

soil



Kelley's view conservation terracing as investment in family farm future

By Jay Mohr
Managing Editor

Bernard Kelley and his son Dan share a respect for the soil.

They believe protecting the soil through conservation methods is an investment in the future of their 1,400 acre farm operation near Terril.

"The idea has always been to leave the soil as good or better than the way we found it," Kelley said. "It's an investment in the future. I probably won't see any of the return on the investment and Dan might only see a little, but his children will see the benefits."

The Kelly family operation consists of approximately 1,000 acres of row crop land and another 400 in pasture. In the past year, they've shown a strong commitment to preserving that land by constructing nearly a mile of terraces on rented property with the aid of the landlord.

Kelley said the land had been washing away on part of the ground they were renting and they decided to go to the landlord and tell him about the problem and seek out a solution.

"We've farmed this ground for 35 years and decided to talk with the landlord about it," Bernard said. "He agreed with us."

The Kelley's talked with Clarence Call, district conservationist, at the Soil Conservation Service about the problem and terrace designs were drawn for the problem area and construction of the terraces began last fall and continued this year.

It was completed just in time, according to Kelley.

"When we had that 4 1/2 inch rain in 1 1/2 hours this summer the water filled the areas behind the terraces to capacity," Kelley said. "Without them, we would have lost tons of topsoil. We've had washes in this area that were up to three feet deep."

The construction costs are split between the conservation service and the property owner on a 75-25% basis. The average terraces in Dickinson County cost about \$2 per foot, but Kelley said some of the terraces on the farm were almost \$3 a foot because of some of the fill dirt required.

Behind each of the terraces is an intake to a tile that allows the water to drain. There are two major advantages to these tiles, according to Kelley. It stops erosion and holds moisture back where it is needed for the crops. Before the water can rush off down the slope, taking a great deal of topsoil with it, it soaks into the ground.

"We are looking for better yields because of the added moisture," Kelley said.

Bernard said they had tried other conservation methods to avoid the washes, like waterways in problem areas. "The waterways were just widened out," Kelley said. "Several times we've plowed in the gullies here."

The terraces aren't the only conservation methods being utilized by the Kelley farming operation. They've also been using low-tillage methods and cutting down on the plowing.

"We don't plow very much," Bernard said. "We disc all we can. We also use a Soil-Saver that leaves more roughage up on top of the soil."

That commitment to the soil has been extended from father to son. Dan is also looking to the future.

"It's a great improvement to the land and I'm sure I'll see the benefits of it," he said. "Anything to save the soil for the future."

Call said the terraces, "rounded out the Kelley's conservation resource system."

"It's an important part of that families' farming unit, especially in a father/son operation like theirs."



BERNARD KELLEY of Terril stands near the intake to a tile built behind one of several new terraces while his son, Dan, shows the height of the terrace. The Kelley farming operation has constructed approximately a mile of

terraces in two years to combat soil erosion. Kelley said the terraces have already worked well during heavy rainfalls. He said tons of soil has been saved by the new terraces. (Photo by Jay Mohr)

Water protection sought

By Dale M. Cochran,
Iowa Secretary of Agriculture

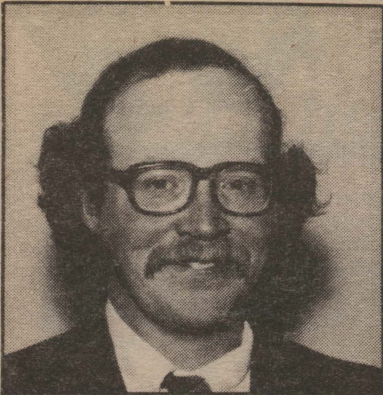
The Groundwater Protection Act of 1987 was adopted by the Iowa General Assembly because of concerns for potential health problems associated with groundwater contamination. This new legislation is a comprehensive effort by the people of Iowa to protect the quality of their groundwater. It is time for all Iowans to join together to protect this important natural resource because studies have shown the presence of hazardous chemicals in urban and agricultural water supplies.

Research has shown that agricultural drainage wells, sinkholes and improperly abandoned wells are part of the problem because of widespread general application of agricultural chemicals to the land. From an urban standpoint, research also has shown that industrial waste, landfills and lawn and garden chemicals are sources of groundwater contamination.

