



Soil & Water

CONSERVATION DISTRICT

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50 Years of Conservation

by Adrian Fuller

The Clarke Soil and Water Conservation District was formed April 3, 1945. The purpose of the District was to assist producers maintain and improve the productivity of the land and thereby improve the basis for a high standard of living for future generations of people. Frank Gonseth, Ralph Wiant, and H.S. Klein were the first elected Commissioners and Melvin Goeldner was the first secretary for the Board. Melvin is the only surviving member of the original District Board. The newly formed district worked closely with the Iowa Agricultural Extension Service and the Soil Conservation Service. Early priorities of the District Board included excessive soil erosion on farmland and in road ditches,

improving land drainage, finding new sources of agricultural lime, and providing land stewardship information to children and producers.

Over the years the District has been active in presenting awards to local conservation farmers, providing scholarships to high school students, and sponsoring educational field days, tours and meetings. Some of the highlights that I recall are from sponsoring the Queen Contests from 1957 through 1966, holding a terrace construction demonstration on the Woodrow Roberts farm in Knox Township, Bradley Waller and Chuck Jackson winning the local, regional, and state speech contests in 1970 and 1971 respectively, and in 1965 Roland Sargent being selected as one of

the two outstanding farmer-cooperators in the state of Iowa by the Goodyear Company Conservation Awards Program.

Over the years I have seen many improvements and changes in conservation practices such as no-till farming instead of plowing, contour farming, contour stripcropping, and grassed waterways in Clarke County. However still today we have an unlimited amount of work to complete. The floods of 1993 serve as a reminder that we all need to do our part to reduce the amount of water and soil that runs off of our farms. Gully erosion not only in cropland but also in pastures and timber has been a historical problem in Clarke County as well as the whole of southern Iowa. Atrazine and other chemicals in the water supplies of southern Iowa communities is a constant reminder that we can continue to do a better job of soil and water conservation. It has been an exciting 50 years for the District and for me personally, I have enjoyed every bit of it and look forward to serving in the future.



History of the Southern Iowa Resource Conservation and Development Area

The history of the Southern Iowa RC & D (Resource Conservation and Development) Area began with a public meeting held on August 8, 1968. Over 120 representatives from Adams, Ringgold, Taylor, Union, Clarke, Adair and Decatur counties attended the meeting which was used to explain to local leaders that the purpose of the RC&D program was to accelerate the conservation, development and utilization of natural resources to improve the general level of economic activity, and enhance the environment and standard of living in the area. After the meeting each county elected a local six man steering committee. The representatives of the committee included a Soil Conservation District Commissioner, a member of the County Conservation Board, a representative from agriculture, one of business/industry, a representative from local government, and a member at large. Clarke County members were Doyce Miller, Bob Cooley, Alfred Jones, Harry Kearney, Eddy Saylor and Russell Ward. This group was assigned the responsibility to coordinate all of the local development efforts into a common goal for improving

the county. On August 30, 1968 the executive committee (one member from each county committee) met in Clearfield, Iowa and adopted a constitution and by-laws. The formal application for formation of the Southern Iowa RC & D was completed in November of 1968. It was the first RC & D considered in the state of Iowa. The application was approved by the State Soil Conservation Committee and the Governor in 1969 and by the USDA Secretary of Agriculture in 1970.

Since 1970 the Southern Iowa RC&D has assisted with many local projects including the construction of East Lake, the development of the Outdoor Classroom area at the Clarke Community High School in Osceola, development of land treatment plans and soil loss invento-

ries for West Lake (1977), completion of the West Lake water volume survey (1977), Murray recreational courts (1986), and the Conservation Awareness Project (1986). Current projects include feasibility studies for a campground, nature center, and wildlife rehabilitation center. Current members on the local committee are Adrian Fuller, Clayton Scott, John O'Neill, Mary Klein and Terry Robins.



Two projects of the Southern Iowa RC & D has been East Lake (top photo) and the development of the Outdoor Classroom area (above) at the Clarke of Osceola High School. Paul Chesnut and students take water samples at the Outdoor Classroom.

Items of Interest

- Fall of 1972 - Clarke County Conservation Youth Board was organized.
- District sponsors teachers to southern education workshops for teachers.
- District name changed from Clarke County Soil Conservation District to Clarke County Soil and Water Conservation District - December 1962.
- February 1980 - District assisted with sponsoring Conservation Tillage Day held at Sun Valley Country Club.
- Spring 1980 - District had available through arrangements with Ortho-Chemtron Company for use of a four row 38 inch Model 600 Allis-Chalmers no-till planter. The charge was \$3.00/acre. District purchased the no-till planter in 1984.
- April 14, 1981 - District sponsored no-till informational meeting.
- March 1982 - The Clarke County Conservation Board, Clarke SWCD and Clarke County Extension Office made available to county farmers a haybuster Micro Seeder. The seeder was owned by the Conservation Board and scheduled through the Clarke SWCD office. The district received \$1.00/acre for scheduling.
- Clarke SWCD and Osceola Lions Club sponsored family canoeing outings in 1986.
- District assisted with the Southern Iowa No-Till Show held in Creston for a few years.
- District distributes Soil Stewardship materials to churches and schools each year.
- District assisted with the Outdoor Classroom, Clarke Community Schools.
- District commissioners participate in IASWDC regional meetings, annual conference, short course, etc.
- Clarke SWCD and Clarke County Conservation Board sponsor the Conservation Awareness Program. Beth Brown, Naturalist, conducts educational conservation programs at the schools, conducts conservation field trips, etc.

Clarke County Soil & Water Conservation District Commissioners

Charter Members & Secretary - 1945 Frank Gonseth • Melvin Goeldner (First Secretary) • Ralph H. Wiant • H. S. Klein		
Commissioners		
Frank Gonseth	1945 - 1951	
Ralph H. Wiant	1945 - 1949	
H. S. Klein	1945 - 1947	
Howard Mark	1947 - 1950	
Verne Aiky	1949 - 1955	
Carl Handrock	1951 - 1959	
Wayne O'Neill	1951 - 1957	
Adrian T. Fuller	1955 - 1969	
	1972 - 1989	
(Assistant Commissioner 1990 - 1994)		
Doyce Miller	1957 - 1975	
(Assistant Commissioner 1976 - 1984)		
Harold Brim	1959 - 1963	
Harold Allen	1963 - 1965	
Jack Ames	1965 - 1973	
Orvie Hartman	1965 - 1967	
Richard Gonseth	1969 - 1980	
Jerry Kelly	1971 - 1972	
Merrill McCarty	1971 - 1975	
Merrill Thornton	1973 - 1979	
Phillip Henrichs	1975 - 1982	
Glen Kimes	1975 - 1980	
Fred Redman	1980 - 1982	
Thomas E. Whitehill	1980 - 1981	
Kelly Simmerman	1981 - 1981	
Richard Carson	1981 - 1992	
E. Lloyd Morgan	1981 - 1982	
Eldon Barnard	1982 - 1982	
Edwin G. Ratashak, Jr.	1983 - 1989	
E. John Camp	1982 - 1987	
John Klein	1982 - 1985	
Terry L. Boles	1985 - 1999	
JoAnn Sickels	1987 - 1995	
Luella Pontier	1989 - 1994	
Rick Oshel	1989 - 1999	
Donald Bennick	1991 - 1994	
Dale L. Childester	1993 - 1999	
Adrian T. Fuller	1995 - 1999	
Rick Oshel	1995 - 1999	
Dan Johnson	1995 - 1999	



Goeldner reminisces on 50 years of change

The Clarke County Soil and Water Conservation District has seen many changes and innovations during the past 50 years and one man has been there to witness them all.

Melvin Goeldner was the Clarke County agent for the Iowa Soil Conservation Service from 1938 until 1945. He was also a vocational agriculture teacher and school administrator.

For more than 13 years, he was the Assistant Supervisor of Agriculture in Des Moines.

"I think the thing I appreciated most in the past was working with 4-H groups," said Goeldner. "I especially enjoyed helping them and their leaders develop a year's program."

"One of the major mistakes the district made was multiflora rose fences. "Actually, it wasn't the dis-

trict's fault, it was mine and mine alone," said Goeldner.

The district has done many good things and many of the farmers in the area have done outstanding work in the area of soil conservation, said Goeldner.

Some of these practices include contour farming and crop rotation, Goeldner said.

"The prevention of gully erosion is very important to me," said Goeldner.

One of the down falls Goeldner has witnessed is the formation of large corporate farm operations.

"Bigness has gotten into the way of goodness," said Goeldner.

The people who benefit from such farming practices are the chemical companies, such as pesticide, herbicide and fertilizer companies, implement dealers and manufacturers and the seed companies.

"The small farmer is beginning not to stand a chance against some of these operations," he said.

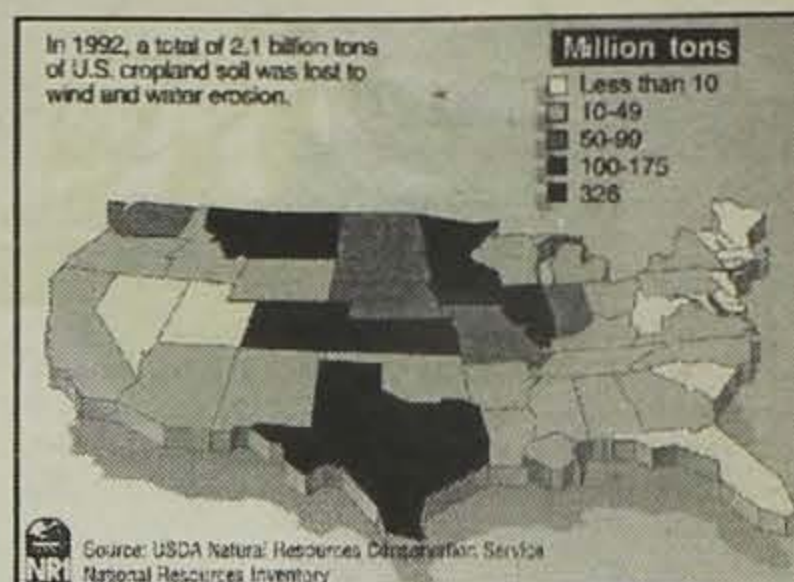
Goeldner does not believe the wetlands issue, a much talked about subject in the farming community, is that much of a problem in Clarke County.

"Clarke County is up on a ridge so we don't particularly have a wetland problem, in my opinion," he stated.

Contour farming is one of the practices Goeldner believes is very instrumental in a successful farming operation.

"One farmer said he had a five-year rotation plan. When asked what it was he said, 'Corn, corn, corn, corn and sweet corn,'" Goeldner said.

