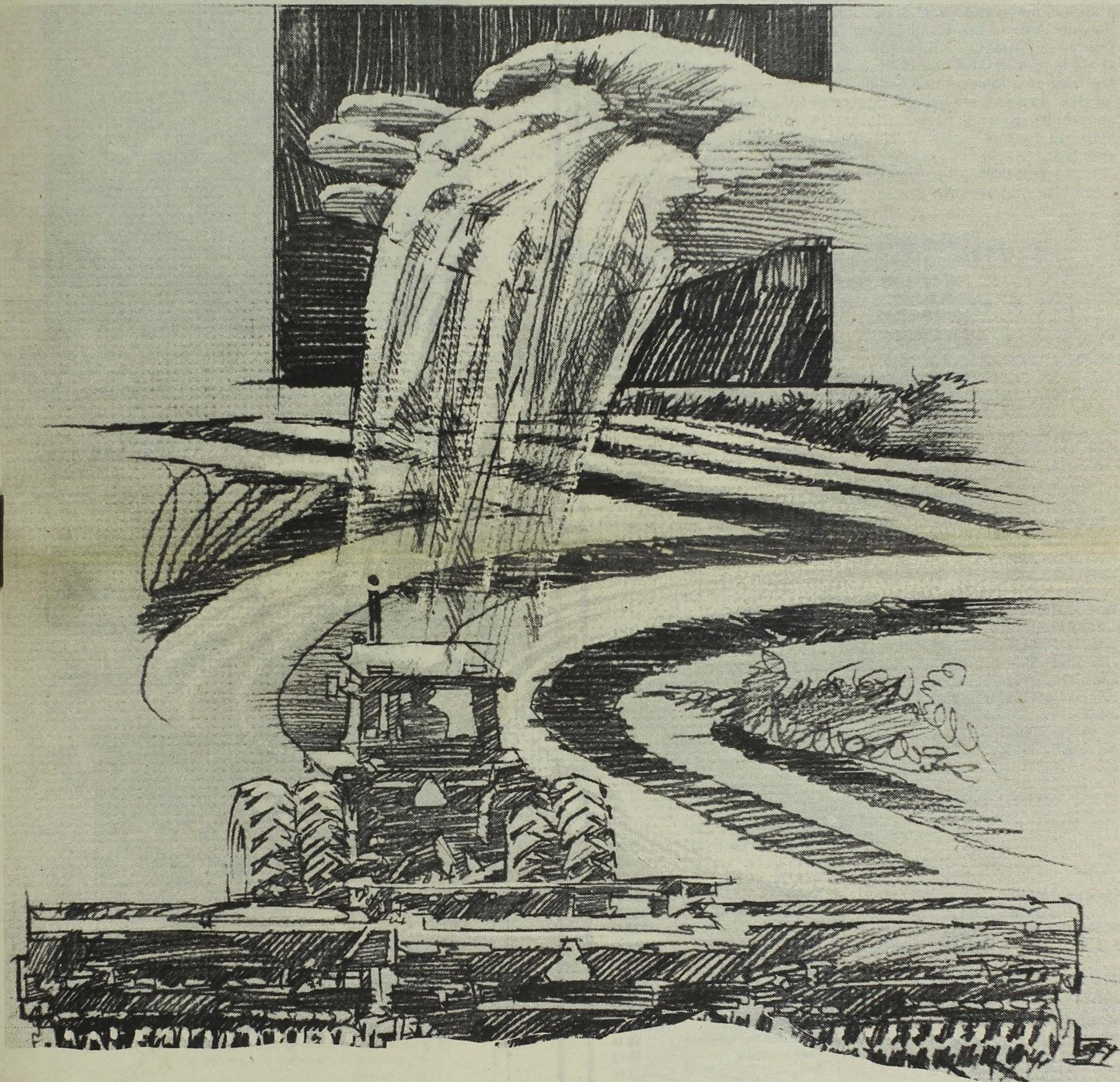


OPINION-TRIBUNE

GLENWOOD

Soil Edition



CONSERVATION PAYS

Mills County Soil Conservation District

ANNUAL REPORT

We, the Commissioners of the Mills County Soil Conservation District wish to thank the Iowa Legislature, Iowa Department of Soil Conservation and State Committee, Soil Conservation Service, Agriculture Stabilization Conservation Service, Mills County Extension, all of the newspapers, radio stations, schools, banks and churches who have made our efforts in soil conservation so much easier.

We had 54 members in our Cooperator Club in 1981, who gave generously to support our District. A very special "THANK YOU" to each one of you. We need and certainly appreciate your help.

In this year 1983, we respectfully submit our 41st Annual Report for your approval.

COMMISSIONERS:

Richard Biermann, Chairman
Paul Hathaway, Vice-Chairman
John A. Paul
Steve Roenfeldt
Albert Washburn

ASSISTANT COMMISSIONERS:

Judy Reimers
Joe Wearin
Bill Barber, Jr.
Harold Tackett

DISTRICT ACCOMPLISHMENTS:

During the year July 1, 1982 through June 30, 1983, 378 cooperators were assisted by the Mills County Soil Conservation District. Of these, 204 applied one or more conservation practices. Among the conservation practices they applied were 478,275 feet of terraces, 1350 feet of sediment and water control basins, 8585 feet of tile, 14, 804 acres of contouring, 1951 acres of conservation tillage, 145 acres of wildlife habitat management and 8 acres of critical area planting. These practices helped to protect 21,200 acres of cropland from excessive erosion. Of these acres, 4765 were adequately protected and 1618 were adequately treated.

Resource conservation plans were completed on 6623 acres of farmland with conservation plan alternatives provided on an additional 10,258.

I-M Budget		
Total allocation		\$1900.00
Mileage (9 commissioners and assistants)	\$ 898.44	
Office supplies & expenses	1001.56	
Total	\$1900.00	\$1900.00

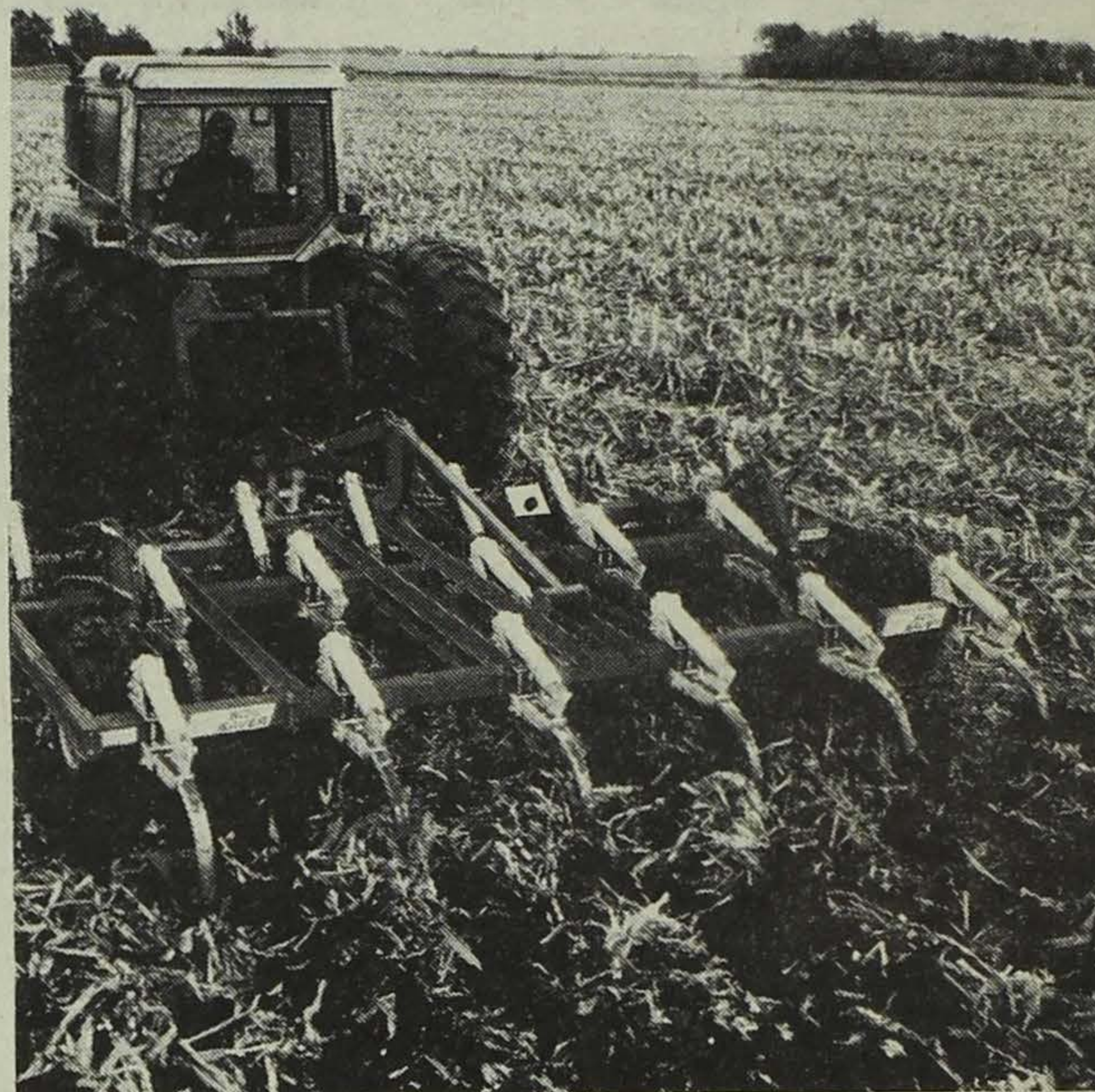
II-M Budget		
Total allocation		\$34,385.65
Gross salaries (clerk & aid)	\$28,664.00	
Travel	172.86	
FICA (St. share)	1,920.60	
IPERS (St. share)	1,668.39	
Health Ins. (St. share)	1,570.68	
Life Ins. (St. paid)	132.00	
Disability Ins. (St. paid)	257.12	
TOTAL		\$34,385.65