Therefore, the Iowa Department of Agriculture and Land

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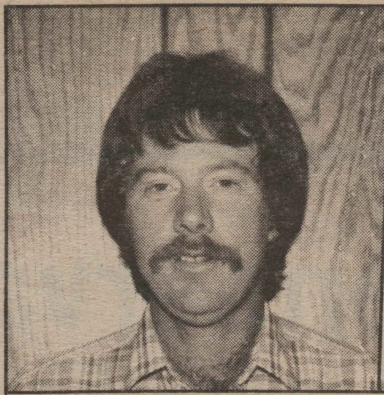
Soil Conservation District Commissioners



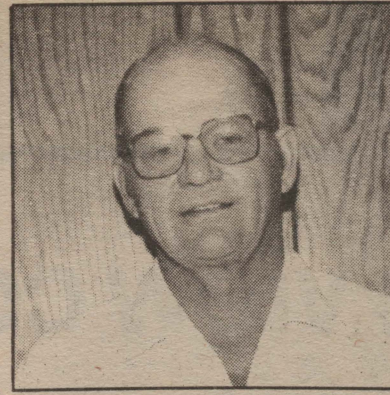
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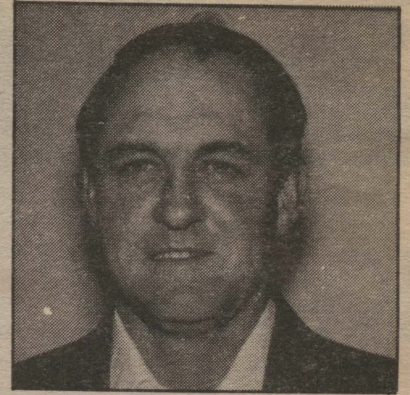
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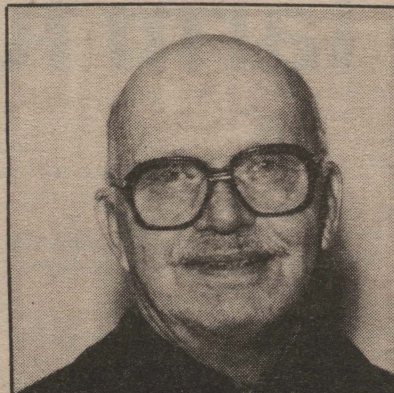
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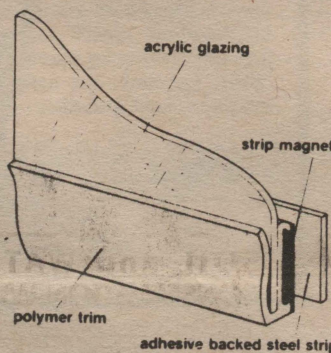
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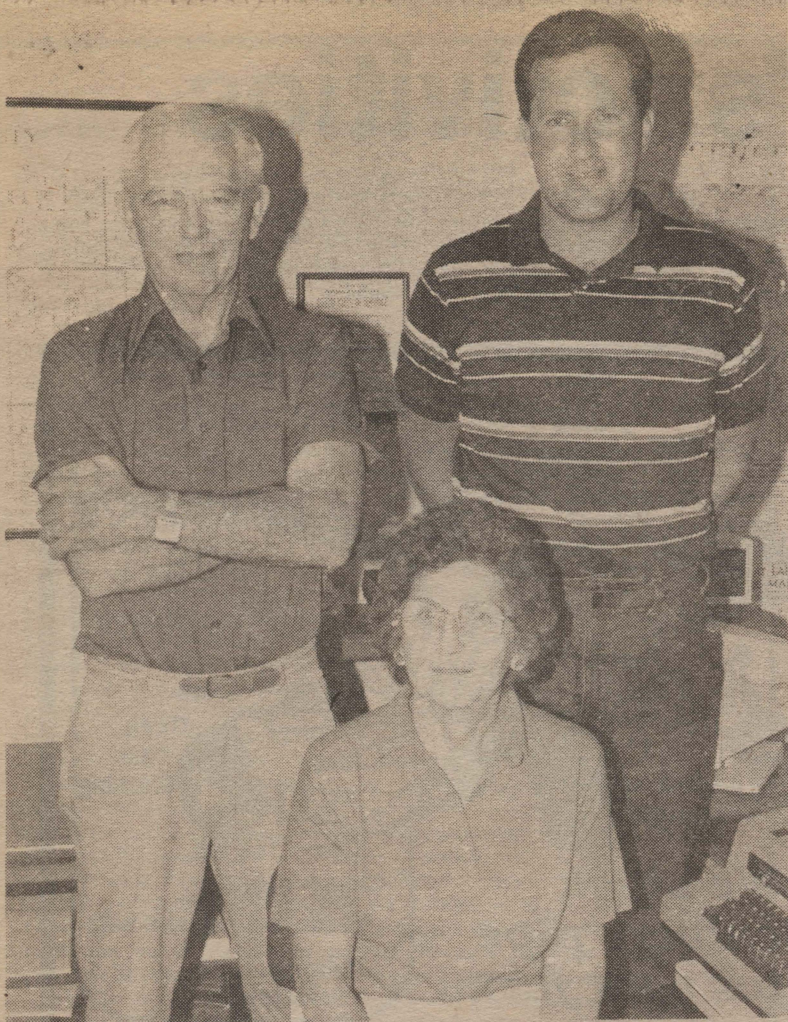
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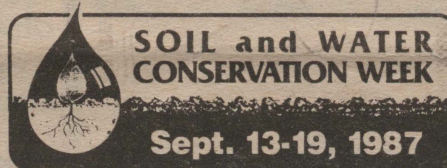
DISTRICT SOIL CONSERVATION SERVICE. The District Soil Conservation Service office personnel are, (left) Clarence M. Call, District Conservationist, Betty Farmer, State Clerk and David Kohlhaase, Soil Conservation Technician. (Photo by Jay Mohr)