"This isn't exactly what we had in mind when we talk about crop rotation," he said.



Soil loss: more work needed

- Forty percent of all cropland erosion nationwide occurred in just five states:

State	Total cropland erosion (sheet and rill plus wind) (million tons/acre/year)
Texas	326
Minnesota	168
Iowa	167
Montana	114
Kansas	114

- The average annual water erosion rate on cropland declined from 4.1 tons per acre in 1982 to 3.1 tons per acre in 1992. The average annual rate of wind erosion on cropland declined from 3.3 tons per acre to 2.5 tons per acre over the same period.
- Total wind and water erosion on the nation's cropland declined by 980 million tons annually from 1982 to 1992—from about 3.1 billion tons in 1982 to about 2.1 billion tons in 1992.

Meet your Clarke County Soil & Water Conservation District Commissioners



Adrian Fuller, Vice Chairman

Adrian and wife, Irene, lived on the farm near Lacelle in Knox Township, southwest of Osceola. They raised four children there. They began farming in 1946, and over the years they acquired 684 acres. Their operation consisted of general farming and gradually built a herd of 125 registered Black Angus cows. Most of the time the farm consisted of pasture and hay and just enough grain to maintain the operation. Adrian was among the first to do no-till farming. The Fullers moved to Osceola in 1979. 234 acres have been put into CRP, and the remainder of the farm is rented by Adrian's nephew, Harold Fuller, who continues to follow the conservation plan for the farm.

Adrian was elected Soil and Water Conservation District Commissioner in 1955, and has been very active in conservation work since then. He also takes an active part in the seven-county Area Southern Iowa RC&D at Creston, has been a member of Three Rivers Watershed Council at Winterset. He was also instrumental in helping start the four-county Farm Service Company at Humeston, and has been involved in many other activities.

years. Conservation has always been an important part of their farm operation.



Dan Johnson

Dan and Donna, with their son Cale, operate Hartman Farms, Inc. north-east of Murray. Crop acres are no-till, or conservation tillage is used with the balance in hay and pasture for the cow-calf herd. Soil conservation is a tradition with the Hartman Farms as it has had many practices installed in the almost 90 years of operation by the Hartman family.

Rick Oshel, Commissioner

Rick and Beth own and operate approximately 400 acres south of Osceola. They have three children: Erin - 15, Alyx - 13, and Anne - 8. The crop acres are no-till and this past year the pasture was split into six paddocks to facilitate rotating the cow herd each week. They have built three water and sediment control structures over the past six years to supply water to the pastures. Rick was a commissioner from 1989 to 1990 and served as assistant commissioner from 1991 to 1994, and now has gone back on as commissioner. Rick has served as Senior Vice President at American State Bank for eight years.



Hayes Dye of the Natural Resources Conservation Service presents the Clarke County Soil and Water Conservation District with a commemorative plaque recognizing the District's 50 years of soil and water conservation progress.

Pictured are (left to right) Adrian Fuller, Hayes Dye, NRCS Area Conservationist, Dale Chidester, Terry Boles and Dan Johnson.

Dale Chidester

In 1947 Dale and Beverly started farming the 160 acres in section 21 of Franklin Township. They milked cows, raised chickens, and had a small hog operation. Over the years they switched to a cow-calf operation selling feeders in the fall.

In the 1950's they became cooperators with the Clarke Soil Conservation District and developed a farm plan that included crop rotations with meadow, contouring, improved pastures, grassed waterways, terraces, ponds and sediment basins. In 1963 they won the District's landlord/tenant award for conservation and in 1979 the windbreak award. In 1987 and 1991 the farm was entered into the CRP program and is now established to switchgrass.

In the 1960's Dale began working for the State of Iowa as a soil conservation technician for Clarke and Decatur Counties, later he switched over and began working for SCS in Wayne and then Clarke County until retiring in 1992. In 1993 Dale was elected as a SWCD Commissioner.

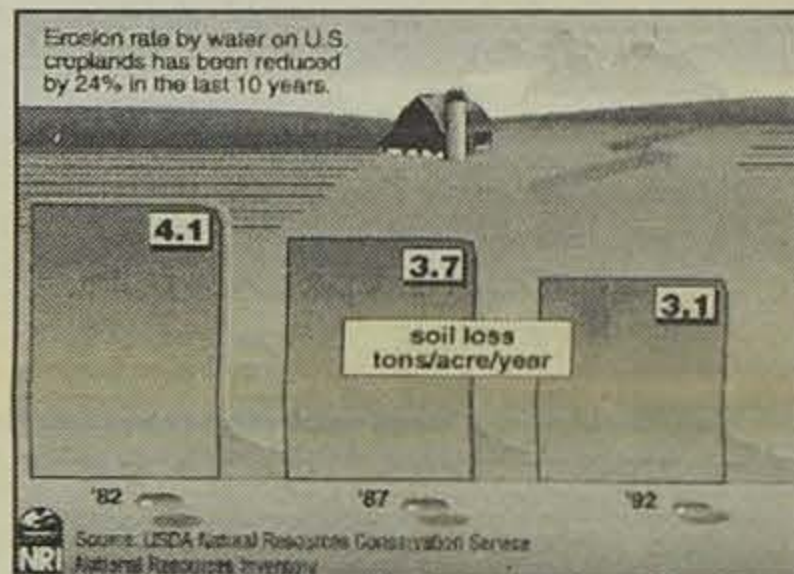


Terry Boles, Chairman

Terry and LeAnn, along with his parents, own and operate County Line Farms, Inc. Terry returned to the family farm after he received his Bachelor of Science Degree at Iowa State University in Farm Operations. Half the farm is pasture and hay ground while they crop farm the river bottom land. They also have a cow-calf herd, selling the calves in the spring. Terry has been with the SWCD for ten

Total State Cost Share Dollars Received by Clarke SWCD (Includes REAP Funds)

Fiscal Year	Amount	Fiscal Year	Amount
73-74	\$12,171.11	84-85	66,828.03
74-75	13,684.10	85-86	119,328.16
75-76	17,831.00	86-87	29,625.48
76-77	31,432.87	87-88	63,743.23
77-78	50,000.00	88-89	77,407.35
78-79	31,000.00	89-90	64,330.98
79-80	42,168.98	90-91	72,130.37
80-81	48,615.28	91-92	41,156.91
81-82	79,983.12	92-93	23,113.39
82-83	54,499.65	93-94	69,689.78
83-84	96,063.08	94-95	45,690.60



Water erosion on the slide

- The average annual sheet and rill erosion rate on cropland declined from 4.1 tons per acre on 421 million acres in 1982 to 3.1 tons per acre on 382 million acres in 1992.
- Total sheet and rill erosion on cropland declined from about 1.7 billion tons per year in 1982 to 1.2 billion tons per year in 1992.
- Overall, 67% of the soil savings on cropland over the 10-year period came from reductions in erosion on highly erodible.
- Controlling erosion not only sustains the long-term productivity of the land, but also affects the amount of soil, pesticides, fertilizer, and other substances that move into the Nation's waters.



Soil savings pile up

- Soil loss from wind erosion and sheet and rill erosion on cropland dropped from a total of 3.1 billion tons on 421 million acres in 1982 to 2.1 billion tons on 382 million acres in 1992.
- Annual sheet and rill erosion on cropland declined from 1.7 billion tons to 1.2 billion tons on 382 million acres in 1992.
- Annual wind erosion on cropland dropped from 1.4 billion tons in 1982 to 0.9 billion tons in 1992.
- For cropland, the rate of sheet and rill erosion fell from 4.1 tons per acre per year in 1982 to 3.1 tons per acre per year in 1992. In the same 10 year period, the rate of wind erosion on cropland fell from 3.3 tons per acre per year to 2.5 tons per acre per year.
- Controlling erosion not only sustains long-term productivity of the land, it also reduces the amount of soil, pesticides, fertilizers, and other substitutes that move into the Nation's waters.



Letters of Acknowledgement:

Celebrating the Past, Preparing the Future

by Jim Gulliford, Director
Division of Soil Conservation
Iowa Department of Agriculture and Land Stewardship

A hearty congratulations to the people of Clarke County on the 50th anniversary of the Clarke Soil and Water Conservation District.

As you look back over the last 50 years, you have much to be proud of. Your district has diligently addressed the soil conservation needs of your farmers and made many contributions to community needs, as well.

The agricultural landscape of Clarke County provides vivid evidence of the conservation accomplishments of the district. Mile after mile of terrace systems, crop rows following the contour of the land, and hundreds of thousands of acres planted with crop residue on the surface protect the soil from erosion and assure its long term productivity. These conservation practices are both beautiful to behold and effective erosion barriers.

Another important district contribution has been the conservation education provided for your children. Taking time to talk with children about conservation, plants important seeds that will be harvested in the future.

In the final analysis, the real value of past conservation efforts will be realized in the future. The farmers of Iowa stand poised to enter a new generation of agriculture. We will be called on to feed more and more of the world's people from fewer and fewer acres of farmland. We will face new challenges of farming compatibility with the environment. And, we will need to continue to sharpen our management skills to remain profitable and successful business people.

However, when you look across the landscape of Clarke County and see the success that has been achieved by your farmers and your district, it is easy to face the future confidently. The efforts of the past have laid a solid foundation for the future, both on the land and in your children. That, more than anything else, is reason to celebrate the first fifty years of soil and water conservation in Clarke County.