III-M Budget		
1982-83 Total Funds allocated		\$66,650.00
Total spent	\$65,636.33	
Balance	\$ 1,013.67	
Total	\$66,650.00	
6550 feet of level terraces		
121,450 feet of parallel terraces		50% cost-share

DISTRICT REVOLVING FUND	
BALANCE ON HAND 7-1-82	\$1,086.42
EXPENSES	
Room rent	\$ 30.00
Savings	1,720.96
Stewardship materials	167.02
Postage	301.27
Water Bill	89.20
Janitor & supplies	807.90
Contests	430.90
Meeting expenses	28.64
Office supplies & expenses	522.77
Watershed expenses	627,322.70
Fair Booth & demonstrations	65.15
Film & Processing	53.49
Dues	342.50
Equipment maintenance	190.00
Insurance	145.00
Subscriptions	41.95
RC&D	100.00
Annual Report printing	83.72
TOTAL EXPENSES	\$632,443.17
DEPOSITS	
Watershed reimbursement	627,322.70
Donations	1,529.70
BPA's (janitor & photostat)	966.00
Savings	1,150.00
I-M reimbursement	447.76
TOTAL DEPOSITS	631,416.16
BALANCE ON HAND 7-1-83	\$ 59.41

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Mills County's People Bank

Soil conservation is growing in Iowa

By Clifford Stille

Chairman, State Soil Conservation Committee

In January of this year, the State Soil Conservation Committee had the opportunity to present former Governor Robert D. Ray an award in recognition of his outstanding contribution to soil conservation throughout his 14-year tenure. A similar award was presented years earlier by the Iowa Association of Soil Conservation District Commissioners. In preparing the award, I had the opportunity to reflect upon the growth and development of soil conservation programs, districts and commissioners over that period of time.

During his five terms as Governor, he has supported the soil conservation district approach to erosion control; and through legislative action, he has developed state programs to give

district commissioners the authority and funds to complement the technical assistance efforts of the Soil Conservation Service. These efforts have produced the balanced Iowa program that is the model for developing programs in other states.

Milestone legislation has been passed in the form of Iowa's Erosion Control Law, establishment of the nation's first state soil conservation financial incentive program, and passage of our Iowa Soil 2000 Program. With all of these programs, substantial authorities have been given to soil conservation district commissioners to implement and operate them. Commissioner authorities and responsibilities include:

1. Setting and implementing local soil conservation policy and programs;
2. Establishing district soil loss limits and administering the state's Erosion

Control Law;

3. Setting priorities and approving applications for the district's annual appropriation of state cost-share funds;

4. Participating on county land use commissions;

5. Sponsoring watershed projects, securing land rights and maintaining constructed structures;

6. Participating on and electing representing to conservancy district advisory committees and conservancy district boards for water management; and

7. Certifying soil conservation practices under the state's conservation loan program.

These and many other authorities and efforts led to some outstanding achievements statewide. More than 350,000 acres of Iowa farmland have

been protected through installation of permanent soil conservation practices through state cost-share assistance. District efforts have also assisted in the rapid adoption of conservation tillage and no-till statewide.

While it has been an exciting era of state government, the transition to new state leadership on the part of Governor Terry E. Branstad appears equally as promising. In his first budget recommendation, Governor Branstad has supported funding for implementation of the Iowa Soil 2000 Program and proposed a new interest-free loan program for installation of permanent soil conservation practices. It is evident that we will continue the tradition of strong support for soil conservation into the future as we work to meet the state's erosion control needs.

There's alternative to corn/soybean rotation

By Galen Hartman

Corn-soybean rotations are a big factor for high soil losses in Mills County. Soybeans especially on the steeper slopes, leave the soil in a very erosive condition. There are several alternatives and combinations of alternatives that will reduce soil erosion. Some alternatives are contouring, terracing, no-till, minimum tillage and contour strip cropping to name a few. An often overlooked alternative that will reduce soil erosion is crop rotation using

a forage legume in the rotation.

One possibility is using alfalfa as a cash crop in a rotation. Of the high income crops, alfalfa is the most soil conserving. In one study, it was second only to soybeans in net returns per acre. Alfalfa decreases soil erosion by reducing tillage operations. It increases ground cover which in turn reduces runoff. It improves water infiltration into the soil.

Some additional benefits with alfalfa in a rotation:

1. Adds nitrogen to the soil (80-140 lbs) from fixation by Rhizobium bacteria

2. Lower fertilizer cost

3. Helps control problem weeds

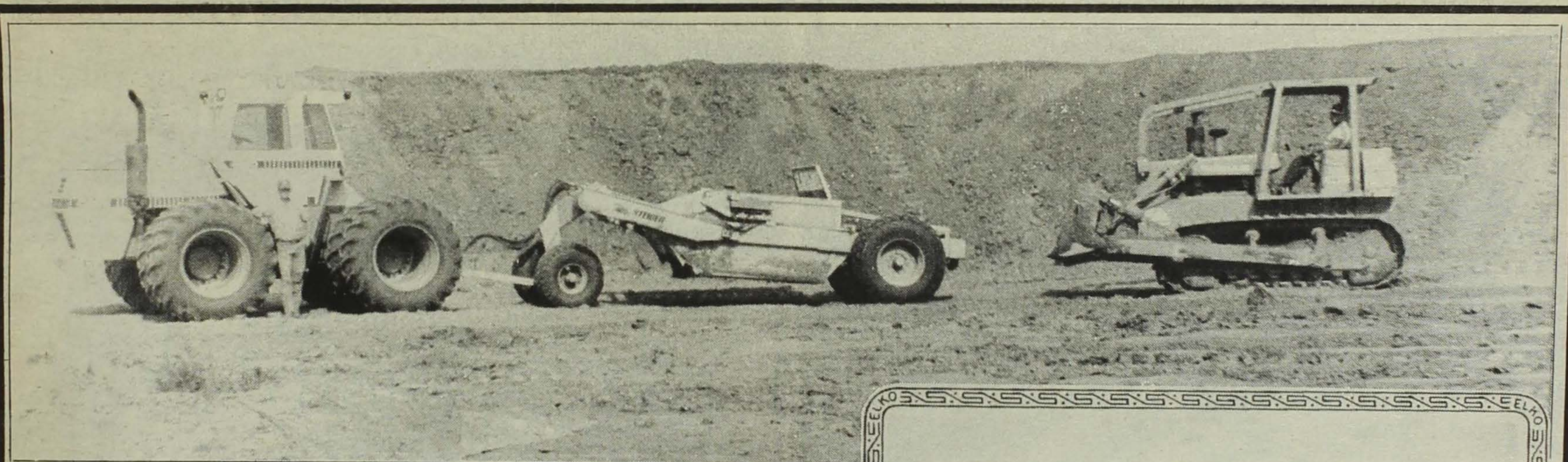
4. Lower seeding costs when left in several years

5. Steady cash flow with an established market.

Six ton of alfalfa hay at \$60 a ton is comparable to 125 bushels of corn at \$3.00 a bushel in net returns. There is an Iowa-Hay and Straw Directory and

other marketing associations that can aid in marketing of alfalfa hay.

Alfalfa can build one-half to one inch of new top soil every five years. So if you have some eroded slopes or areas subject to erosion consider alfalfa in your rotation. If you do not have the capital to construct terraces, or you have steeper slopes where terraces alone will not bring soil losses down to tolerable levels why not consider alfalfa as a cash-crop in a crop rotation as a possible alternative.