DISTRICT COMMISSIONERS

Chris Hoffman, Chairman
Orville J. Berg, Vice Chairman
Jared Herbert, Secretary
Robert C. Ingwersen
Tim Hemphill
Maurice Dougal, Assistant Commissioner
Ernest Skow, Assistant Commissioner

OFFICE PERSONNEL

Clarence M. Call, District Conservationist
David Kohlhaase, Soil Conservation Technician
Betty Farmer, State Clerk



Sept. 13-19, 1987

Financial Statement

Fiscal Year 1986-1987

District's IM Budget

Receipts	
Allocation from State Soil Conservation Committee	\$ 1,890.00
Additional Allocation	711.34
Total Receipts	\$ 2,601.34
Disbursements	
Commissioners' mileage, meals and hotel while attending meetings out of town	\$ 2,327.48
Office supplies and expenses	273.86
Total disbursements	\$ 2,601.34

IIIM Budget (State Cost-Share)

Receipts	
1985-1986 Allocation from State Soil Conservation Committee	\$ 27,780.00
Disbursements	
Total spent on soil conservation practices	\$ 9,267.50
Total unobligated	18,512.50
Total	\$ 27,780.00
Receipts	
1986-1987 Allocation from State Soil Conservation Committee	\$ 20,405.00
Disbursements	
Total spent on soil conservation practices	\$ 6,523.75
Total obligated	4,587.50
Total unobligated	9,293.75
Total	\$ 20,405.00

Tillage termed effective

Conservation tillage is considered the single most cost-effective way to control erosion on land that is continuously row cropped, according to an Iowa State University Extension agronomist.

Min Amemiya said conservation tillage also provides opportunities to reduce production costs by reducing tillage intensity and frequency.

"Reductions in time, machine costs and fuel consumption can be significant," Amemiya said. This is especially true when switching from a multiple pass plow-disk-harrow-plant system to a one-pass slot plant or no-till system.

He said conservation tillage refers to tillage-planting systems that leave all or part of the residue from the previous crop on the soil surface after planting. The residue should cover at least 30 percent of the soil surface, according to the Conservation

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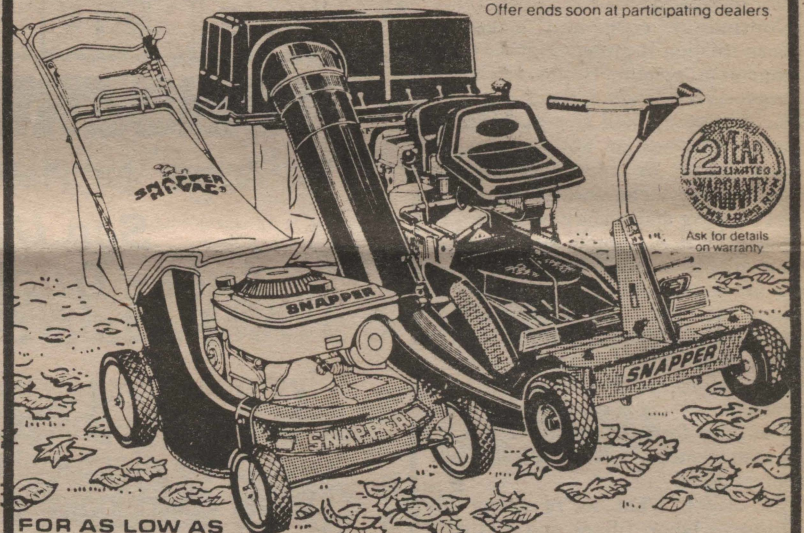
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District highlights year's activities

OCTOBER

Many letters were received from county sixth graders, thanking commissioners for sponsoring outdoor classroom which was held on Sept. 25 at Hogsback.