Current Clarke SWCD Activities

- **Supports the Conservation Awareness Program** by providing up to \$1,000.00 annually for the County Conservation Board Naturalist to provide Environmental Education Activities for Clarke County K-12 students.
- **Donated \$720.00 to the Beth Brown Raptor Rehabilitation Project.** This is a private project with the goal of returning injured raptors to the wild. This project is supported solely by private funding.
- **Sponsors the West Lake Water Quality Project.** The project's goals are to provide accelerated planning and technical assistance to farmers in the West Lake Watershed resulting in improved drinking water quality for all of Clarke County.
- **Sponsors the Southern Iowa Grazing/Water Quality Project.** The project goals are to demonstrate intensive grazing management systems and their impact on water quality.
- **Sponsors a Farmer Appreciation Day** which recognized over 250 farmers in Clarke County for their conservation efforts.
- **Administers more than \$70,000.00 in cost-share funds** for farmers and others installing conservation practices in Clarke County.
- **Applied for a PL-566 Project for Whitebreast Creek.** This project if approved would provide 100% funding for water control structures to reduce flooding of farmland and reduce sedimentation in Lake Red Rock.
- **Provides Soil Stewardship material** for local churches to use during Soil Stewardship Week.
- **Provides one \$200.00 Scholarship** to both the Clarke Community and Murray School Districts.
- **Supports efforts of the County Sanitarian** to provide a toxic clean up day for Clarke County.
- **Distributes a bi-annual newsletter** to more than 1,100 farmers, businesses and community leaders.
- **Sponsors the Soil and Water Conservation Poster Contest** for K-12 students in both the Clarke Community and Murray School Districts. Awards are \$20.00 for first place, \$15.00 for second place and \$10.00 for third place.
- **Represents Soil and Water Conservation interests** on local RC&D and SICOG boards.
- **Sponsors the annual Conservation Contractor Meeting.**

Clarke County Farm Service Agency

On behalf of the Clarke County Farm Service Agency, formerly ASCS; "Congratulations" for 50 years of soil management and stewardship. As an elected board the Clarke Soil and Conservation District has stayed the course, at the farm level, encouraging best management practices to deal with air, soil, and water pollution on farms. Encouraging voluntary conservation application, Clarke SWCD has aided farmers in identifying and providing solutions to the most critical agricultural soil, water, woodland and other environmental problems. We at FSA salute you in the emphasis to encourage long lasting management practices rather than production oriented practices. We consider it an honor to have served with you achieving local, state, and national priorities. As a technical authority, you have aided FSA in carrying out our mission. We share with you in the success of benchmark programs such as the Conservation Reserve Program. Again congratulations and keep moving forward in your new roles as well. —D. Bart Griffith, CED, FSA

Iowa State University Extension

Iowa State University Extension, Clarke County Office is pleased to be a cooperative partner with the Clarke County Soil & Water Conservation District. For over fifty years, these agencies have worked together.

Soil and water conservation continues to be a concern in Clarke County. ISU Extension is happy to help compliment NRCS programs with research-based education and information.

Over the years these agencies have teamed together for tours, demonstrations, and outdoor classrooms. They have worked cooperatively on short term projects like West Lake. As needs arise in our county and district, our agencies are good at pulling their resources together. We were the educational link, as no till practices became more popular, and as we look at CRP, we will jointly assist farmers in their decision making.

Happy 50th Anniversary. We look forward to another 50 years of working together to conserve our resources.

—Michele Maguire Beck,
Clarke County Extension Education Director

USDA National Resources Conservation Service

Congratulations to the Clarke County Soil and Water Conservation District on your 50th anniversary celebration.

Over the last 50 years the District has worked with the people of Clarke county, government resource agencies, local government offices and elected boards, schools, churches, businesses and anyone else with an interest in soil and water conservation to improve the natural resource base in Clarke County.

Your partnership with the Natural Resources Conservation Service has been especially close. Together we have shared office space and employees, sponsored conservation demonstrations and tours, provided cost-share incentives to farmers for conservation practices, provided conservation education opportunities to students, teachers and churches, presented conservation awards and scholarships to outstanding teachers, students and farmers, and spearheaded efforts to develop water quality projects to protect our drinking water.

Look around Clarke County and the efforts of the District are very evident. No-till farming, terraces, ponds and meadow rotations are conservation practices widely utilized by today's farmers in part due to the District's efforts in years past. The District's support of the Conservation Awareness Project, The Beth Brown Raptor Rehabilitation Project, The West Lake Water Quality Project, and the County Clean Up Day is evidence of your commitment to protect our soil and water resources today and in the future.

Again congratulations and we look forward to serving as your conservation partner in future years and endeavors.

—Curtis D. Donohue, District Conservationist

District Fish Distribution

District cooperated with the U.S. Fish and Wildlife Service in distributing fish to landowners.

July 1958 — 3,000 bass to 54 farmers
September 1959 — 13,640 small fish in addition to 6,200 catfish and 7,440 bluegills to 64 farmers

October 1961 — 2,070 bass, 3,090 bluegills to 17 farmers

November 1962 — 6,400 catfish along with bass and bluegills to 57 farmers

June 1963 — 4,600 bass and bluegills to 14 farmers

September 1963 — 6,000 catfish, 1,200 bass and 1,800 bluegills to 30 farmers

June 1964 — ?? bass and bluegills to 9 farmers

June 1968 — ?? bass to 17 farmers

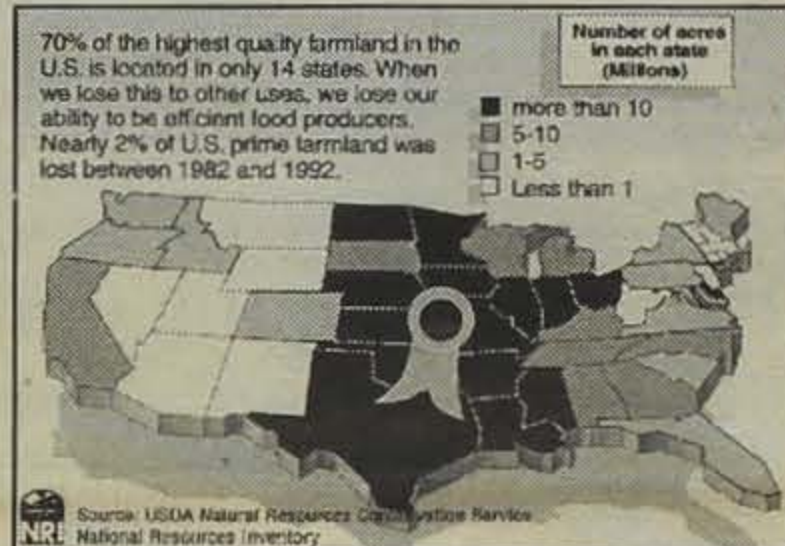
August 1968 — 6,305 catfish to 45 farmers

June 1970 — 2,500 bass to 20 farmers

August 1971 — 2,000 fish

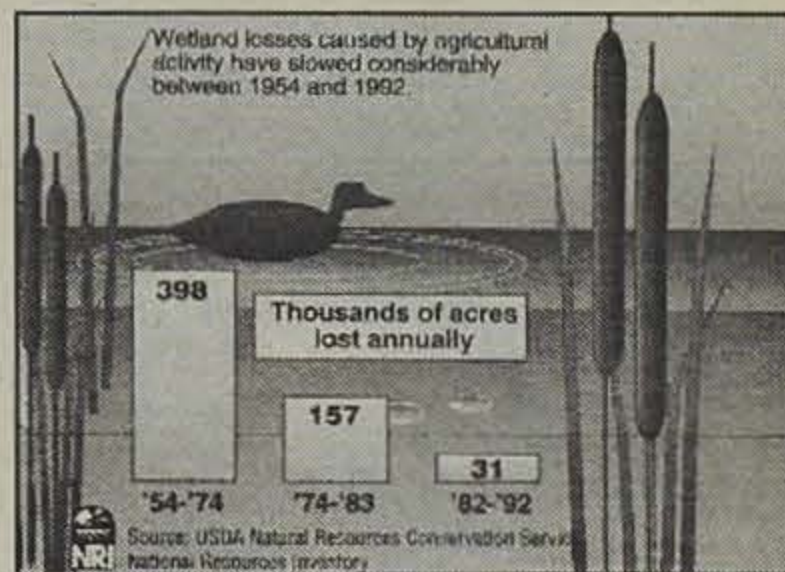


Fishing in Clarke County (photo taken in 1972)



Where is the prime farmland?

- Prime farmland is rural land with the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.
- Our prime farmland is 65% cropland, 14% forest land, 11% pastureland, and 6% rangeland. The rest is other undeveloped rural land.
- The belt of four states extending from Ohio through Indiana and Illinois to Iowa are the only four states in the Nation in which more than half the nonfederal rural land is prime farmland.
- The 334 million acres of prime farmland in 1992 was down some 6 million acres from the 1982 total—including some 4 million prime farmland acres converted to rural and urban development.
- With 36.8 million acres of prime farmland, Texas has more than any other state.



Agricultural wetlands loss down

- Wetland losses due to agriculture continued during the 1980s, but at a much slower rate than in previous years.
- Wetland losses due to agriculture during the 1982-92 period were about 31,000 acres a year—about one-fifth the annual wetland losses estimated by the Department of the Interior's Fish & Wildlife Service for the period 1974-83 and less than 10% of the annual losses estimated for 1954-74.
- With 14.1 million acres of wetlands and deepwater habitats on its nonfederal land, Minnesota has more wetlands than any other state and about 9% of the national total.
- In the period 1982-92, wetland losses due to nonagricultural activities outpaced those due to agriculture.



West Lake Water Quality Protection Project

West Lake Reservoir, owned and operated by the City of Osceola, has a surface area of 306 acres and water storage capacity of 3,820 acre feet. It provides the municipal water supply for the cities of Osceola, Woodburn and rural users.

West Lake was completed in 1933-34 at a cost of about \$67,000. The dam washed out in 1937, was rebuilt and raised to a surface area of 70 acres. Twenty years later dry weather from 1954-1957 and sedimentation caused the dam to be raised 10 feet to 160 surface acres, at a cost of about \$75,000. Rapidly increasing water usage resulted in a new pumping and filtering plant in 1969 costing \$425,000. Drought in 1977, 1978 and 1983 ran Osceola short of water. With plans for new and expanding industries the dam was raised 12 more feet in 1983, almost doubling its capacity, to its current level at a construction cost of \$1,125,000. This is the final elevation that the dam can be raised. In 1993 a holding tank was built along with installing a charcoal activated filtering system at well over \$1,000,000.

Cost-share money was available through RC & D funds in the early 1980s to install soil conservation practices on part of the lake's 6,300 acre watershed. This was to try to reduce the siltation that had dramatically reduced the lake's capacity for water. Through the foresight of Clarke County's District Conservationist, Keith Edwards, an application was submitted for West Lake to be one of the first Water Quality projects in Iowa. The application was approved by the Department of Natural Resources, Division of Soil Conservation, and the Environmental Protection Agency, to begin a 5-year demonstration project to implement soil erosion control, reduce siltation, and to introduce integrated crop management practices. In 1991, at the on-set of the project, high levels of atrazine and cyanazine were detected in the water causing another area of concern regarding West Lake.

During the past 5 years there has been an increased awareness of water quality in the watershed. The original focus was to

reduce siltation but high levels of chemicals in the water caused great concern regarding safe water for the residents to use. There has been a dramatic increase of no-till during this time. The projects that have been cost-shared on include: 14,737 feet of terraces constructed, 590 acres enrolled in a no-till/cross-slope farming system, 352 acres protected by contour bufferstrips, and one grade stabilization structure. Projects completed this fall include 1 terrace project, 1 waterway, 70 acres no-till/cross-slope farming, and 100 acres in the new 5-year seeding program.