Terracing on Bill Leick's Farm

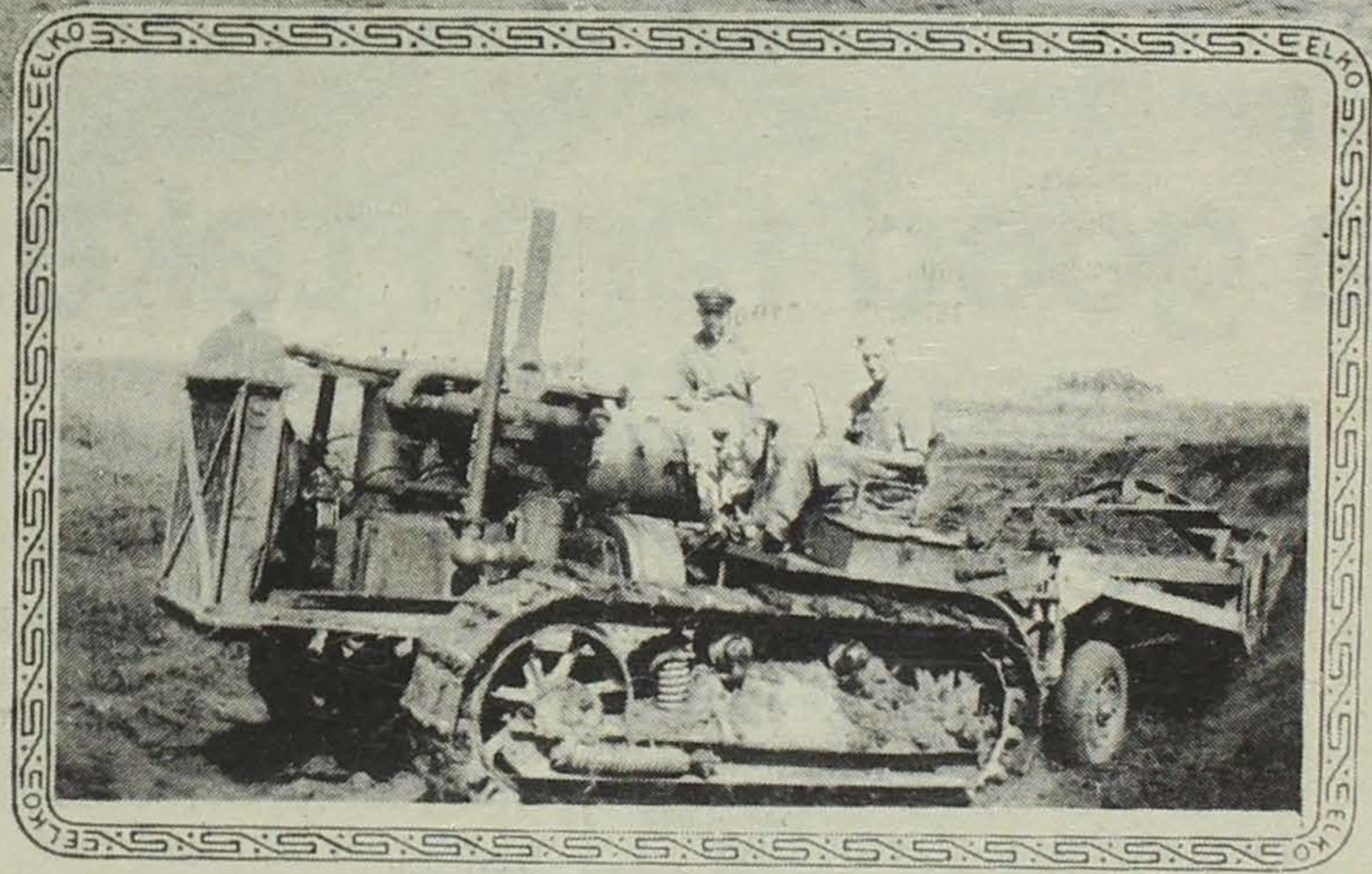
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Jay Bowen, 1940, operating a 1929 Caterpillar 60 with an Austin Western 5 yd. scraper. When we say experienced, we mean it!

Jay Bowen-Operator

The consequences of erosion

Soil erosion and soil productivity are intricately related and cannot be easily separated, reported LaVerne Obrecht, Mills County Extension director. Erosion of any soil usually results in a net decrease of the long term inherent productivity of the soil.

Soil erosion affects long-term productivity by reducing tilth and the soil's water holding capacity. In particular, long-term productivity is decreased by removal of plant nutrients and organic matter from the soil surface horizon, by removing the fine silt and clay sized-particles that relate to a soil's ability to hold plant available water and provide nutrients to plant roots, and by decreasing water infiltration into the soil which increases water runoff.

In Iowa, the effect of soil erosion on

long-term productivity can be measured by changes in three properties of the soil profile. These are: (1) topsoil thickness; (2) rooting depth which relates to the plant available water capacity of a soil; and (3) depth to maximum clay content in the soil profile. A decrease in topsoil thickness usually results in the maximum clay content being closer to the surface in eroded soils.

The productivity of some soils is not as sensitive to erosion as other soils. The productivity of those soils with deep rooting potential, formed in permeable parent materials with favorable subsoil characteristics, will not be adversely affected by successive minor increments of erosion. In Mills County, for example, many upland soils have these

characteristics. Crop yields may be somewhat lower on these eroded soils but with above average management, yields from eroded and uneroded sites will be similar.

A portion of the soil eroded from fields and much of the sediment derived from the stream bank erosion is carried downstream and can cause offsite problems. Sediment deposition can cause; (1) deposition of low quality sediments of flood plains that can result in loss of agricultural productivity; (2) reduction in storage of water reservoirs; (3) clogged ditches and culverts; (4) added cost of water treatment to control turbidity in public water supplies; (5) degradation of channels used for drainage of agricultural lands and roads; (6) destruction of aquatic

habitat; and (7) loss of recreation and esthetic value as a result of muddy water flowing in streams.

Sediment increases the turbidity of water which can destroy fish populations. Sediment is also a carrier of chemical pollutants. Soil particles can absorb plant nutrients, pesticides, and toxic metals that may, in turn, cause water pollutants are attached to sediment particles because of the high absorptive capacity of the sediments. As much as 90 percent of the total loss of nitrogen and phosphorus from agricultural watersheds is associated with the sediment carried by runoff water.

Soil erosion affects pesticide transport in a waterways attached to soil particles.

ICC programs are boon to wildlife

By Carl Priebe
Wildlife biologist

Mills County has an abundance of wildlife. It is due to many factors but two are of utmost importance. One is the diversity of wildlife cover ranging from the timber of the Loess hills and the wetlands of Willow Slough and the Missouri River bottom to the crop fields that provide the necessary food and nesting cover for many wildlife species. The second factor is the interest in wildlife that is deep seated in most Mills County residents including a large

number of our rural landowners and farmers.

Currently there are some programs available to rural landowners that can benefit them as well as wildlife. The most recent program to be initiated in Mills County is an Iowa Conservation Commission sponsored program providing cost-share assistance to farmers establishing warm season prairie grass pasture. These warm season grasses provide excellent forage for cattle during the hot dry period of the summer when other grasses have gone dormant.

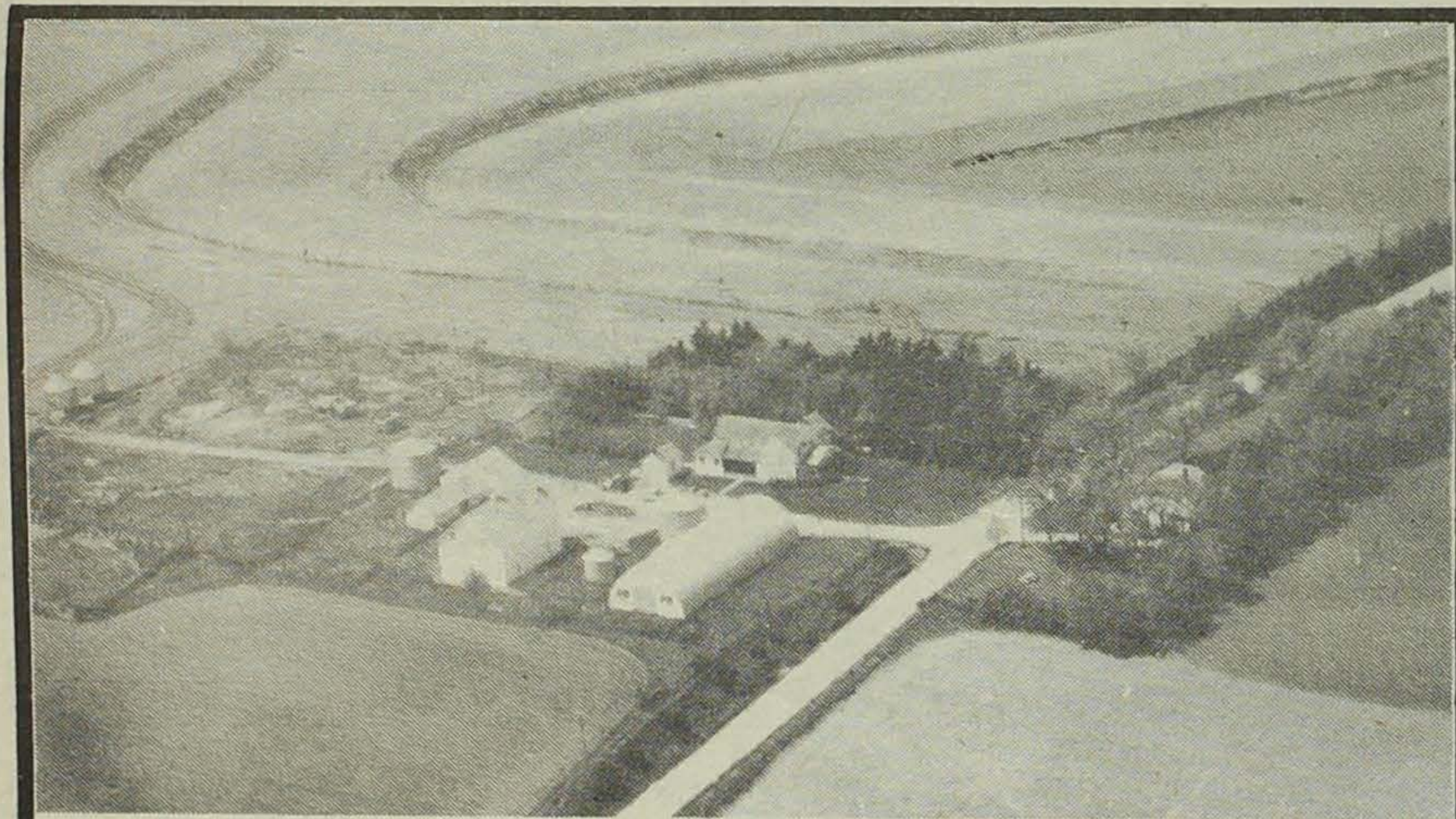
Because these grasses are grazed only during the hot portion of the summer they provide excellent wildlife cover during the spring, fall and winter.

A second program important to both rural land owners and wildlife is the technical assistance provided by the local wildlife biologist. One of my responsibilities is to provide assistance to landowners interested in establishing wildlife over on their farm or acreage.

That assistance may be a plan for a tree planting for wildlife around a new or

existing farm pond, a winter cover area established on land difficult or impractical to farm, a plan to attract more birds to your back yard bird feeder, or suggestions on improving habitat for the wild turkeys.