NOVEMBER

Office personnel attended conservation compliance meeting held in Spencer on Nov. 5. Clarence Call, District Conservationist, attended tillage expo meeting in Spencer on November 17. Tim Hemphill was elected as a new commissioner at the general election.

DECEMBER

Clarence Call, and commissioners Orville J. Berg, Robert C. Ingwersen, Maurice Dougal and Tim Hemphill attended annual conference held in Des Moines on Nov. 30, Dec. 1 and 2. Clarence Call attended tillage expo meeting in Spencer on Dec. 8. Commissioners' annual Christmas party was held on Dec. 10. County supervisors met with commissioners at their regular meeting.

JANUARY

Clarence Call attended District Conservationists' meeting on Jan. 15. Clarence Call and commissioners, Robert C. Ingwersen, Orville J. Berg and Jared Herbert attended short course in Ames on Jan. 19, 20 and 21.

FEBRUARY

Clarence Call and Dennis Rustman, Conservation Technician, and commissioners attended the Northwest Iowa Tillage Show in Spencer on Feb. 26.

MARCH

Dennis Rustman, Soil Conservation Technician in Dickinson County for 15 years, resigned to take a position with the Soil Conservation Service in Forest City, Ark. Bob Ingwersen, Orville Berg and Tim Hemphill attended regional meeting in Pocahontas on March 16.

APRIL

Commissioners sold and distributed 5,000 deciduous trees, 6,825 shrubs and 1,686 evergreens to 85 farmers during April. Commissioners presented each 6th grader in the county with a green ash tree. Clarence Call and clerk, Betty Farmer, attended computer trainer workshop in Cherokee on April 21 and 22. Commissioners purchased an AT&T computer to be used in the district office.

MAY

Soil Stewardship material was distributed to eight churches in the county this year. David Kohlhaase began work as the Dickinson County Soil Conservation Technician on May 11. Dave was transferred from the

Omaha Soil Conservation Office. We would like to welcome Dave and Deb to our community. Winners in the Soil Conservation Essay Contest were: Rachel Petersen, first; Karess Eichman, second; and Kohlene Dandy, third. These girls are all students at the Milford Community School. Rachel's essay was entered in the regional contest. Clarence assisted with Clay County Outdoor Classroom on May 13. National and State 1978 dues were paid.

JUNE

Clarence Call attended a three-day supervisors' training school in Des Moines June 8, 9 and 10. Clarence and Dave Kohlhaase attended a wetlands' training workshop in Ruthven on June 18. Dave attended a meeting in Cherokee on June 2 on EEO. Dave attended meeting in Cherokee on June 9 on FERS. Clarence Call and clerk attended computer training course in Des Moines on June 22, 23, 24 and 25.

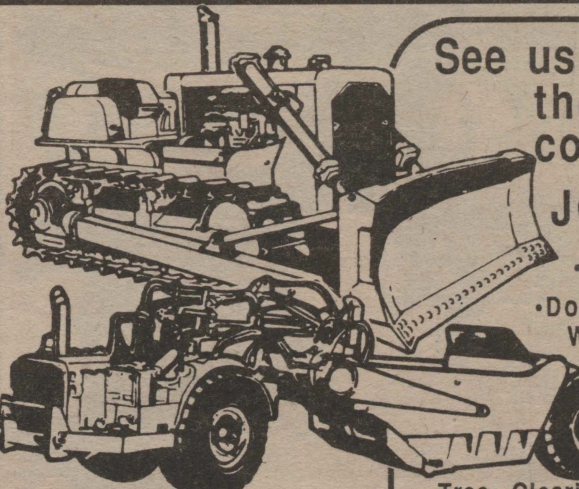
JULY

Clarence Call attended area meeting in Clarion on July 1. Commissioners' annual picnic was held at Memorial Park on July 16. Orville Berg was nominated as the Outstanding Commissioner from Dickinson County.

SEPTEMBER

Regional meeting in Pocahontas on Sept. 14 was attended by Bob Ingwersen, Orville Berg and Maurice Dougal. Commissioners assisted in

tending the Soil Conservation booth at the Clay County Fair. Plans are being made for the sixth grade Outdoor Classroom to be held on Oct. 1 at Hogsback.



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Farm system comparisons to aid farmers

A new farming systems project at Iowa State University's Allee Research Center, near Newell, will help determine costs, yields and problems of various farming systems.

Mark Honeyman, coordinator for the Outlying Research Centers, said three types of farming systems are being compared. They are a low management or conventional system, a high management ridge till system and a high management system with limited chemical input.

"Every farm is different, every farmer is different and their resources are very different," Honeyman said. "But farmers can learn from these farming systems and apply the results to their own farms."