Several farmers voluntarily have switched to no-till/cross-slope farming without funding. The soil loss in the watershed has declined from an estimated 13 ton/acre/year to an estimated 7 ton/acre/year. The chemical levels in the raw water has also been reduced on the average. The Water Quality program was completed in October of 1995 but hopefully the changes and benefits will continue long after the project ends.



SOIL SURVEY

The first soil survey of Clarke County was completed in 1928. In 1976 the efforts of the Clarke Soil and Water Conservation District, USDA-Soil Conservation Service, ISU-Extension Service, and the County Board of Supervisors, to update the soil survey were fulfilled, when permission was granted to update the old soil survey for Clarke County. In September of 1982, Asghar Chowdhery, Soil Survey Party Leader for the USDA-Soil Conservation Service arrived to begin survey work on the updated Clarke County Soil Survey. He was later joined by Steve Ernst. On October 6, 1982 the First Acre Ceremony was held. The Last Acre Ceremony was held on November 4, 1986 at East Lake Park. The soil survey book was published and made available to the public by the District in March of 1990. Soil Survey distribution meetings were held in Osceola, Murray and Woodburn. The current soil survey contains a wealth of information that can be used by farmers, foresters and agronomists to evaluate soils and the management needed for maximum food and fibre production. Planners, engineers, builders and home buyers can use the survey to plan land use, select construction sites, and identify management practices needed to ensure proper performance. Conservationists, teachers, students and the general public can use the survey to help them understand, protect and enhance recreational opportunities, wildlife management, waste disposal and pollution control to protect the environment. Soil Survey books are currently available free of charge from the Clarke Soil and Water Conservation District.

Above photo: Steve Ernst of USDA-SCS completes Soil Survey work on the Gerald Pedersen farm, Osceola Township, Sec. 14.

Intensive grazing opens new doors for Parmer

An innovative way of grazing cattle is being demonstrated to Clarke County farmers. Don and Joyce Parmer farm south-east of Osceola. The Parmers are participating in the Southern Iowa Grazing/Water Quality Demonstration Project sponsored by the Clarke Soil & Water Conservation District.

Currently Parmer is in the process of constructing 30 paddocks. With this rotational system, Parmer expects to graze one cow/calf unit per 1.5 acres.

"The program will save tremendous amounts of soil and stop erosion," Parmer said. "It will more than double the production of grass."

Intensive grazing involves a number of "cells" of paddocks constructed to rotate cattle through the system. This system differs from continuous grazing in that it involves utilizing 4-20 cells, depending on the intensity of the system. The cattle will be grazed for 2-3 days in each paddock, depending on the vegetative growth in the cell.

The Southern Iowa Grazing/Water Quality Demonstration Project provides cost-share funds to assist in the 17 cell planned grazing system. The 1,500 - 2,000 feet of stream corridor will be fenced to limit access to the stream corridor. The stream, which runs through the Parmer pasture, empties into White Breast. Fencing off the corridor is expected to decrease the erosion into the stream.

A newly constructed pond will provide water to the 17 cell system. Because there is no electricity available, gravity flow will be utilized to distribute water to each cell.

"An inch and a quarter pipe will be put below freezing level

and gravity will be the force behind the water supply into the tanks," Parmer said.

Parmer believes intensive grazing is a good program.

"I think it's a heck of a deal," Parmer said. "It won't fit everyone's program, but we're not going to get anymore for our product and we've just got to learn to do it cheaper. This way I can pay tax and interest on fewer acres and still raise the same number of cows."

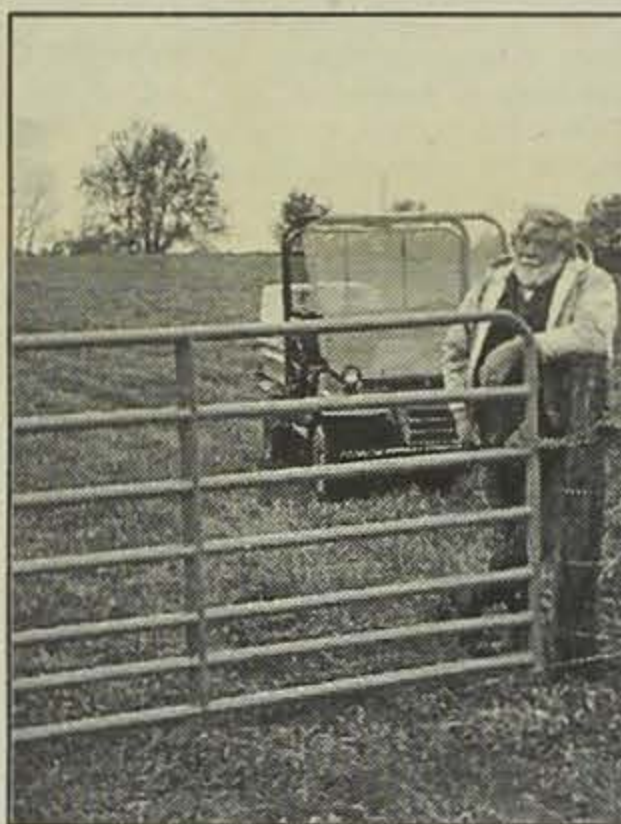
"Once I get it set up and going, the cows will learn quickly and know today's the day for new pasture and they will be standing and waiting," Parmer said.

Because conservation is important to Parmer, ditches and gullies caused by severe erosion drive him crazy. He said the land he owns is best utilized as pasture.

"Give old ground a chance and it'll provide hay. Let it grow and give it a chance to regrow," Parmer said.

Cattle should be allowed to eat 1/2 of the plant height, that provides good forage for the cattle and allows the plant to regrow in time for the next rotation.

"It's unbelievable," Parmer said of the intensive grazing program. "If you think about it, it all makes sense. Grazing a plant too short will limit the rate of regrowth because of limited leaf area. From the animals perspective, grazing the forage too short decreases intake because the animal cannot get a "mouthful" of forage with each bite. If



forage is 6-10" tall, the animal has high intake. When the forage height is less than 3-4 inches, then intake decreases by half.

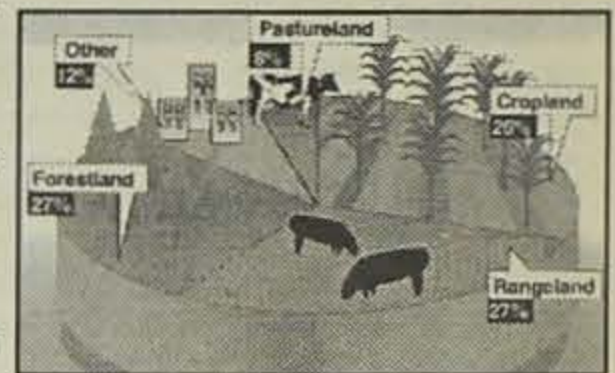
The results of intensive grazing are not shown overnight.

"Recouping the money will take several years," Parmer said.

Parmer is one farmer in Clarke County who is involved in Management Intensive Grazing. For him, he believes the program will be a success in an effort to stop the erosion of soil and keep wastes and silt out of the water supply.

What's growing on the land?

- Nonfederal land is about equally divided among range, forest, and crop land, with lesser amounts in pastureland and other land uses.
- The category "other" land includes some 92 million acres of developed land and 88 million acres of other rural land, including marshlands, farmsteads, barren land such as salt flats, and land enrolled in the Conservation Reserve Program (CRP).
- Land use is dynamic. The net loss of 38.6 million acres of crop land, for example, tells only part of the story. Nearly 60 million acres—one-seventh of the land that was classified as cropland in 1982—was in other uses in 1992. And more than 21 million acres that were in other uses in 1982 were classified as cropland in 1992.



Land use	Converted from cropland 1982-1992	Converted to cropland 1982-1992
Pastureland	14.8	11.8
Developed land	4.2	0.3
Forest land	3.1	1.5
Rangeland	2.1	5.7
Water, Federal land	1.4	0.7
Other rural land	34.1	0.3

- Most of the 34.1 million acres of cropland converted to other rural land is accounted for by CRP enrollments.

Clarke County Soil & Water Conservation Assistant Commissioners

1958 - Russell Brierly, Jesse Burgus	1980 - Doyce Miller, Betty Webb
1960 - Russell Brierly, Jesse Burgus	1981 - Doyce Miller, Betty Webb
1962 - Russell Brierly, Jesse Burgus, Jack Ames	1982 - Gary Dugger, Doyce Miller, Betty Webb
1964 - Addison Bowlsby, Jerry Kelly, Allen Sullivan	1983 - Doyce Miller, John Nervig, Betty Webb
1965 - Lowell Moran, Orvie Hartman, William Beatty	1984 - Randy Dunfee, Doyce Miller, John Nervig, Betty Webb
1966 - Orvie Hartman, Jerry Kelly, Lowell Moran	1985 - Randy Dunfee, Frank Jones, John Klein
1968 - Richard Gonseth, Jerry Kelly, Lowell Moran, Fred Wood	1986 - John Klein
1969 - Richard Gonseth, Jerry Kelly, Lowell Moran, Fred Wood	1987 - John Klein, Mary Klein, Luella Pontier
1970 - Adrian Fuller, Jerry Kelly, Lowell Moran, Milan Welker, Fred Wood	1988 - John Klein, Mary Klein, Luella Pontier
1971 - Adrian Fuller, Lowell Moran, Milan Welker, Fred Wood	1989 - Adrian Fuller, John Klein, Mary Klein
1972 - Norma Anderson, Maxine Kimball, Lowell Moran, Milan Welker, Fred Wood	1990 - Adrian Fuller, John Klein, Mary Klein
1973 - Mrs. Norman Anderson, Everett Fenn, Ronald Henry, Maxine Kimball, Fred Wood	1991 - Dale Escher, Adrian Fuller, John Klein, Mary Klein, Rick Oshel
1974 - Maxine Kimball, Doyce Miller, Fred Wood	1992 - Dale Escher, Anita Foland, Adrian Fuller, Mary Klein, Rick Oshel, John Webb
1976 - Doyce Miller, Betty Webb, Fred Wood	1993 - Dale Escher, Adrian Fuller, Anita Foland, Mary Klein, Rick Oshel, John Webb
1977 - Doyce Miller, Betty Webb, Fred Wood	1994 - Beth Brown, Dale Escher, Anita Foland, Adrian Fuller, Mary Klein, Rick Oshel, John Webb
1978 - Doyce Miller, Fred Redman, Betty Webb	1995 - Beth Brown, Dale Escher, Anita Foland, Mary Klein, John Webb
1979 - Adrian Fuller, Doyce Miller, Betty Webb	