If you have an interest in establishing wildlife habitat on your farm give me a call. If you have some ideas but are unsure how to implement them or you just have some questions about wildlife either stop in or give me a call at the Mills County SCS office in Malvern.



a good farm takes careful planning

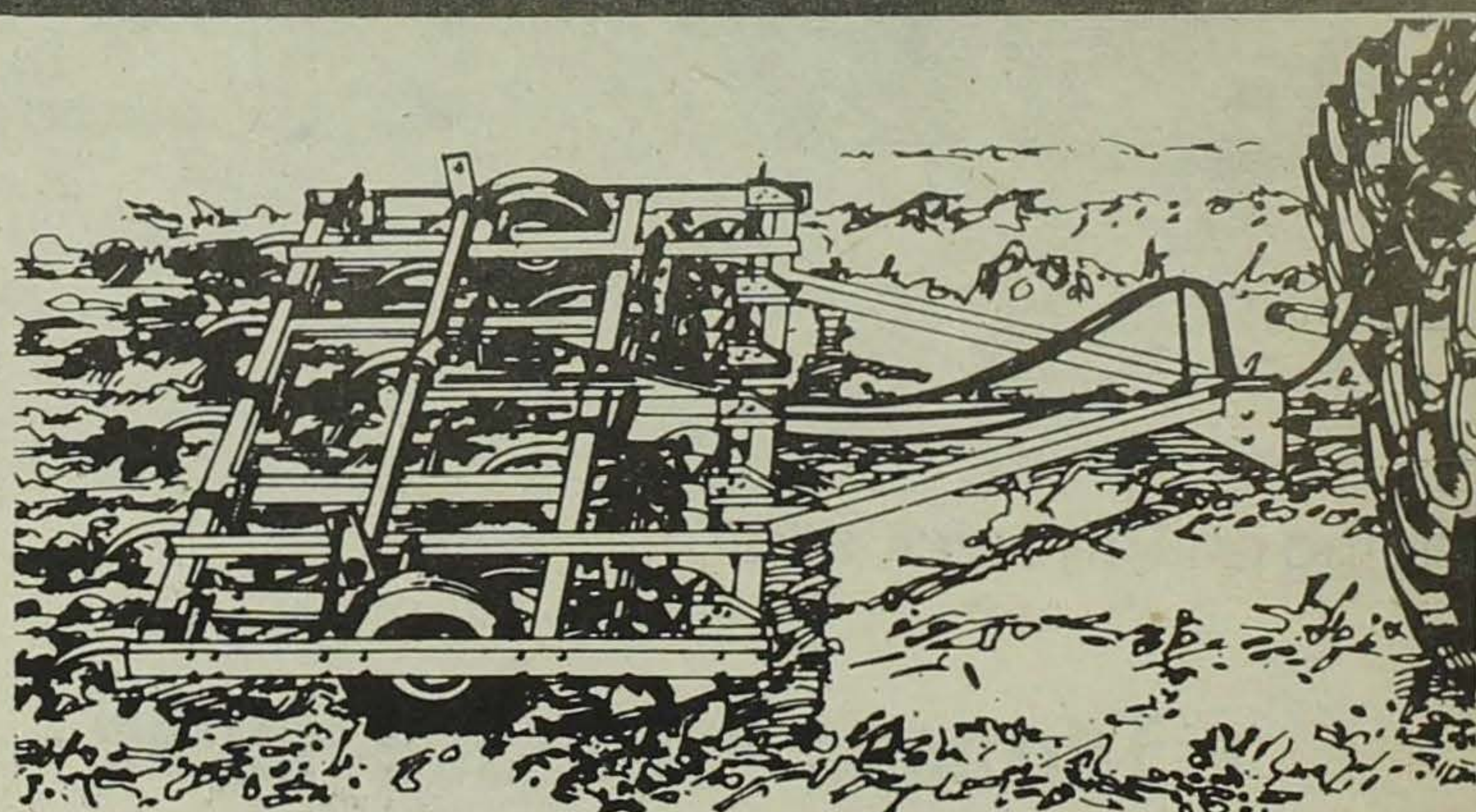
And careful attention to financial details. There's a lot to consider when planning your budget, including the unexpected problems that arise, like machinery breakdowns and inclement weather conditions. The need for immediate cash could crop up at

any time. We understand the problems of our farming community, and pay careful attention to your special needs.

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INTERNATIONAL HARVESTER

Switchgrass program helps

By Marvin Mensching
SCS Soil Conservationist, Malvern

This year in Mills County, farmers planted approximately 190 acres of warm season grasses. They're doing this to improve their current pasture systems and to reduce soil loss on highly erosive areas of their farms.

Warm season grasses, such as switchgrass and big bluestem, give increased forage during the hot, dry summer months. Cool season grasses like smooth brome and bluegrass made most of their production before June 1. Warm season grasses make most of their production after June 1. Due to this fact, it just makes good manage-

ment sense to use the two different grasses in a rotation. By using cool season grasses in the spring and fall and warm season grasses in the summer, the cattle are grazing on high quality forage throughout the growing season. Because they are getting good quality forage, the cattle will produce better and need less supplemental feed.

A study done at Lincoln, Ne. showed steers grazing cool season and warm season grasses in rotation weighed 40 percent more than steers grazing cool season grass alone. Farmers who have been using a rotation system using the two grasses have found they can graze more cows on the same number of acres

and due to the availability of good forage have better success at breeding time.

Several of those who planted switchgrass this year chose to plant it on former crop ground where erosion was causing serious problems. Fields losing over 100 tons/ac/yr. or soil under a corn-soybean rotation will lose 5 tons/ac/yr. or less under an established stand of switchgrass.

Since switchgrass is native and does very well even on the poorest sites, it is an ideal grass to plant. Even without fertilizer, switchgrass can out produce a fertilized stand of smooth brome or bluegrass on poor sites.

As an added incentive to plant switchgrass, the Iowa Conservation Commission (ICC) offered to pay one half the establishment cost in 1983. This cost-share program will be available in Mills County again in 1984.

The ICC is interested in establishing warm season grasses due to the superior nesting sites it provides for pheasants and other ground nesting birds.

If you are interested in planting warm season grass for pasture or wildlife purposes or if you just want more information, please contact the Soil Conservation Service in Malvern.

Boost given Iowa Soil 2000 program

An increase of \$2.9 million in cost-sharing funds and legislative approval for 21 new state conservation technicians make it possible to begin implementation of the Iowa Soil 2000 Program on a statewide basis, according to James Gulliford director of the Iowa Department of Soil Conservation.

Under this cost-sharing program, state funds complement federal assistance offered through the Agriculture Conservation Program (ACP) and special targeting efforts of the U.S. Department of Agriculture to deal with areas of severe and critical erosion.

This money is used to reimburse landowners for 50 percent of the cost of

installing permanent soil conservation practices. As a condition of receiving funds, they agree to maintain practices like terraces, grass waterways and sediment control basins for a period of 20 years.

The Iowa program is administered through the state's 100 soil conservation districts. Five elected commissioners set priorities and approve project applications under state administrative rules and program guidelines.

The state-funded cost-share program has provided nearly \$50 million for conservation since its beginning in 1973, Gulliford said. However, demand for assistance has always been nearly

double that of funds available. During the 10 year history of the program, nearly 36,500 landowners have applied for assistance, and 20,675 of those received cost-share assistance.

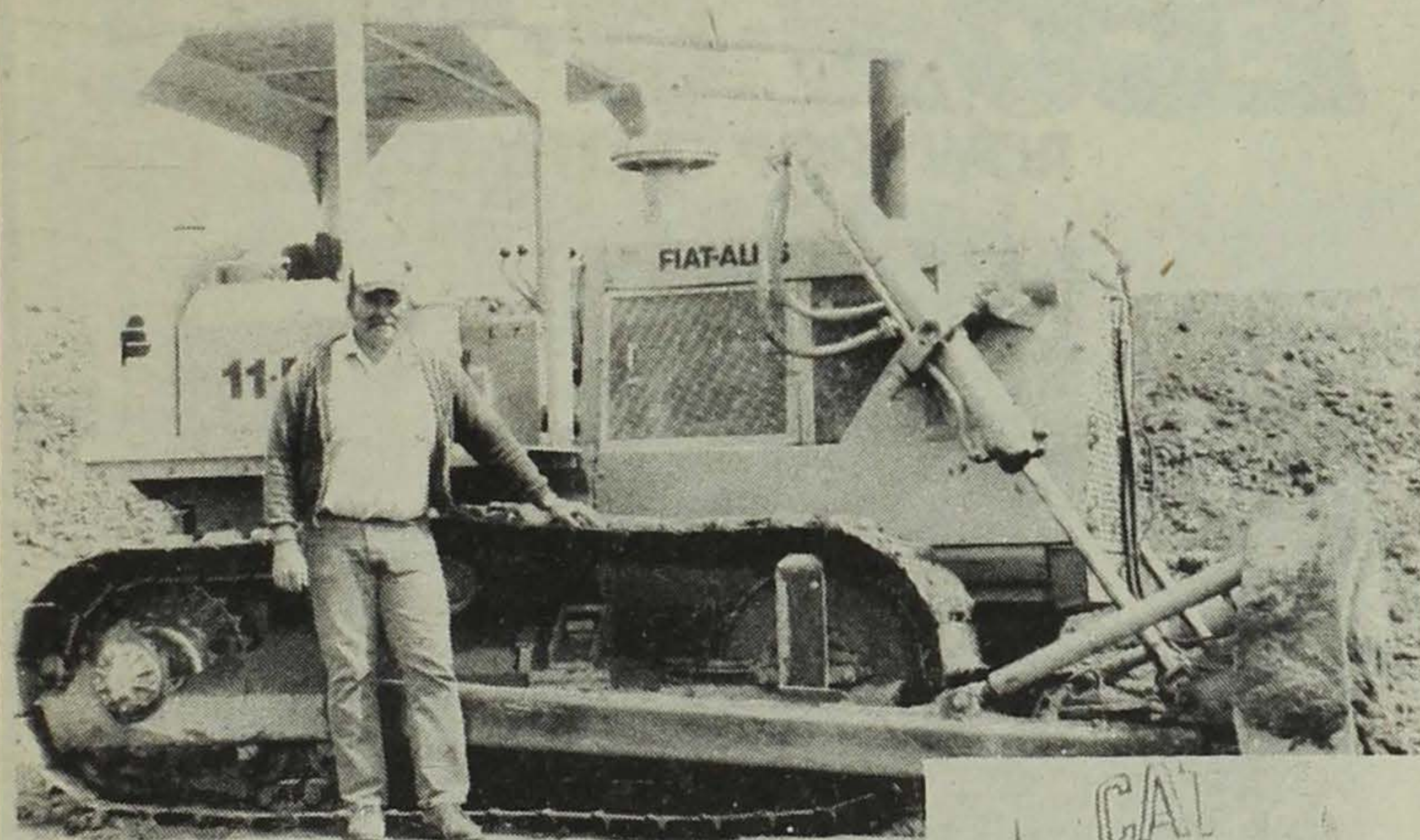
The Iowa Soil 2000 Program was established in 1980 to provide educational, financial and technical assistance to landowners to reduce excessive soil erosion from all land within the state by the year 2000.