Continuous corn and a corn-soybean rotation is grown with the low management system. Honeyman said commercial fertilizers, insecticides and herbicides are applied as a preventive measure whether or not there is a known weed or insect problem. Typical tillage techniques include fall chisel plowing and surface planting.

The high management system uses best available technology. Scouting is done for weeds and insects, livestock manure is used in addition to commercial fertilizers, herbicides are banded and ridge tillage is used. Fertilizer rates are determined by soil test results.

The third farming system also is a high management system, with limited chemical input.

"In effect, what we're doing is substituting labor, tillage and rotation for chemicals," Honeyman said.

Crop rotations are used to limit the amount of chemicals needed. No insecticides, herbicides or commercial fertilizers will be used except nitrogen, which will be side-dressed on corn. There will be a 5-year rotation of crops consisting of oats, meadow, corn and rye, soybeans and corn. Livestock manure also will be used.

"We want to help farmers gain a better understanding of what their options are and what choices they have been making management decisions," Honeyman said.

The project started in 1987 and will

run for at least five years, according to Honeyman. He said it will involve researchers from a variety of disciplines such as economics, agronomy,

animal science and agricultural engineering.



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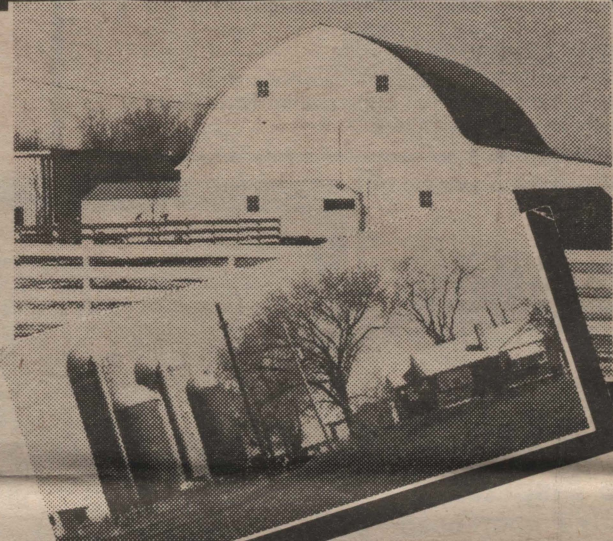
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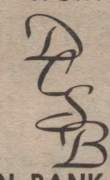




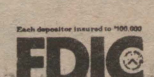
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Chemical cutback called

(Continued from page ONE)

Stewardship is about to embark on an aggressive initiative, including the elimination of excessive application of agricultural chemicals. This will include assisting farmers in setting more realistic levels for their production goals.

The department's soil surveys will be especially valuable in this regard. By using these and other means, farmers will be able to apply pesticides and fertilizers more judiciously, reduce potential contamination without affecting yields and reap the added benefit of reduced production cost.

We are coordinating the Integrated Farm Management Program with more than 300 statewide demonstrations featuring best management practices for agricultural chemical applications to show that chemicals can be effective without being applied excessively and causing groundwater problems.

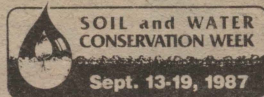
The department will seek to improve our understanding of the problem through research, especially in the area of potential threats to public health. We will develop and implement a statewide network to monitor the sale and use of agricultural chemicals. Commercial and public applicators who apply chemicals for rural and urban use will be trained and tested, so that potential health risks and threats to the groundwater are understood and over-application does not occur. In addition, all who sell hazardous chemicals will be properly licensed.

The department is initiating a demonstration and research project concerning the elimination of groundwater contamination through agricultural drainage wells. The project will identify the environmental, economic and social problems associated with continued use, or closure of agricultural drainage wells. Also examined will be legal, technical and hydrologic constraints for establishing alternative drainage systems.

We are developing a program for prevention of groundwater contamination through sinkholes. The program will feature landowner education and encourage responsible chemical and land management practices in areas of the state prone to the formation of sinkholes.

Public opinion polls have indicated that Iowans are greatly concerned with the problem of deteriorating water quality. We must be willing to commit ourselves to a solution. We must begin now with efforts to reduce excessive application of agricultural chemicals through strong education and demonstration programs.

Let us agree that protecting our groundwater quality is paramount and accept the Groundwater Protection Act as an important and ongoing first step in promoting groundwater quality. Also, let us continue to base our actions on solid, educated reasoning.