Events Sponsored by SWCD in the past

Queen Contest

- 1957 - Patricia Hendrickson
Sue Powell
1958 - Judy Blakely
(Won regional contest)
Janice Boor
1959 - Alice Adams
Peggy Fenn
(Won regional contest)
1960 - Patty Gray
(Won regional contest)
Linda Gonseth
1961 - Barbara Blanchard
Rosalee Sklenar
1962 - Mary Louise Jones
Karen Paul

1963 - Barbara Snider

Sue Querrey

1964 - Eileen Snider

Cheryl Davis

1965 - Cynthia Jones

Bonnie Goodman

1966 - Joyce Marts

Janice Stearns

1975 - Chris Baker - 1st

Runner-ups - Tim

Bonnert, Larry

Landphair, Jeff Bonnett

1976 - Kirk Ticknor

1985 - Terry Edgington - 1st

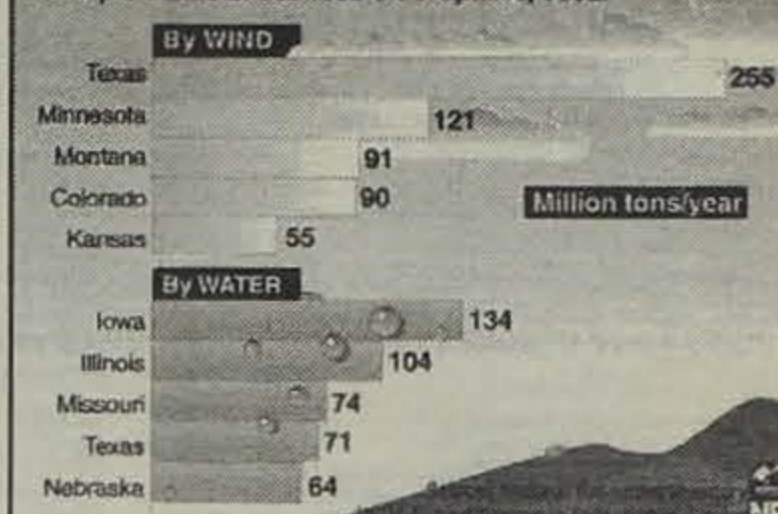
in Senior Division
Ramona Houck - 1st
in Junior Division

Workbook Awards

- 1950 - Ernest McGee - 1st
Sonnie Lutz - 2nd
Thomas Hendrickson - 3rd
1958 - 105 students (7th grade)
(Received ratings - I, II, etc.)
1959 - 115 students (7th grade)
(Received ratings - I, II, etc.)
1957 - Connie Redman - 1st
Dennis Chaney - 2nd
Mary Pfander - 3rd

Essay Contest

The top 5 states in soil loss on cropland, 1992:

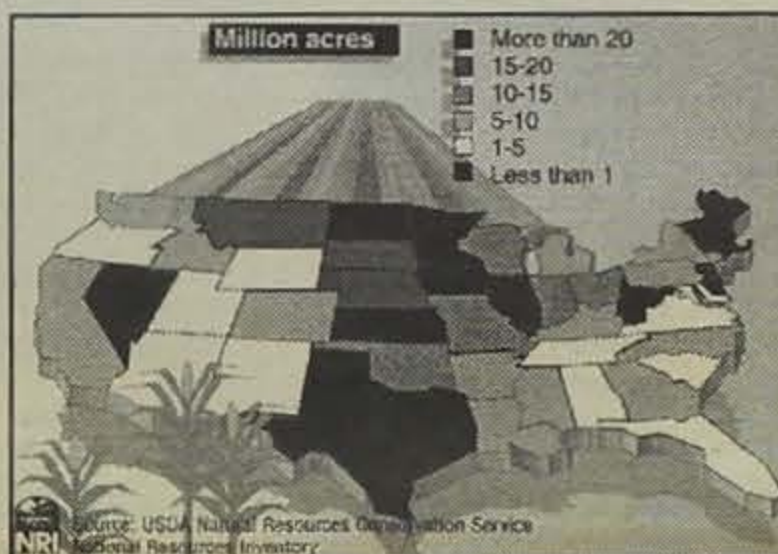


Losing soil

- The top five states in total wind and water erosion on cropland in 1992 accounted for more than 40% of all cropland erosion nationwide:

State	Total cropland erosion (sheet and rill plus wind) (million tons/acre/year)
Texas	326
Minnesota	168
Iowa	167
Montana	114
Kansas	114

- If you could collect all the Nation's eroded cropland soil and put it on a football field, you would bury that field under a pile of soil about 200 miles deep every year.
- Total wind and water erosion on U.S. cropland in 1992 was 2.1 billion tons, compared to 3.1 billion tons in 1982.



Where crops are grown in the U.S.

- Texas has more than any other state—28 million acres.
- A greater proportion of Iowa is in crops—71% of the state's nonfederal land—than any other state. Iowa is one of just five states, all in the upper midwest, in which more than half the nonfederal land in the state is cropland.

State	Percentage of state's total area that is cropland	Cropland (million acres)
Iowa	71	25
Illinois	69	24
Indiana	61	14
North Dakota	59	25
Kansas	52	27

- Land use is dynamic. The net loss of 38.6 million acres of cropland, for example, tells only part of the story. Nearly 60 million acres—one-seventh of the land that was classified as cropland in 1982—was in other uses in 1992. And more than 21 million acres that were in other uses in 1982 were classified as cropland in 1992.

ELECT

to become a soil and water conservation district commissioner

Become a Commissioner. Here's How!

If you're qualified to vote in a general election, you're eligible to be a candidate for election to the board of the county soil and water conservation districts.

Each district is governed by five commissioners who are elected at general elections on a nonpartisan basis for staggered six-year terms. Only one commissioner may reside in any single township.

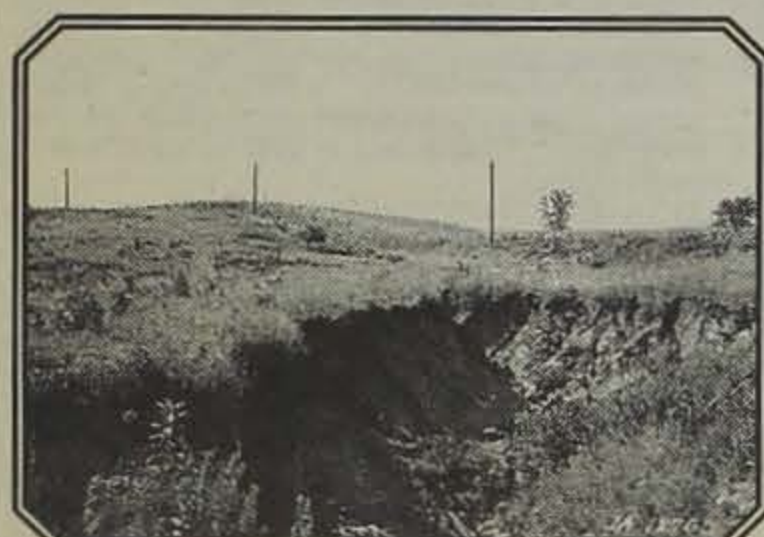
You'll need a nominating petition from the County Auditor, to be signed by at

least 25 eligible voters, and then filed with the Auditor no later than the 69th day before the general election. You'll also file an affidavit stating your name, residence and an assurance that you are an eligible candidate. No political party is designated.

If elected, you will take an oath of office the first business day in January following the election, and begin your six-year term.

Call or visit your local district office for more information about becoming a commissioner.

SWCD Photo Gallery

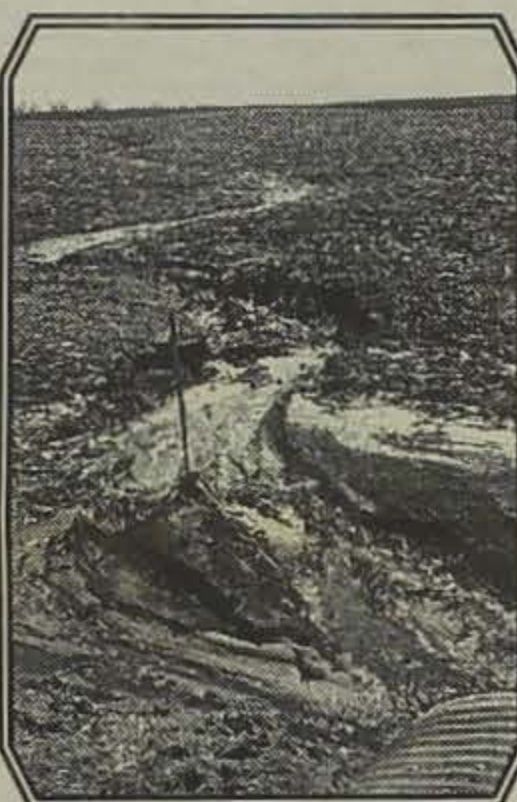


1947 • Clarke County • 10 miles east of Osceola • Gully Erosion

This gully extended headward 200 feet during the May-June storms, destroying valuable land. 41,000 acres of land were destroyed by gullies during storms in Region 3. This damage could have been prevented by vegetation and structural control.

1982 • Erosion in crop field

(right) Grassed waterways, terraces or water and sediment control basins will prevent this type of erosion.



Terraces on Henry Staubus built in the fall of 1975 (left)



1977 • Gary Eckels farm (right),

This windbreak prevents wind erosion.