During the past year, two pilot areas — in the eastern Iowa districts of Dubuque, Jones and Winneshiek and the western Iowa districts of Cass, Page and East Pottawattamie — have initiated Iowa Soil 2000 Program efforts.

These pilot districts identified areas of most concern and started distributing conservation folders that outline pertinent soil conservation information, available assistance and obligations under Iowa law to tenants and landowners.

"Overall, pilot project feedback has been positive," Gulliford said. "Most landowners realize that the soil conservation practices outlined in the folders would be beneficial."

Based on this positive feedback and because of increased assistance, Gulliford said all 100 of Iowa's soil conservation districts will begin distributing conservation folders next year.



Terracing on Lynn Goos farm

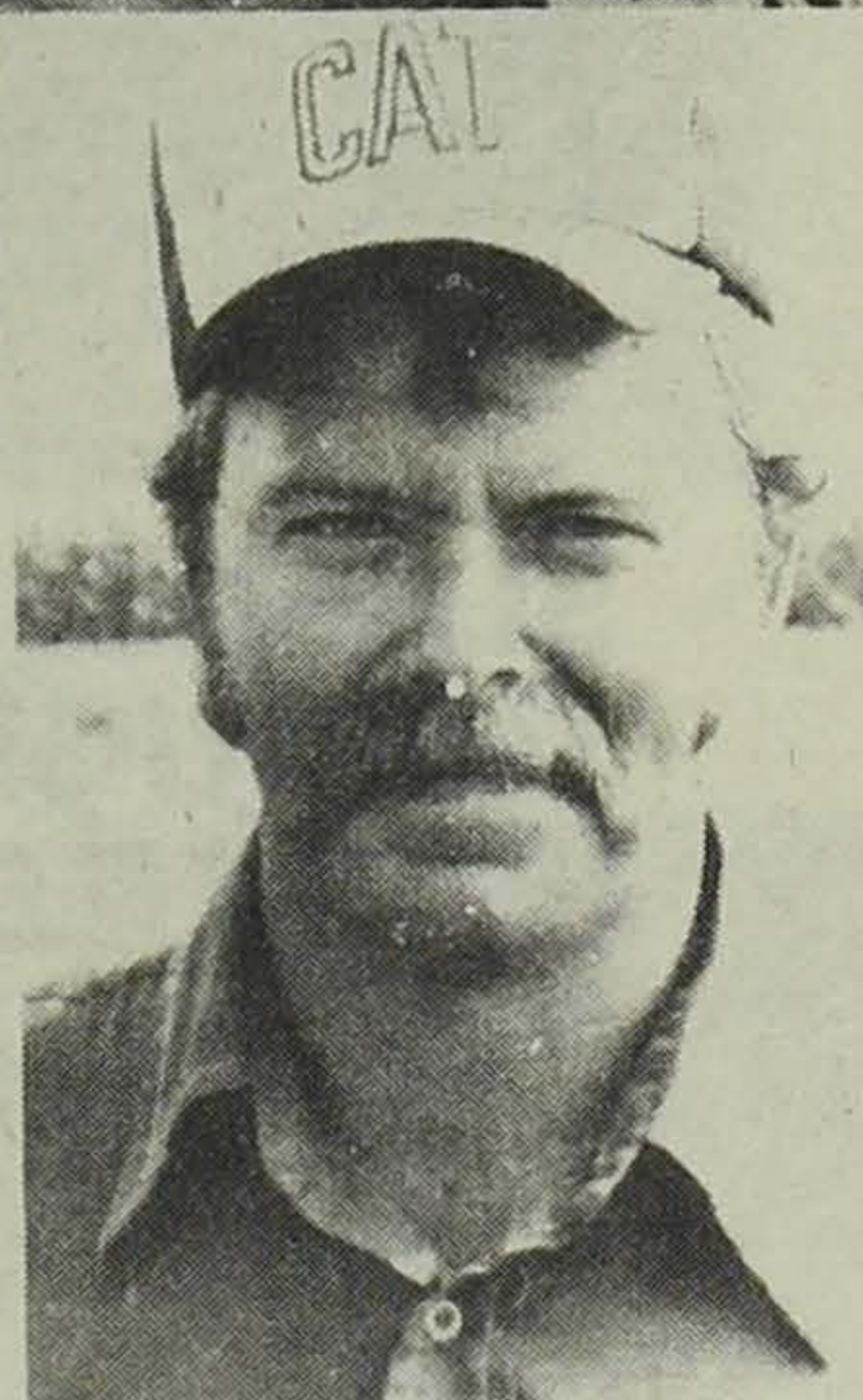
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It doesn't cost anything to find out the facts, so get together with PCA and see how it pencils out. Yes, "this could be the right time for you to invest back into the land."

Ask the producer who knows. Ask a PCA member.

Production Credit Association

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No-till finds roots in county

By Marvin Mensching
SCS Soil Conservationist, Malvern

Interest in no-till farming in Mills County is continuing to increase. Each year more and more farmers are looking at no-till as a possible time saver, money saver and soil saver.

From a soil conservationist point of view, the soil savings is the most important aspect of no-till farming. Almost every spring there is dramatic evidence that soil erosion is a major problem in Mills County. Hillsides covered with rills and road ditches filled with silt are two easily recognizable erosion indicators. I'm sure many of you felt the impact of erosion directly when you mowed your PIK acres this summer. And, of course, every fall there are a few ditches to cross with the combine that shakes you up a bit. All of these things indicate erosion is taking place over a very wide area. An erosion control practice is needed that can be easily applied over a lot of acres. That erosion control practice is reduced tillage.

Reduced tillage cannot completely handle the erosion problem on every field. Many areas need terraces and reduced tillage to eliminate excessive soil erosion. But terrace systems sometimes take years to complete. In the meantime precious topsoil, along with the herbicides and fertilizer it contains, is being washed away.

Reduced tillage is the most effective and least expensive method of reducing soil erosion that is available. No-till is the most effective form of reduced

tillage. The bottom line is the more crop residue you leave on the surface, the more erosion control you will get.

By using no-till you can cover all of your crop ground with a soil erosion practice and reduce soil erosion by over 50 percent. Sure, there are a few problems associated with no-till farming, but none that can't be overcome. As I looked over the no-till fields this year, I noticed very little difference between the stand or weed control in no-till fields compared to conventionally prepared fields. In fact, most farmers have said their no-till fields look just as good or better than their conventionally tilled fields.

The most common form of no-till is corn following soybeans. The consensus

of no-tillers throughout Mills County and neighboring counties consider no-till corn following soybeans no problem. Not for weed control, stand, or yield, compared to conventionally planted fields.

Farmers are finding they can often no-till corn in soybean ground without planter modification. However, it should be noted that most experienced no-till farmers recommend using planters with coulters.

Some common herbicide combinations used are Bladex + Atrazine, Bladex + Lasso and Lasso or Dual + Atrazine. Paraquat is being used most often for burndown of existing weeds with one very important finding. Paraquat should be used before weeds

become too large. The manufacturer states that paraquat may not control weeds taller than 6 inches.

An alternative to using paraquat for burndown is liquid nitrogen. Application of 120-140 pounds per acre of liquid N gave excellent burndown results for those who tried it this year. An added feature to using liquid N is that it can also be used for a carrier to apply your pre-emergence herbicides.

If you prefer anhydrous ammonia for nitrogen application, there are toolbar applicators available now with coulter attachments to cut through crop residue. For more information visit with your fertilizer dealer.

It is also possible to knife in liquid N or anhydrous along with liquid P & K. At least one fertilizer dealer in the county has equipment available for this.

Current research indicates that deep placement of fertilizers gets better crop response than surface applied fertilizer, particularly in no-till fields.

Since experience is still the best teacher, a good way to find out more about no-till farming is to visit with those farmers who have tried no-till. Here are just a few in Mills County: Marion Bakehouse, Richard Biermann, Don Carlberg, Allen Fichter, Norman Graham, Paul Hathaway, Joe Hathaway, Scott Hillyer, Gary Johnson, Greg Johnson, Myron Jones, Glen Knop, Patrick Martin, Keith Mintle, Charles Paul, Harry Paul, James Paul, John Paul, Joe Robbins, Mark Robbins, John Wilson and David Young.

Soil stewardship

By Rich Maaske
State Eng. Aide, Soil Conservation Dept.