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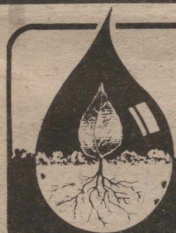
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THE STAFF OF THE AGRICULTURAL STABILIZATION AND CONSERVATION SERVICE is comprised of (front left) Gail Clifford, Karen Sweet, Loretta McClain and Donna Treharne. (Back left) Carla

Lennan, Cindy Lillenthal, Ruby Caskey, Sheryl Fastenow, Sherrie Donnenwerth and Pat Achenbach along with (missing) Larry Lago. (Photo by Jay Mohr)

Governor proclaims soil, water week

The week of Sept. 13-19, designated by Gov. Terry Branstad as Soil and Water Conservation Week in Iowa, also coincides with a national effort to persuade Americans to take care of their natural resources.

A nationally organized program called "Take Pride in America" has set Sept. 13-19 as the dates for a National "Work Fest Week."

"Take Pride in America is intended to encourage Americans to learn about and take care of their natural resources," said the program's Iowa spokesman Robert Pim. "With the work fest, we're asking local people to adopt some kind of natural resource

project and then concentrate on it during that week."

Pim, director of the Farmers Home Administration in Iowa, said the U.S. Department of Agriculture (USDA) is one of 11 federal agencies and departments helping to sponsor the Take Pride in America effort in 42 states.

In addition, Iowa governmental agencies have begun efforts on "Take Pride in Iowa."

"It may be cleaning up a park or a stream, planting trees, developing a

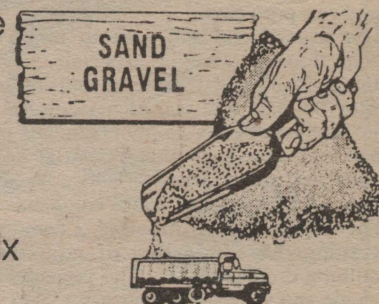
wildlife area or a nature trail, or a hundred different things," Pim said. "We feel local communities know what projects are needed, and we want to help provide the spark for an effort that helps them take pride in the resources around them."

The USDA has appointed coordinators in each county in Iowa to help with the program. For more information, contact any USDA agency or write to: Take Pride in America, P.O. Box 1339, Jessup, Md. 20794.

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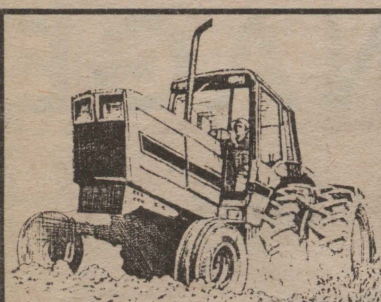


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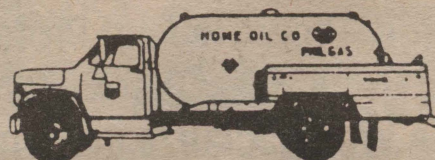
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Farm programs contribute to growth, prosperity

By Larry D. Lago,
Dickinson County ASCS,
County Executive Director

Farm programs have been administered in an attempt to contribute to the growth and prosperity of the national economy for nearly half a century since passage of the Agricultural Adjustment Act of 1933.

In a succession of agricultural acts, Congress has modified farm programs attempting to match changing needs. But the fundamental aims of these programs have remained the same - a productive agriculture, an abundant food and fiber supply at reasonable prices, a fair return to farmers on their financial investment and labor, and the conservation and improvement of America's farms.

The Agricultural Conservation Program (ACP) is a federally assisted cost-share program which emphasizes the identification and solution of soil, water, and woodland conservation and pollution abatement problems on agricultural lands. Further emphasis is placed on completion of enduring conservation practices to solve these problems to protect and improve the nation's food and fiber producing resources. ACP is authorized by the Soil Conservation and Domestic Allotment Act, as amended, the Rural Development Act of 1972, and Title X of the Agriculture and Consumer Protection Act of 1973. ACP cost-shares with farmers the cost of conservation practices to protect basic soil, water and wildlife resources. However, greater emphasis than in the past will be placed on coordinating ACP cost-sharing with the most critical conservation needs of each county.

A new program has been announced in an attempt to isolate and retire highly erodible land from culti-

vation. This program, "The Conservation Reserve Program," is authorized by the Food Security Act of 1985. The program has the potential of removing from cultivation - for a decade or more - as many as 40-45 million acres of highly erodible land. The Conservation Reserve was established as a voluntary program to help farmers prevent or control soil erosion. Farmers may sign a 10 year contract with USDA under which they agree to take eligible land out of annual crop production and put it into

of 211 million tons of sediment reaching streams and other surface waters, 3. The amount of pesticides applied annually will be reduced by about 60 million pounds, 4. Fish and wildlife habitat quality will improve significantly, 5. Trees on 4-5 million more acres will provide many natural resource values, future income for landowners and economic value to communities.

To date, the USDA has accepted 22,996,000 acres of highly erodible cropland nationally. In Dickinson County 11,900 acres are enrolled into the program and will be taken out of production for 10 years.