Construction of farm ponds prevent water erosion and serve as recreational areas (above)

Ray LeFebure and his boys fishing at his pond east of their home. (photo taken in 1972)



Clarke Community School Outdoor Classroom RC&D Project • Grade Stab. Structure (below)



1982 • Young Farmers Group working on the haybuster no-till inter-seeder (left)



Iowa Soil Conservation Achievement Awards

—Sponsored by Des Moines Register & Tribune

Division I — (Owner/Operator)

- 1954 — Everett Mateer
- 1956 — Ralph & William Bell
- 1957 — George & Larry Casey
- 1958 — James & Donald Cole
- 1959 — Carl Handrock
- 1960 — Addison Bowlsby
- 1961 — Roland Sargent
- 1962 — Martha Ames & Jack Ames
- 1963 — Gerald Henrickson
- 1964 — Lowell Moran
- 1965 — Kenneth Johnson
- 1966 — Richard Saddoris
- 1967 — Robert Wallace
- 1968 — Doyle Henrickson
- 1979 — John Webb
- 1980 — Olin Reasoner
- 1981 — Keith Davis
- 1994 — Cumes Farms, John Henderson, Wm. Jaeschke

Division II — (Owner/Tenant)

- 1954 — Doyce Miller (owner)
- Jack & Lyle Miller (tenant)
- 1956 — Mrs. Alice Bolton (owner)
- Harald Johnson (tenant)
- 1957 — Howard Mark (owner)
- John Bryant (tenant)
- 1958 — L.L. Hagie (owner)
- John Webb (tenant)
- 1959 — Alfred Jones (owner), Won regional award
- Clarence Blanchard (tenant)
- 1960 — M.I. Jefferson (owner)
- Earl Milligan (tenant)
- 1961 — Jacob Cozad (owner)
- Kenneth Fetters (tenant)
- 1962 — Charles McPhetridge (owner)
- Raymond Deemer (tenant)
- 1963 — Lawrence Cumes (owner)
- Dale Childester (tenant)
- 1964 — Cleo Musselman (owner)
- George Schultz (tenant)
- 1965 — E.B. Reed (owner)
- Robert Powell (tenant)
- 1966 — Woodrow Roberts (owner)
- Robert Luce (tenant)
- 1967 — W.B. Hunt (owner)
- Leland Hunt (tenant)
- 1968 — Vern R. McCartney (owner)
- Wendall McCartney (tenant)
- 1979 — Richard Koch (owner)
- Tom Whitehead (tenant)
- Amos Ames (owner)
- Jim Oswald (tenant)
- 1980 — Jim Emary (owner)
- Wayne Whitam (tenant)
- 1981 — Ward Reynoldson (owner)
- Steve Shaw (tenant)

Division III — (New Cooperator)

- 1954 — Mrs. Glen Johnson (owner)
- Allen Weeda (operator)

- 1956 — Robert Gaumer
- 1957 — Gerald Pedersen
- 1958 — Russell Brierly, won regional contest
- 1959 — Harold Bonnett
- 1960 — Marion Millsap
- 1961 — Harold Schaffer
- 1962 — Tom Barr
- 1963 — Dick Overholzer
- 1964 — Allen Sullivan
- 1965 — Richard Gonseth
- 1966 — Norman Owens
- 1967 — Jack Chandler
- 1968 — Dale Jones
- 1980 — Gary Urich
- 1981 — Bar-C-Bar Farms, Inc., Wendall Christensen & Brad Shipman

Awards —

Outstanding Commissioner Award

- 1954 — Carl Handrock
- 1955 — Adrian Fuller
- 1959 — Doyle Miller (also won Region 6 award)
- 1960 — Carl Handrock
- 1961 — Carl Handrock
- 1978 — Richard Gonseth (also won Region 8 award)
- 1976 — Lifetime Honorary Membership into the IASDC to Doyce Miller
- 1973 — Ken Wagner Award — Richard Gonseth

1963 — Clarke SWCD commissioners won second place honors for the southern half of Iowa the Goodyear Tire and Rubber Company Award. Harold Bonnett Farm was its representative in this year's contest for the work done on the farm.

1965 — Clarke SWCD won the Goodyear Tire Company's Annual Soil Conservation Award for the best district in the southern half of Iowa. Roland Sargent was its representative in this year's contest for the work done on the farm.

Outstanding Conservation Teacher Awards Program —

- 1967 — Mrs. Darrel Platt
- 1968 — Mrs. Winona Naylor
- 1969 — Larry Rohr
- 1970 — Leland Dolecheck

Award for Livestock/Grain Operation —

- 1969 — John Henderson

Award for Cowherd/Pasture Renovation Operation —

- 1969 — Mrs. Lawrence Cumes (owner)
- Dale Childester (tenant)

General Livestock Operation —

- 1969 — Chester Davis

Annual Clarke County Conservation Award —

- 1969 — Chester Davis

1973 — Kenneth Henry

Windbreak Award —

- 1979 — Dale Childester

Sweepstakes Award —

- 1979 — Frank Riley

Awards —

1963 — Farm Safety Contest Winners — Mr. & Mrs. Harold Hubbard (Contest was sponsored by Clarke District)

1965 — Roland Sargent was selected by the State Soil Conservation Committee as one of two outstanding farmer-cooperators in Iowa and will receive the award at the Goodyear Awards Program.

12/68 — Mr. & Mrs. Kenneth Johnson — Winners of the Outstanding Farmer Award given by the Goodyear Company

2/69 — Jesse Burgus — Winner of the Goodyear Conservation Contest Award

10/71 — Earl Mateer — Winner of the Goodyear Soil Conservation Award (won second place in state competition)

1/72 — John Webb — Winner of the Outstanding Farmer for the Goodyear Soil Conservation Award Contest.

Presenting the 1994 Iowa Soil Conservation Achievement Award to winners (owner/operator division) are (below, left to right) Adrian Fuller (Clarke SWCD), David Cumes, Kelley Cumes, Doyle Cumes



Speech Contest Winners

- 1960 — Keith Thompson — 1st
- Gary Kimes — 2nd
- 1963 — Sally Nadolsky
- 1965 — John Camp — 1st
- Richard Dove — 2nd
- 1967 — Bradley Waller (placed 2nd at regional contest)
- 1970 — Bradley Waller (won regional contest and won state contest)
- 1971 — Chuck Jackson (won regional contest and won state contest)
- 1972 — Mark Chamberlain
- 1976 — Linda Green
- 1978 — Bob Carroll
- 1979 — Fred Taylor

Poster Contest —

- 1975 — Melinda Ingram — 1st
- Runner-ups — Dean Robins, Danny McNeal, Bob Turner, Deanna Snider, Kirk Ticknor
- 1976 — Barbara James — 1st
- Runner-ups — Cheryl Ansley, Chris Boor, Shani Carns, Billy Dick, Lisa Evison
- 1977 — Keith Blunt — 1st
- Runner-ups — Tony James, Ron Flemming, Scott Schaff, Tammy Ross, Mike Matlage
- 1979 — Shane Davidson — 1st
- Tammy Klein — 2nd
- Joseph Raguir — 3rd
- 1985 — Deanna McKnight & Jennifer Wieck — 1st
- Jennifer Hart — 2nd
- 1991 — Hans Klein — 1st
- 1994 — Murray Schools, 5th Grade
- Michelle Garner — 1st
- Stephanie Cowden — 2nd
- Heather Dunfee — 3rd
- Murray Schools, 6th Grade
- Ben Werner — 1st
- Tara Halls — 2nd
- Sarah McBurney — 3rd
- Clarke Community Schools,

5th Grade

Colton Cummings — 1st

Jennifer Reynolds — 2nd

Erin Nennig — 3rd

Clarke Community Schools, 6th Grade — Eddie Lundquist — 1st

Nicole Reynolds — 2nd

Eddie Lundquist's poster was forwarded for regional contest.

1995—Murray Schools, Division 1 — Katie Eckels — 1st

Chelsey Byers — 2nd

Cecilia Fuller — 3rd,

Murray Schools, Division 2 — Kyle Richey — 1st

Cody Fulkerson — 2nd

Trevor Robins — 3rd,

Murray Schools, Division 3 — Heather Purscell & Teresa Gaddy — 1st

Jennifer Jensen & Katie Flaherty — 2nd

Shawn Thomas & David Ashby — 3rd

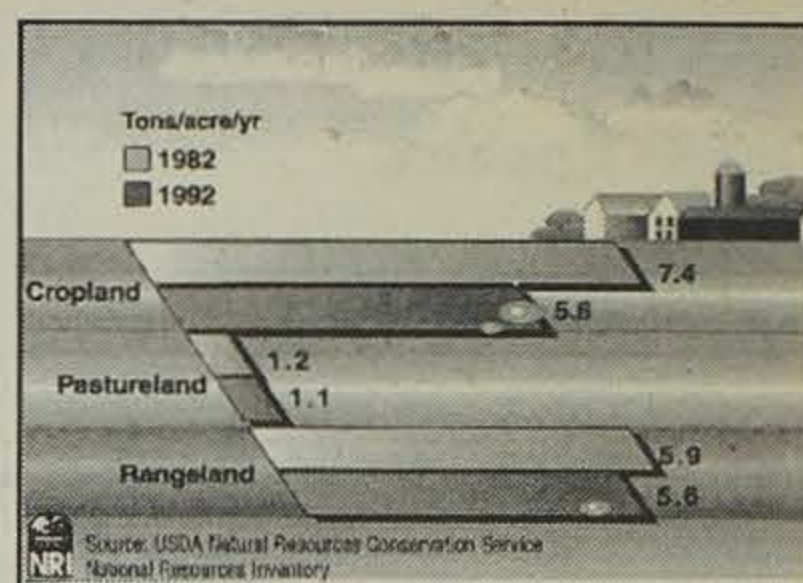
Clarke Community Schools, Division 3 — Sara Woods — 1st



The poster winners are (above, left to right) back row: Shawn Thomas, David Ashby, Jennifer Jensen, Tyler Richey, Cody Fulkerson, Trevor Robins; front row: Heather Purscell, Teresa Gaddy, Katie Flaherty, Katie Eckels, Chelsey Byers, Cecilia Fuller

Left: Sara Woods with her winning poster

Division 1 winner Katie Eckels, Division 2 winner Kyle Richey, and Division 3 winners Heather Purscell and Theresa Gaddy posters were forwarded to regional competition.



Erosion on nonfederal cropland and grassland

- Between 1982 and 1992, the average annual rate of sheet and rill erosion declined from 7.4 to 5.6 tons per acre on cropland, from 5.9 to 5.6 tons per acre on rangeland, and from 1.2 to 1.1 ton per acre on pastureland.
- Wind erosion stripped more than 1.8 billion tons of soil from America's nonfederal rangeland and 950 million tons from cropland in 1992.
- Total annual sheet and rill erosion on the Nation's nonfederal rangeland declined slightly—from about 1.9 billion tons in 1982 to 1.8 billion tons in 1992; annual sheet and rill erosion on cropland declined from about 1.7 billion tons in 1982 to 1.2 billions tons in 1992.
- Soil erosion on pastureland was slightly less in 1992 than in 1982. At an average annual rate of just over 1 ton per acre, soil erosion poses little threat to pastureland productivity nationwide.

OUT OF THE PAST CLARKE COUNTY SOIL CONSERVATION DISTRICT ANNUAL REPORT: 1947

The interest in soil conservation in Clarke County is very encouraging. The demand for assistance from the Clarke County Soil Conservation District is far greater than the facilities available to us. To date there have been 233 applications for complete farm plans. We have been able to give the assistance to complete 105 plans from the start of the District to the last of December 1947, with 53 of these completed during the last year. We have been able to make all the progress that could be expected with the assistance that the Soil Conservation Service could supply us. We are short of help and are in need of more assistance than we have been able to obtain in the past.

