbert
Hardin County Commissioner
 From time to time, it's good to stretch our horizons and consider unconventional approaches.

One of our most under used resources are pastures and marginal areas best left in perennial forages (such as CRP). For too many, pastures are places to "put" cattle and hope the grass lasts.

Grass "farming" is the conscientious management of resources to maximize economic yield from high quality, animal harvested forages. The emphasis is on forage production. Whether it is grazed by cattle or sheep or dairy cows or pigs or chickens is secondary. The emphasis is on the art of growing and grazing the highest quality forages with minimal mechanical involvement.

This approach is variously referred to as rotational grazing, management intensive grazing or some variation with the emphasis on grassland management. This approach can provide livestock producers with the tools to improve the return on their grazing animals by improving the quality of available forage, and planning grazing to ration feed resources.

Information is available from many sources, including the Hardin County offices of the Natural Resources Conservation Service and Extension Service, and the Iowa Forage and Grassland Council. One of the best publications on the subject is "The Stockman Grass Farmer" (P.O. Box 2300, Ridgeland, MS 39158, 800-748-9808, \$28 per year), edited by Allen Nation.

In addition to the nuts and bolts information available, Allen challenges his readers to see the big picture. The

following is excerpted from his "Allen's Observations" column in the January 1998 Grass Farmer. His comments are always food for thought.

"An integrated crop/grazing farm in the United States is now about as rare as a four-masted clipper ship. While this change was originally brought about by government grain subsidies, it has now been internalized into a cultural change. More's the pity.

"The number one determinant of crop yield is soil organic matter. The number one builder of soil organic matter is rotationally grazed cool-season pasture. Research in Uruguay has found that a rotation of three years in pasture, three years in corn, grows more corn than years in corn.

"Virtually every weed in crop farming is a premier forage. Virtually every weed in pasture is easily removed with tillage.

"Research in Georgia found that 100 bushels of corn could be grown following the plowdown of fescue pasture with no nitrogen input. The Argentinians do this as a routine matter and are the world's least cost grain producers as a result.

"As the world's residual grain supplier, our grain prices are going to roller-coaster from the ridiculously high to the ridiculously low. No longer is the USA government going to store grain to cover for the world's shortfalls.

"What will be needed in such a free market system is an equally free market, flexible, acreage reserve that can be added and subtracted from production quickly and easily. An Argentine-style system of crop and grass swaps could accomplish this while increasing grain yields and lowering herbicide costs."

Clearing, overseeding, fencing important in pasture management

It makes good sense. Removing scrubby timber, thorn trees and shrubs from pasture areas to let more sun light in and improve the forage.

With this idea in mind, cow/calf operators Dave Petty of Union and Larry Daniels, DVM of Eldora have jointly purchased a tree shear and over the past year have cleaned up parts of 400 acres of pastureland. The Bobcat Tree Shear is easily manipulated and will remove trees measuring up to 12 inches in diameter.

"I'd estimate we've increased productivity by 50 percent over many of those acres," Petty emphasized.

Their timber/shear clean-up efforts are but one of many pasture management operations employed by the two cattlemen, each of whom have had cost sharing Environmental Quality Incentive Program (EQIP) contracts for fiscal year 1998 approved through the Natural Resources Conservation Service. A third contract was approved for Dan Cook of New Providence.

"Whereas before we looked at specific practices, such as waterways and terraces, in EQIP we talk about whole farm plans and multiple resources - cropland, pastureland, hayland, wildlife resources (natural areas), water resources, wetland development, etc.," notes Gary L. Hillmer, District Conservationist with the Natural Resources Conservation Service.

"Specifically, we can offer Dave and Larry incentive dollars to build fences (for rotational grazing) to better manage their forage and maximize its efficiency. Financial help is also available for watering sources."

Another forage improvement practice being utilized by Petty

and Daniels is overseeding their pasture land through use of a Herd Broadcast Seeder mounted on the frame of a four-wheeler.

"It'll spread red clover in a 30-foot swath, so you can cover an acre in about two minutes. And, it doesn't tear up the pasture stand," Daniels noted.

With land still in CRP with a fairly tall stand of broom grass, Petty has periodically spread dry fertilizer and then seeded three to five pounds of red clover per acre.

"It's coming everywhere. I didn't believe it would make that much difference. When it came out of CRP, it had much higher forage value. It's a perfect chance to get new seeding started during a rest period, when it's not being grazed," Petty stated.

As another pasture management program, both Petty and Daniels have implemented multi-paddock intensive grazing, dividing larger pastures into smaller units through fencing. Cows are moved often from paddock to paddock, according to use and allowing for rest periods.

Through fencing, Petty has divided a 150-acre pasture south of Eldora into seven or eight paddocks. "The key here was adding additional water sources - a pond and wells. Cattle hate to graze more than 700 feet from water, so by adding additional sources, you're using a higher percentage of grass."

"Dividing the pasture into smaller grazing areas will result in a stronger root system, thicker grass and less erosion. We can move the herd from one grazing area to another to increase forage production. I'll run soil samples to determine proper treatment of the grazed areas and utilize a grass seeding program to

help control erosion," Petty continued.

Daniels has divided 84 acres, 40 of which was previously in CRP, south of Gifford into six paddocks, rotating his 40 stocker calves every couple of weeks.

"We used the tree shear to clean out thorn trees, over seeded and placed lots of fencing to form the smaller paddock areas. We've taken land that is not prime crop ground and given it a productive use," he observed.

Advantages of multi-paddock intensive grazing are: 1) Higher forage production and use per acre; 2) Seeds and brush are usually controlled naturally; 3) More even distribution of manure throughout the paddocks; 4) Usually increases stocking rates and livestock seem more content; 5) Gives more forage options.



This is a pile of scrubby timber and thorn trees removed from a pasture area on the Dave Petty farm.

Pastures can be rested and grazed more efficiently.

"We look at our pasture management programs over the long run. We consider them inexpensive if looked at over a 10 to 20 year period. Our long range goal is to maximize economic use of the land," Petty added.



This Bobcat Tree Shear is ideal for removing scrubby timber, thorn trees and shrubs from pasture areas to let more sun light in and improve forage.



Dr. Larry Daniels' 40 stocker calves are grazing on land south of Gifford where thorn trees were cleaned out, the pasture was overseeded and fencing placed to divide 84 acres into six smaller paddocks.



Dave Petty, Gary L. Hillmer, Dr. Larry Daniels and Leo Faris are pictured with the Herd Broadcast Seeder, mounted on the frame of a four-wheeler, that will spread seed in a 30-foot swath.

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