Another program that has been announced by USDA as a part of the 1985 farm bill that is expected to have dramatic effects on the removal of inconsistencies between Soil Conservation goals and traditional farm commodity program benefits, is the Sodbuster-Swampbuster provisions.

The USDA's action is designed to reduce soil loss due to wind and water erosion, protect the nation's long-term capability to produce food and fiber; reduce sedimentation and improve water quality; assist in preserving the nation's wetlands; and lessen the incentives to producers agricultural commodities on highly erodible farmland.

Producers who fail to meet the interim rules of the Sodbuster of Swampbuster law will not be eligible for commodity price support and other program payments. To retain eligibility for USDA program benefits for 1987 and subsequent crop years, the farmer must apply an approved conservation system on the highly erodible land. In addition, if a farmer is anticipating bringing into production new farm ground that has not been tilled for the period 1981 through 1985, he must contact the Agricultural Stabilization and Conservation Service (ASCS) to review the impact that action will have on his eligibility for farm program benefits.

There are an estimated 345 million acres nationally of highly erodible

agricultural land in the United States, of which 118 million acres are existing cropland and 5 million acres are wetlands with a medium-to-high potential for conversion to agricultural use.

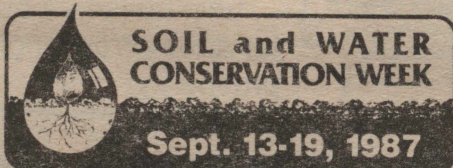
For more details on any of the programs described above, contact your local county Agricultural Stabilization and Conservation (ASCS) office.

ASCS Report

Larry Lago



perennial grass, wildlife plantings, windbreaks or trees. USDA's role is three-fold: 1. To provide annual rental payments, based on a bid, in cash or commodities; 2. To cover half the expense of establishing permanent cover on the land and, 3. To provide technical help for erosion control. Some of the expected environmental benefits of a Conservation Reserve Program based upon a national 40 million acres potential participation level are: 1. Some 750 million tons of soil erosion will not occur on the retired lands every year they are not cultivated, 2. Water quality will improve through an annual reduction



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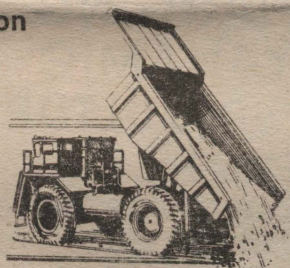
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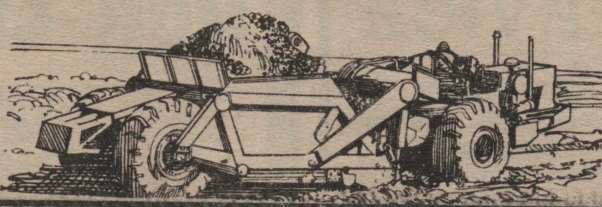


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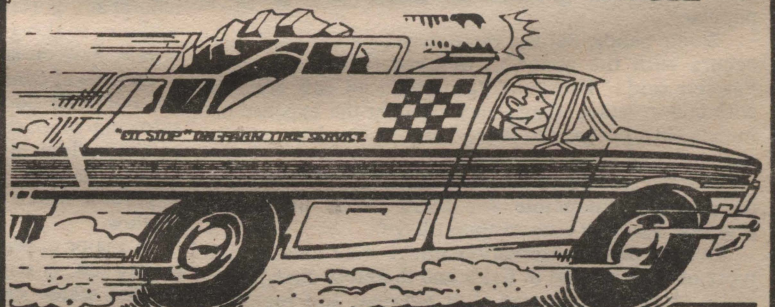


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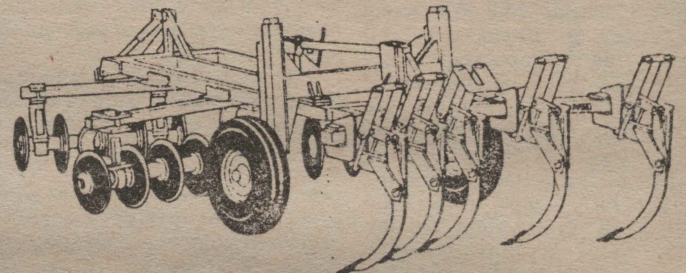
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Conservation tillage could reduce herbicide requirements

Using conservation techniques can help protect surface water from the effects of soil erosion, according to an Iowa State University Extension weed science specialist. Richard Fawcett said soil erosion has many detrimental effects on water quality.

"Eroding soil carries nutrients and pesticides that contaminate surface water," he said. Sedimentation of lakes and streams reduces the usefulness of these areas for recreation and navigation and harms wildlife.