The attendance at the soil conservation field day and plowing contest held in September under the sponsorship and in cooperation with the County U.S.D.A. Council indicated a very gratifying amount of interest and a desire by the people of the district to learn all they can about soil saving methods. Over 1200 people attended this field day. They gave a lot of attention to the contour plowing, terrace construction, pond building, the maintenance of grass waterways, construction of waterways, new methods in haying, feed chopper, corn drying and other practices that were carried out during the day. In connection with this field day it is very pleasing to note the cooperation and assistance rendered by the local organizations and particularly the Clarke County Implement dealers. The latter group contributed about \$230 toward defraying the expenses. The local newspaper was very helpful in publicizing the event and contributing to getting several news items in the Des Moines Register and Tribune as well as on Radio Stations WHO, KMA, and KSIB. All the agencies of the U.S. Department of Agriculture who operate in Clarke County gave freely of their time and assistance in making the field day possible.

This last year may be considered really our second year of operation since we did not obtain technical help from the Soil Conservation Service until the fall of 1945. As stated before, 53 complete farm plans were prepared this year. These plans cover 8,854 acres. On these farms, the following practices have been planned and established.

There is a lumber company headquartered in Osceola that offers some interesting possibilities toward improved management of the woodlands of the district. The unusual thing about this lumber company is that they encourage the woodlot owner to manage and cut his timber on a scientific basis and will buy the produce of this woodland at a higher than has been the case in this community before. With this additional dollar and cents incentive, better woodland management practices should result.

The cooperation of the different groups, organizations and agencies in the county have been very helpful to the district. We would like to pay particular tribute to the Clarke County USDA Council, farm equipment dealers, the local newspapers, the schools in general and the vocational agriculture department in particular, the Soil Conservation Service, the Isaac Walton League, the Chamber of Commerce, Armour Creameries, grain and fertilizer dealers and the Lions and Rotary Clubs. The USDA Council mentioned above is made up of the following: Clarke County AAA, Farmers Home Administration, Extension Service, National Farm Loan Association, REA, Vocational Agriculture Department, and Soil Conservation Service.

Local Scholarship Winners

- 1993 — Joel Fry
- 1994 — Colin McDonough
- 1995 — Robert Scriver



Crop Residues Pay Off For MAX Participants

The move toward farming with crop residues is justified economically, according to records kept by participants of the "Farming for Maximum Efficiency" (MAX) program showing crops planted into crop residues had the highest profit. "Based on the experiences of several hundred farmers from two very good crop years and one very bad one, a farmer should expect to increase profits with conservation tillage systems," says Jim Graham, a northeast Iowa farmer and MAX coordinator for the state.

In 1994 corn planted on ridges and into undisturbed crop residue yielded 180.2 bushels per acre and marked a \$78.41 profit per acre. No-till followed with 174.1 bushels per acre yield and \$68.96 profit per acre. Mulch-till corn yielded higher than no-till with 177.7 bushels per acre, but the cost of making trips across the field to till the land brought the profit down to \$57.06.

On soybean fields, mulch-till led the way in yield with 61.5 bushels per acre and \$89.58 per acre profit. No-till profit on soybeans was \$77.95 per acre and ridge-till was \$76.10 an acre.

When averaging 1992, 1993 and 1994 MAX corn field entries, profit ranged from \$49.51 on

ridge-till to \$13.09 on plowed fields.

The three-year average profit on soybean fields ranged from \$58.62 on reduced-till to \$29.43 on plowed fields.

"We expect the use of crop residues, especially no-till, to continue to rise. It's a key practice in farming economically and environmentally," says Leroy Brown, State Conservationist for the USDA Natural Resources Conservation Service (NRCS—formerly the Soil Conservation Service).

Across the state, about 16.4 million acres of Iowa's 21-plus million acres of row crops were planted with crop residue management systems in 1994.

The use of no-till by Iowa farmers increased from 3,486,153 acres in 1993 to 4,413,589 acres in 1994. The increase of nearly a million acres is the largest in one year since 1992, when no-till acreage tripled from 973,000 acres in 1991 to 2.7 million acres.

The MAX program participants are volunteers who want to compare their operating costs, pesticide costs, yields and profits to other Iowa and Midwest farmers. The program is sponsored by Successful Farming Magazine, Monsanto, the Conservation Technology Information Center (CTIC) and supported by the Iowa NRCS. In 1994, 395 farmers from 50 counties in Iowa submitted data.

TABLE 1: Corn profit comparison — 1994

TILLAGE	FIELDS	PEST COSTS	MACHINE OPERATION	TOTAL COSTS	YIELD	PROFIT
No-till	63	\$25.21	\$47.60	\$279.21	174.1	\$68.96
Ridge-till	40	16.75	56.42	282.00	180.2	78.41
Mulch-till	48	26.22	57.89	298.39	177.7	57.06
Reduced-till	70	24.92	58.57	293.11	174.2	55.30
Plow	10	27.19	66.15	316.63	172.4	28.21
Average	231	23.95	55.39	289.51	175.9	62.22

TABLE 2: Soybean profit comparison — 1994

TILLAGE	FIELDS	PEST COSTS	MACHINE OPERATION	TOTAL COSTS	YIELD	PROFIT
No-till	71	\$29.15	\$44.12	\$228.99	58.5	\$77.95
Ridge-till	27	19.40	52.42	225.52	57.5	76.10
Mulch-till	40	22.92	55.19	233.43	61.5	89.58
Reduced-till	19	22.94	56.64	241.80	60.3	74.86
Plow	7	24.11	63.32	253.79	56.7	43.73
Average	164	25.09	50.45	232.04	59.2	78.67

TABLE 3: Effect of residue on profit — 1994

CORN RESIDUE	FIELDS	PEST COSTS	MACHINE OPERATION	TOTAL COSTS	YIELD	PROFIT
0 - 29%	94	\$24.37	\$58.96	\$293.94	173.8	\$53.71
> 30%	137	23.66	52.95	286.48	177.3	68.06
Average	231	23.95	55.39	289.51	175.9	62.22

SOYBEAN RESIDUE	FIELDS	PEST COSTS	MACHINE OPERATION	TOTAL COSTS	YIELD	PROFIT
0 - 29%	27	\$23.51	\$58.17	\$243.89	59.5	\$68.21
> 30%	137	25.40	48.93	229.71	59.1	80.73
Average	164	25.09	50.45	232.04	59.2	78.67

TABLE 4: Corn Profit — three year comparison

TILLAGE	1992 PROFIT	1993 PROFIT	1994 PROFIT	3 YR. AVG. PROFIT
No-till	\$49.36	\$20.71	\$68.96	\$46.34
Ridge-till	47.16	22.95	78.41	49.51
Mulch-till	4.74	10.16	57.06	23.99
Reduced-till	35.48	6.24	55.30	32.34
Plow	36.96	(-25.90)	28.21	13.09

TABLE 5: Soybean Profit — three year comparison

TILLAGE	1992 PROFIT	1993 PROFIT	1994 PROFIT	3 YR. AVG. PROFIT
No-till	\$35.48	\$61.60	\$77.95	\$58.34
Ridge-till	40.78	58.17	76.10	58.35
Mulch-till	31.76	53.30	89.58	58.21
Reduced-till	39.02	43.97	74.86	52.62
Plow	7.81	36.76	43.73	29.43

Conservation Practices for Clarke County

Crop residue management...

leaving last year's crop residue on the soil surface by limiting tillage. Includes no-till, mulch till and ridge till.

How it works

Leaving last year's crop residue before and during planting operations provides cover for the soil at a critical time of the year. The residue is left on the surface by reducing tillage operations and turning the soil less. Pieces of crop residue shield soil particles from rain and wind until plants can produce a protective canopy.

How it helps

- Ground cover prevents soil erosion and protects water quality.
- Residue improves soil tilth and adds organic matter to the soil as it decomposes.
- Fewer trips and less tillage reduces soil compaction.
- Time, energy and labor savings are possible with fewer tillage trips.

Planning ahead

- Will your crop produce enough residue?
- Is crop residue management part of a planned system of conservation measures?
- Do you have the needed equipment?

Tech notes

- Planning for residue cover begins at harvest. Ensure a m p l e residues are spread evenly over the field by the combine.
- Reduce the number of unnecessary tillage passes. Every tillage pass buries more crop residue.
- Use straight points and sweeps on chisel plows instead of twisted points. Twisted points can bury 20% more residue.
- Set tillage tools to work at shallower levels.

Measuring crop residues

You can estimate residue levels by using a line that has 50 or 100 equally divided marks. Stretch the line diagonally across crop rows. Count the number of marks that have residue under the leading edge when looking from directly above the mark. Walk the entire length of the rope. The total number of marks with residue under them is the percent residue



No-till farming prevents sheet and rill erosion. Photo of the Gary Dugger farm, 1984.

cover. If the line has only 50 marks, multiply your count by two. Repeat this three to five times in a representative area of the field.

Conservation tillage

Conservation tillage is any tillage and planting system that leaves at least 30% of the soil surface covered by the previous year's crop residue. There are three main types of conservation tillage. They are:

- Mulch till — Soil is disturbed prior to planting (spring or fall tillage). Tillage tools such as chisels, filed cultivators, disks, sweeps or blades are used. Control weeds with herbicides and/or cultivation.
- No till — Soil is left undisturbed from harvest to planting except for nutrient injection. Plant or drill in a narrow seedbed or slot created by coulters, row cleaners, disk openers, in-row chisels or rototillers. Control weeds with herbicide; cultivation may be used for emergency weed control.
- Ridge till — Soil is left undisturbed from harvest to planting except for nutrient injection. Plant in a seedbed prepared on ridges with sweeps, disk openers, coulters, or row cleaners. Residue is left on the surface between ridges. Ridges are rebuilt during cultivation. Control weeds with herbicide and/or cultivation.

Contour stripcropping...

crop rotation and contouring combined in equal-width strips of corn or soybeans planted on the contour and alternated with strips of oats, grass or legumes.

How it works

Crops are arranged so that a strip of meadow or small grain is alternated with a strip of row crop. Not more than half a field can be planted to row crops. Meadow slows runoff, increasing infiltration, traps sediment and provides surface cover. Ridges formed by contoured rows slow water flow which reduces erosion. Rotating the strips from corn to legumes allows nutrient-needy crops benefit from the nitrogen added to the soil by legumes. This practice combines the beneficial effects of contouring and crop rotation.

How it helps

- Contour stripcropping reduces soil erosion and protects water quality.
- Contour stripcropping may help reduce fertilizer costs.

Planning ahead

• How many acres of row crops do you need?