We hear that term at least once a year, usually during Soil Stewardship Week. However, stewardship of the land is something we should be aware of everyday of the year. The use of our God-given resources of land, air and water needs to be carefully considered. As stewards of the resources of God's creation we must face them honestly, understand the implication, and resolve the differences for the common good.

We have been taught that it is our duty to God as well as one another to

honor the land and to respect every life upon it. The question most often asked is, "have we done that?" I think today we have no choice, We Must!

H. Boone Porter, Jr. sums it up with the statement "Human beings who recognize that they are placed on this planet by a loving and merciful God cannot disregard the calling to be responsible stewards of the incredibly beautiful, interesting and bountiful world in which He has made us citizens."

When should we start? The time is now.



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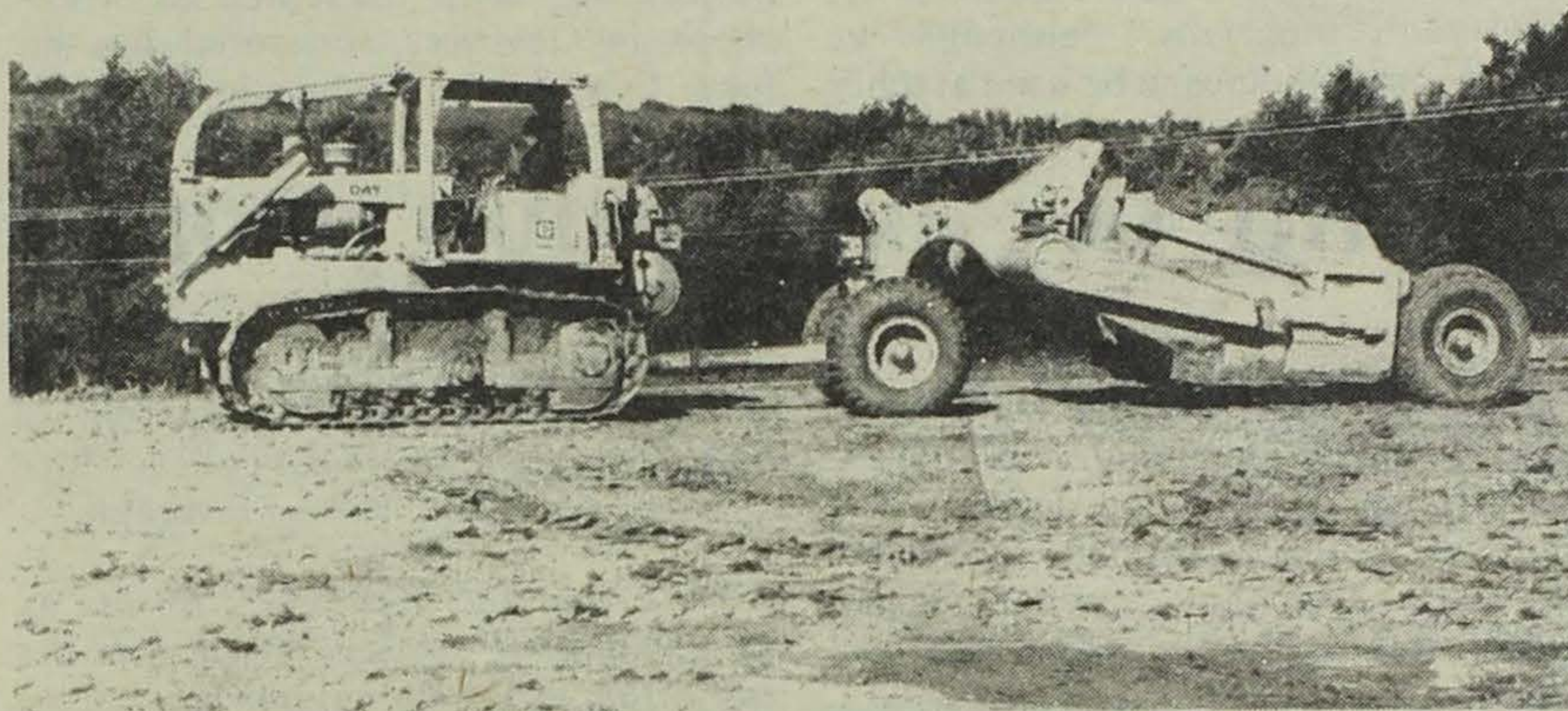
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SOIL CONSERVATION