"Many techniques are effective in protecting surface water from the effects of soil erosion," Fawcett said. "These include terraces, contour planting, strip cropping, growing perennial forage crops and conservation tillage, which has recently become popular."

"Some people believe there may be a trade-off that occurs with the adoption of conservation tillage," Fawcett said. "The benefits of reduced soil erosion with conservation tillage may come at the expense of increased pesticide use, and possibly more contaminated water."

Misunderstandings about current pesticide practices are partly responsible for fears about increased chemical use with conservation tillage.

Fawcett said conservation tillage may change the types of weeds found in fields and therefore change the kinds of herbicides used. But national and regional surveys have shown that on the average, herbicide rates per acre with conservation tillage are similar to those used with conventional tillage.

Some tillage systems reduce herbicide use. He said early pre-plant herbicide application in no-till usually eliminates the need for special non-selective herbicides. Most farmers using ridge-till systems band herbicides only over the crop row.

"This cuts herbicide use by one-half to two-thirds compared with broadcast application," Fawcett said.

However, certain insect problems can be more common with no-till. Scouting fields for insects can limit the use of insecticides to sites where populations

exceed economic thresholds.

Conservation tillage also can reduce runoff of agricultural chemicals because it reduces soil erosion and often reduces water runoff, Fawcett said.

"Because some soil conservation techniques, such as terraces and conservation tillage, can increase water infiltration, some people fear leaching of nitrates and pesticides may also be increased," Fawcett said.

Newly initiated studies should tell if these practices increase the risk of groundwater contamination. Early research results show that using no-till can reduce nitrate leaching, compared with plowing.

This apparently happens because no-till leaves natural soil pores intact, letting water quickly infiltrate without soaking through soil particles containing nitrate, Fawcett said.

Effects of conservation tillage on herbicide leaching are not well documented yet. Research shows that selecting products that are strongly absorbed in soil particles, low in solubility and short in persistence greatly reduces risk of leaching and is especially important where soils are sandy and groundwater is shallow.

A major concern in some areas of Iowa, according to Fawcett, is contamination of groundwater through surface water runoff into natural sinkholes or into agricultural drainage well inlets.

Fawcett said that in these areas, soil conservation techniques, such as conservation tillage, terraces and grass strips, can reduce the amount of eroded soil and runoff water reaching sinkholes and drainage wells. This is especially important in reducing contamination by agricultural chemicals.

"The use of soil conservation practices along with sound management decisions on the use of fertilizers and pesticides is necessary to protect surface water and groundwater. Efficient use of pesticides, fertilizers and soil conservation makes economic sense as well as environmental sense," Fawcett said.



CLARENCE CALL, District Conservationist stands in a field of switchgrass on the Conroy Johnson Farm east of Spirit Lake. Switchgrass is a warm season native grass being planted quite extensively on the 10 year Conservation Reserve Program. It is an excellent ground cover to prevent soil erosion and furnish wildlife habitat. (Photo by Jay Mohr)

Water drainage can affect yields (Continued from page THREE)

Technology Information Center.

"The response of crops to different tillage systems is influenced by soil properties and crop sequence," Amemiya said. Soil properties related to drainage or soil wetness are especially important in influencing crop response.

Studies in Iowa and neighboring states generally show very little difference in crop yield among different tillage systems, for both continuous and rotational corn, when there are favorable drainage conditions. Also, conservation tillage may provide an advantage for coarse textured soils that tend to be droughty because the plant residues tend to conserve moisture.

However, soil wetness and poor drainage conditions could mean a yield penalty for continuous corn when there are large amounts of residue, such as when slot plant or no-till is used. Rotational corn will also be affected, but to a lesser degree.

It is possible to overcome this disadvantage by ridge planting rather than flat planting. Ridge planting also

may allow earlier planting. Amemiya said data show that soybeans are relatively insensitive to different tillage systems.

"About half of the row crop acres in Iowa are in some form of conservation tillage right now," Amemiya said. During the 1986 crop year, values for individual counties ranged from 87 percent in Harrison and Iowa counties to 12 percent in Mills County. It is estimated that about 90 percent of these conservation tillage acres received full width tillage, usually involving a disk or chisel type implement, and more than one pass prior to planting. Nearly 8 percent of the conservation-tilled corn and soybean acres were slot planted (or no-tilled). The remainder were strip-tilled, usually in association with ridge-planting.

In the next several years, the number of conservation tillage acres is expected to increase sharply, especially those acres in slot or strip tillage systems. Amemiya said this is expected because producers will begin to consider conservation tillage as an

important component of conservation plans developed to meet provisions of the 1985 farm bill.



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