• Does your crop rotation allow for alternating row crops with small grains and forages?

• Will herbicide carryover be a problem?

• Row crop strips need to be nearly the same width as small grains or meadow. A 10% variance is allowed.

• Plant grass or legume field borders instead of end rows and establish waterways as part of your stripcropping system.

• Key lines used for laying out strips should not exceed a 2% slope; except within 100 feet of an outlet, when the grade can be 3%.

• Strip widths may be adjusted downward to



Contour stripcropping on the Harold Bonnett property in October of 1970.

accommodate your equipment width for even rounds.

• Stripcropping is not as effective if crop strips become too wide, especially on steep slopes. Use the following table to plan maximum widths:

%Slope	Crop strip width
1-2	130 feet
3-8	100 feet
9-16	80 feet
17-20	60 feet
21-25	50 feet

Maintenance

- Keep strip widths consistent from year to year.
- If a meadow crop fails or is winter killed, NRCS can help you make adjustments in your rotation schedule.



"Can't afford to practice conservation?"



Grassed Waterways...

Shaping and establishing grass in a natural drainageway to prevent gullies from forming

How it works

A natural drainageway is graded and shaped to form a smooth, bowl-shaped channel. This area is seeded to sod-forming grasses. Runoff water that flows down the drainageway flows across the grass rather than tearing away soil and forming a larger gully. An outlet is often installed at the base of the drainageway to stabilize the waterway and prevent a new gully from forming.

How it helps

- Grass cover protects the drainageway from gully erosion.
- Vegetation may act as a filter, absorbing some of the chemicals and nutrients in runoff water.
- Vegetation provides cover for small birds and animals.

Planning ahead

- Is major land reshaping needed?
- Is there a proper outlet for surface runoff at the bottom of the waterway?
- Are soil conservation measures installed to prevent siltation?
- Will tile drainage be necessary to establish vegetation in the waterway?

Tech notes

- A waterway should be deep enough and wide enough to carry the peak runoff from a 10-year frequency, 24-hour storm. Check SCS design charts.
- Plant seed at recommended time and rates. Place seed about 1/4 to 1/2 inch deep. Plant across the area or in a figure 8 pattern to reduce erosion.

ure 8 pattern to reduce erosion.

- A nurse crop, temporary cover or mulching may be necessary until permanent cover is established.

Maintenance

When it comes to maintenance, waterways are one of the conservation practices on your farm that will need some attention. The lay of the land and the amount of runoff determine how the water runs down a waterway.

There is a constant cut and fill process—areas of the waterway are either filling with sediment or eroding. Sediment build-up in the center causes gullies to cut down the edges. Gullies also form when the water moves too fast and begins to gouge out the center of the waterway.

A waterway that operates correctly can reduce the amount of soil carried off the field and into road ditches and streams. A correctly shaped waterway has a parabolic or bowl shape. When you see gullies starting down the side of the grassed area or a ditch etched out of the middle, it's time to do a little repair work. It's important to keep a parabolic, or bowl shape, across the waterway. A well-shaped waterway carries water off the field much better than a patch of grass.



Grass waterway near Q Pond controls soil erosion and improves water quality.

Farming with waterways

- Bring the implement into the waterway a few feet, then lift the implement out of the ground before crossing the waterway.
- Bring row crop patterns into the waterway nearly level. You may use the area as a turn area.
- Fertilize periodically.
- Don't plant end rows parallel to the waterway.
- Maintain the width of the grass area when tilling and planting surrounding fields.
- Inspect the area frequently for eroding areas and other places needing reseeding. Repair minor rills or gullies by reshaping and reseeding.
- Don't let herbicide spray continue into the waterway.
- Don't use the waterway as a road. Vehicle tire tracks can lead to the formation of a gully.
- Don't mow grass until a good sod is established. Once it is, the waterway should be mowed. To benefit wildlife nesting, delay mowing until July 15.
- Maintain outlets to prevent new gullies from forming at the outlet. This may include reshaping and reseeding the outlet, or repairing or replacing components of structural outlets.

Planned grazing system...

Planting forage and using grazing rotations to maximize production and reduce sediment and nutrient runoff. Consider food, water and herd size.

How it works

Pasture is divided into two or more pastures or paddocks with fencing. Cattle are moved from paddock to paddock on a pre-arranged schedule based on forage availability and livestock nutrition needs.

How it helps

- Improves vegetative cover, reducing erosion and improving water quality.
- Increases harvest efficiency and helps ensure adequate forage throughout the grazing season.
- Increases forage quality and production which helps increase feed efficiency and can improve profits.
- Rotating also evenly distributes manure nutrient resources.

Planning ahead

- Is there enough water of good quality available in all pastures to meet the needs of your livestock?
- Is the mix of grass and legumes adequate for your herd and soil types?
- Will your pasture meet the nutrient needs of your cattle?
- Have you considered management alternatives for periods of low forage production?

for periods of low forage production?

Tech notes

- Good pasture management can prove to be profitable and reduce erosion.
- Pasture maintenance entails establishing and maintaining a good grass stand and managing the grass to optimize resources.
- Establishing grass for pasture is the same as for any grass stand.
- Wait until grass is well established before you let livestock graze.
- Keep weeds under control. Mow weeds when they are 6 to 8 inches tall. Control persistent weeds with herbicides.

Planned grazing

Fence pasture into two or more pastures or paddocks. Move cattle from paddock to paddock on a prearranged schedule based on forage availability and livestock nutrition needs. Here are a few guidelines:

- Plan your rotation so the same paddocks won't be grazed the same time year after year.



Alan Weeda moving cows to Reeds canary grass from switchgrass.

- Plan rest periods so each pasture (paddock) will have adequate time to recover during the growing season.
- Move all livestock from the paddock while it is being rested.
- Provide a good water source.
- Make sure there is an adequate mix of grass and legumes.

Sample paddock system

The system in a sample pasture is broken into 10 paddocks. Cattle will be moved from one paddock to another, grazing in a paddock for only a short time. The alleyway allows cattle to be easily moved and to have a common watering area. Plan alleyways carefully to avoid gully erosion from livestock traffic. Water is piped from a large pond. There are many variations to this system. See SCS for help with a planned grazing system.

Terrace...

An earthen embankment around a hillside that stops water flow and stores it or guides it safely off a field.

How it works

Terraces break long slopes into shorter ones. They usually follow the contour. As water makes its way down a hill, terraces serve as small dams to intercept water and guide it to an outlet.

There are two basic types of terraces—storage terraces and gradient terraces. Storage terraces collect water and store it until it can infiltrate into the ground or be released through a stable outlet.

Gradient terraces are designed as a channel to slow runoff water and carry it to a stable outlet like a grassed waterway.

How it helps

- Both water quality and soil quality are improved.
- Terraces with grass on front or backslopes can provide nesting habitat.

Planning ahead

- Will other conservation practices be used in conjunction with terraces to prevent sedimentation?

Tech notes

- Chisel the parts of the terrace that will be farmed to loosen compacted soil.
- Fertilize and seed according to SCS recommendations.
- Grassed backslope terraces have a farmable frontslope with a 2:1 backslope (2 foot horizontal to every 1 foot of vertical drop).
- Narrow base terraces have 2:1 slopes on both the frontslope and backslope.

- Broadbase terraces should not be built on slopes greater than 8%.
- Farmable slopes should not be steeper than 5:1.
- Terraces are designed to control runoff from a 10-year storm.

Maintenance

- Avoid farming too close to intakes.
- Remove sediment build-up in the channel to maintain the required water-holding capacity.
- Repair sections of embankment which have eroded or have excessive settlement.
- Fill settled or eroded areas in the tile trench.
- Repair or replace damaged intakes.
- Remove sediment build-up and trash from around the intake.
- Control rodents or burrowing animals, weeds, brush and trees.

Reseed and fertilize as needed to maintain good vegetation.

Building terraces can be a big investment. Taking care of terraces is much cheaper than rebuilding. It's good practice to inspect the terraces each spring and after a big rain. Look for breaches in the terraces, low spots and for excessive sediment that may have filled in.

You'll build a strong foundation for long lasting terraces if you get good compaction in construction to avoid breaching and excessive settling and get good grass cover established on the terrace as quickly as possible.



Contour terrace constructed by Todd Farms in section 24 of Washington Township, 1981.

Grade control structure...

Earthen, wooden, concrete or other structure built across a drainageway to prevent gully erosion.

How it works

A dam, embankment or other structure built across a grassed waterway or existing gully controls and reduces water flow. The structure drops water from one stabilized grade to another and prevents overfall gullies from advancing up a slope.

How it helps

- Grade control structures are often used at the outlet of a grassed waterway outlet, preventing gully erosion.
- Grassed, non-eroding waterways made possible with a grade control structure give better water quality, can be crossed with equipment, and look better than non-stabilized gullies.
- If it is planned to store water, a grade control structure may provide a water source and habitat for wildlife.

Planning ahead

- Are adequate conservation practices installed above the structure to prevent sedimentation?
- Is the planned location in the proper place to achieve the level of control you want?

Tech notes

- Ask NRCS for design and construction specifications.
- Obtain any necessary easements or permits.
- Remove all trees and shrubs within 30 feet of the structure.
- Clear debris approximately 50 feet downstream from the spillway outlet.
- Keep burrowing animals off of earthen structures.
- Repair any cracks in concrete.
- Keep outlets free of debris.

Alternative types of grade control structures include:

- The gabion spillway is constructed of rock fill wire mesh baskets configured to form a weir, a headwall, an inlet apron and an outlet apron. The headwall and weir are constructed mainly of 3 ft. deep baskets and the inlet and outlet apron are constructed of 1 ft. deep baskets.



Grade control pond constructed in 1994 on the Bob Upfield farm.

The upstream face and base of all gabion baskets is lined with filter fabric.

- The wood toewall drop spillway is constructed of wood timbers and planks. The shape of the inlet is configured to a box with approximately equal width and depth dimensions. In addition, a straight headwall extends in each direction from the box inlet. Riprap or concrete blocks are installed around the inlet in the box inlet and the inlet channel to prevent erosion. Sand drainfill is placed around the weir to safely drain groundwater.
- A rock chute spillway flow area is armored with rock riprap. The rock riprap is bedded with gravel at least 6 inches thick or with geotextile material. In areas where rock is readily available rock chutes are recommended.



The 1995 Natural Resources Conservation Service Field Office Staff members assisting the Clarke Soil and Water Conservation District are: (above, front row, left to right) Vicki Flaherty, Becky Harris, Lois Manchester, Kay Hill, Lois Morris, (back row) Curt Donohue, Tim Doran, Jim Woods and Lena Douglas.