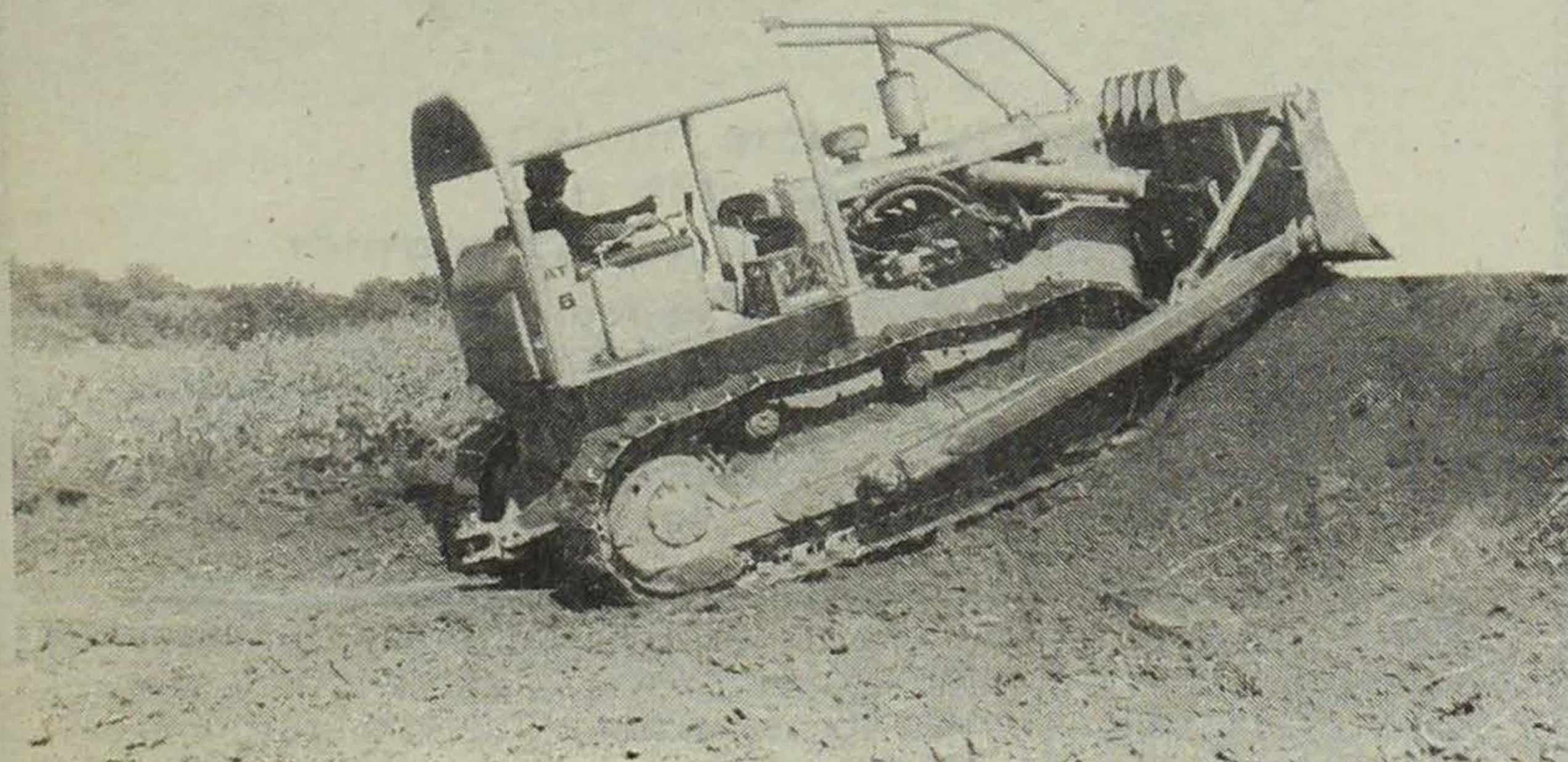
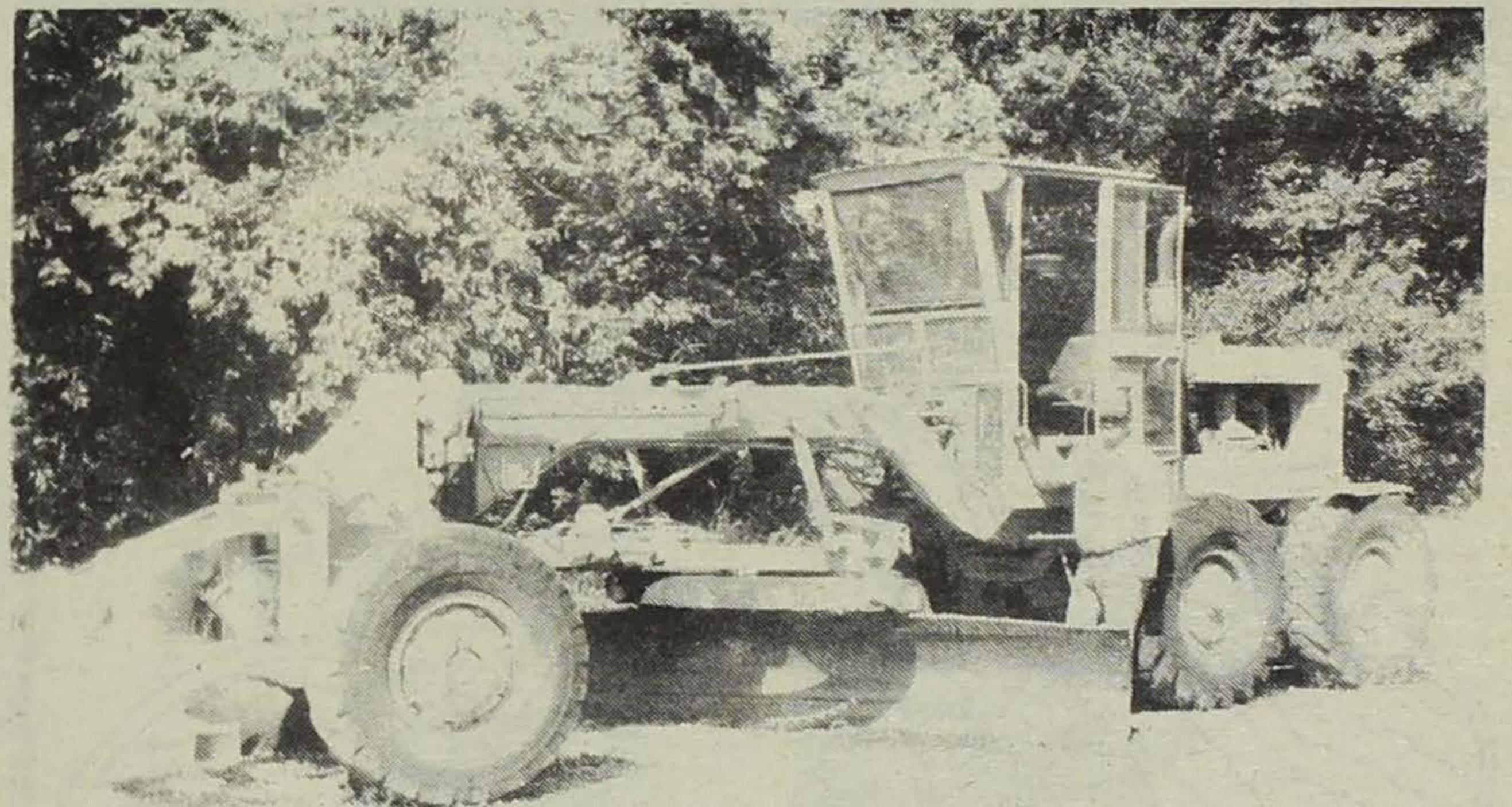
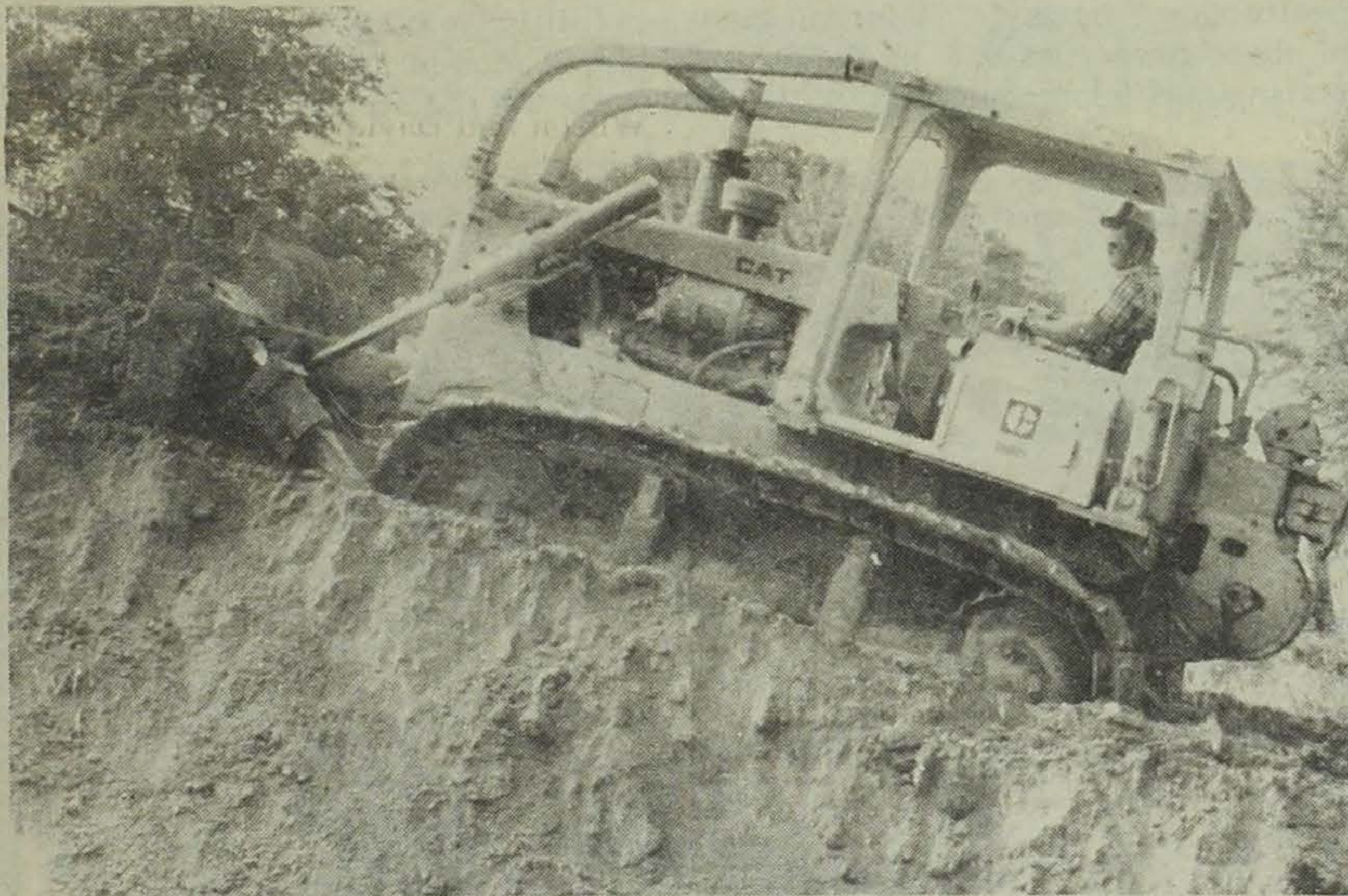
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For kids only

4H/Ding Darling project is started

AMES—Soil, water and wildlife conservation education will take on new emphasis this fall when the new 4H/Ding Darling Project is distributed in Iowa schools. This Iowa State University Cooperative Extension Service project includes 30 activities for teachers to use to help students understand the interactions of soil, water and wildlife.

The project, made possible by a major grant from the J. N. "Ding" Darling Foundation, was developed by staff from the Iowa 4H and youth programs office at ISU. It was tested by Iowa teachers and naturalists last winter.

There are 10 activities each for soils, water and wildlife. They include some of Darling's cartoons, computer programs that use knowledge learned in other

activities, and introductory films and tapes. Each module features background material for the teacher, a list of materials for the activity, procedures for leading it, ideas for follow-up with the class and further references. Most activities can be done with simple, readily available materials and conducted in the classroom or on the school grounds.

A section called "For Kids Only" is designed to help especially interested students explore the subject further. It also allows teachers to further individualize their instruction.

"The 4H/Ding Darling Project is aimed at youth in grades 5 through 8," said Jerry Parsons, state leader for 4H and youth programs, "although we expect some modules to be used at other

levels as well. We are offering these through 4H school enrichment programs. Providing these high quality materials for teachers allows us to extend the expertise and resources of ISU to students in schools."

Stephnie Wald, 4H program assistant and principal writer for the project, said many agencies have helped develop the project.

"Heartland Area Education Agency has provided funding and personnel to help develop the computer programs and film strips. The Soil Conservation Service will help distribute the materials through its 'VIPS' program," she said. In addition, the 4H/Ding Darling Project has been presented at workshops for teachers sponsored by the Iowa Conservation Education Council

and the Iowa Department of Public Instruction.

"We're excited by the cooperative efforts of so many agencies," Wald said. "Like conservation itself, it takes all of us working together to succeed."

Jim Pease, assistant state leader for 4H and youth programs and director for the project, said materials can be ordered for \$25 from county extension offices.

"While intended primarily for teachers, I think naturalists and other youth agencies will find the materials useful as well," Pease said.

Individuals or organizations unable to obtain a set of the materials through their county extension office may contact Jim Pease at 33 Curtiss Hall, ISU, Ames, Iowa, 50011.

Participation in land tax exemption program favorable

AMES — Owners of more than 160,000 acres of natural lands in Iowa will qualify for property tax exemptions under a new law enacted this year, according to Steve Dermand, county conservation specialist for the Iowa Conservation Commission.

The State Property Tax Natural Resource Exemptions and Assessments Act, commonly called the "slough bill," became law in July 1982, and was

implemented for the first time this year. The act provides property tax exemptions for lands qualifying as wetlands, recreational lakes, forest cover, forest and fruit tree reservations, rivers and streams, river and stream banks, wildlife habitat, native prairie and open prairie.

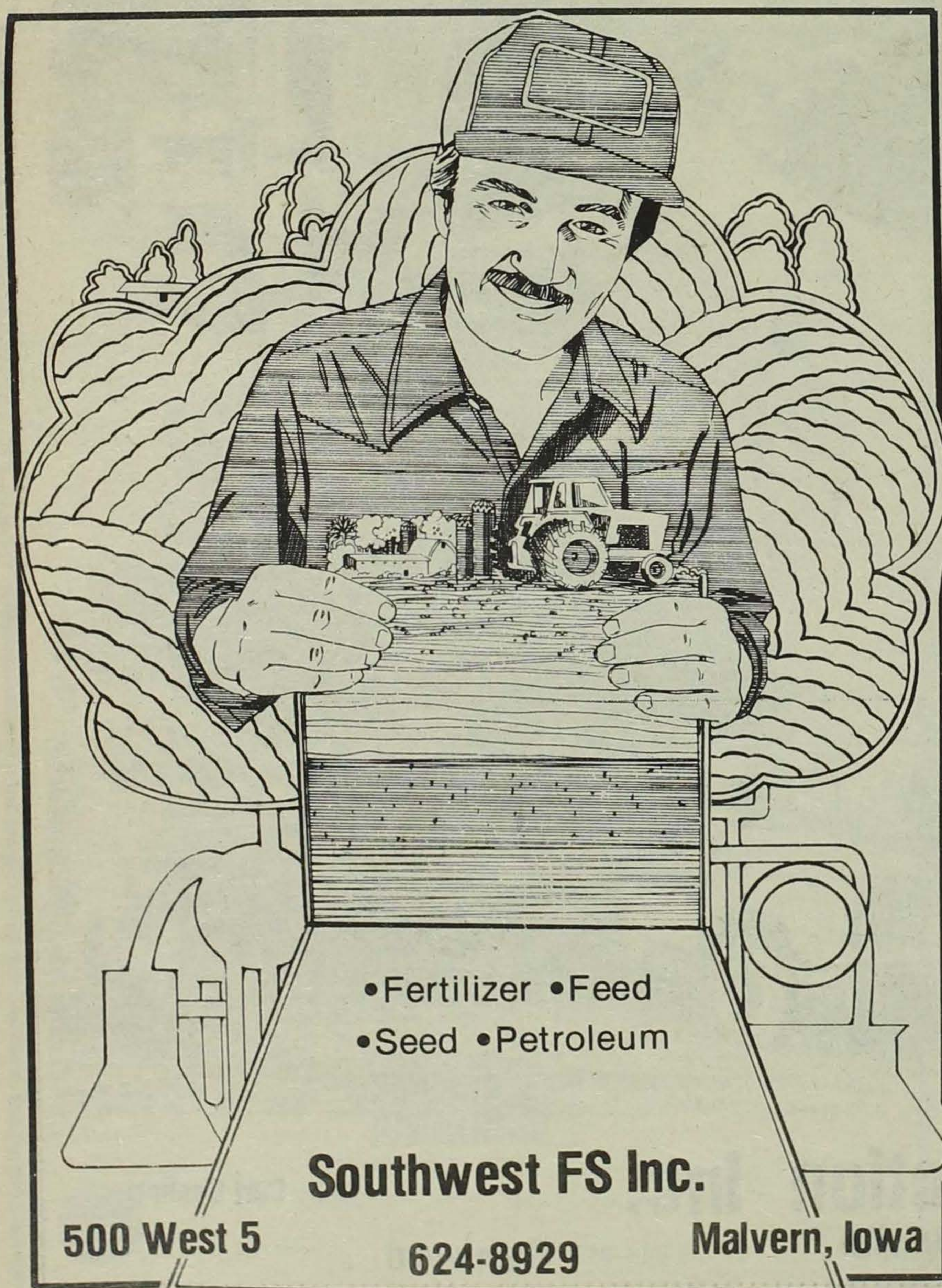
A survey has been sent out to assess the first year's results of the new program. While the 160,000-acre figure

is an estimate derived after receiving survey responses from about half of Iowa's counties, Dermand believes final participation totals will be favorable.

"We view the first year's results as an outstanding success in terms of the protection of Iowa's natural lands from further development and possible destruction," he said. "After all, many of these properties are in themselves endangered representatives of Iowa's

natural history."

Dermand said landowners interested in participating in this program should be aware of the application deadline dates for the particular exemptions for which they may qualify. Those who want to apply should contact their local soil conservation district office, county conservation board office, or area wildlife management biologist for application forms and an explanation of program requirements.

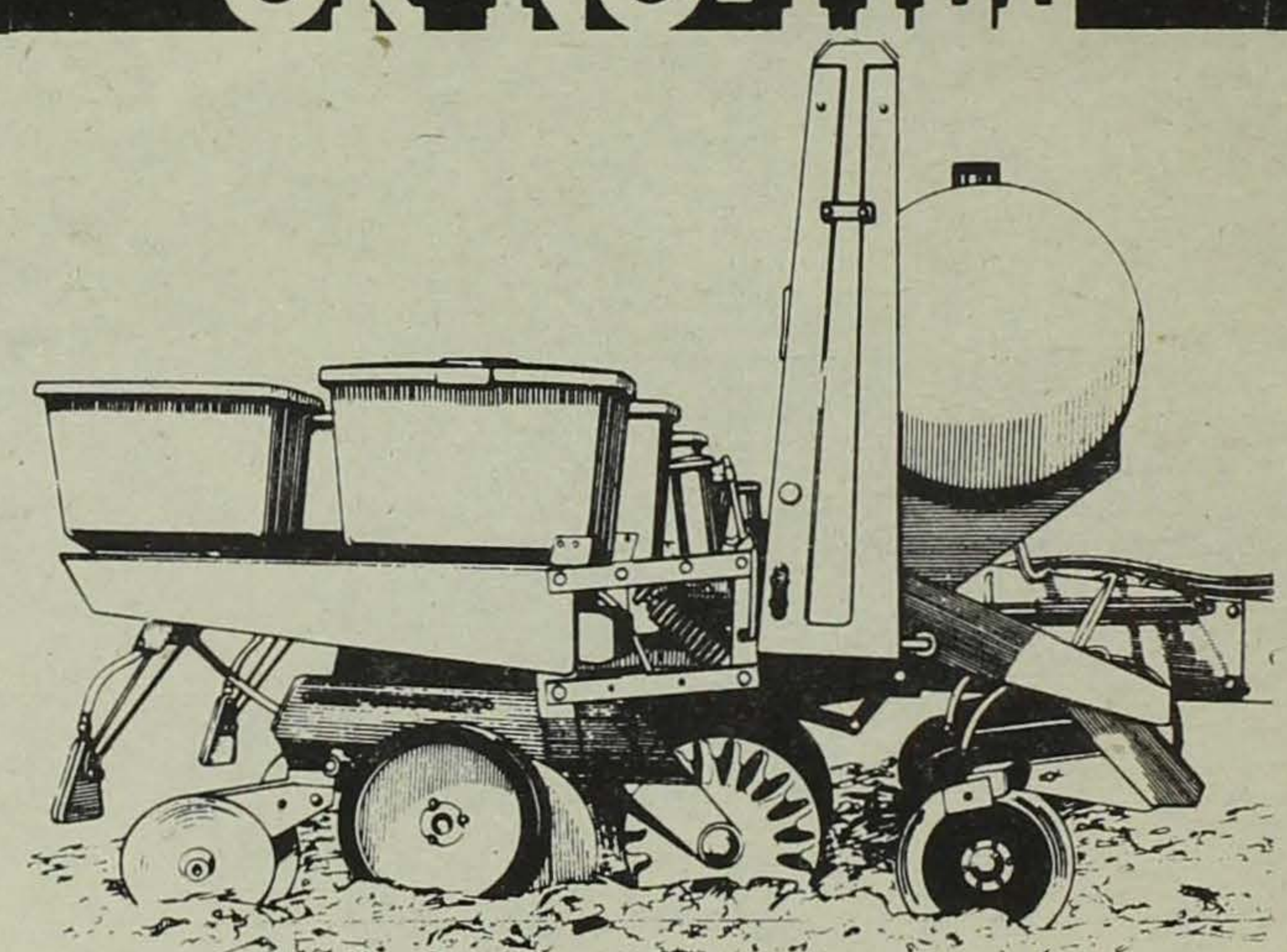


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It's time for cropping decisions

AMES—Farmers must consider the set-aside management decisions they made this year when they start planning for 1984. While plans for another set-aside program are uncertain, tillage, fertilization and crop rotation decisions for next year still should be made soon.

Many producers planted alfalfa or some other nitrogen-fixing forage legume on their set-aside this year to take advantage of the "free" nitrogen for their 1984 corn crop. Those who planted early and have a good legume stand can graze their land after the approved date with little or no expected nitrogen loss, according to Stephen Barnhart, Iowa State University extension agronomist. The nitrogen contribution from the 1983 growth should be about the same whether the legumes are tilled in the fall or early spring, he says.

"Winterhardy legumes carried over into 1984 will begin to fix additional nitrogen in the spring as temperatures warm," Barnhart said. "However, if you decide to delay tillage next spring for a little extra nitrogen, the yield reduction from later planting may be a greater cost than the slight increase in nitrogen you gain."

Not all the nitrogen in legumes or other plowdown plant material will be immediately available to the 1984 crop, he said. The exact amount is not known but as much as 50 to 75 percent of the total plant nitrogen will likely become available throughout the first growing season. Much of the rest will become available in later years as the residue decomposes.

On crop acres that are no-tilled, Barnhart said it is even less clear how much nitrogen will become available in 1984.

"The no-till system may return about 10 to 25 percent less available nitrogen in 1984 compared to tilled systems," he said. Over time, however, much of the remainder will be recovered as the residues break down.

Fields planted to oats, sudangrass or legumes, or managed as unseeded set-aside in 1983 can be tilled in either the fall or spring. Delay until spring plowing or use reduced tillage on these areas, the specialist suggests, so crop residue can be left on the soil surface for winter erosion protection.

Besides tillage and fertilizer considerations, farmers should also make decisions about their crop sequence for

1984. The 1983 set-aside program opened up many different crop rotation options, and Garren Benson, Iowa State University extension agronomist, says producers must consider a number of variables when deciding what adjustments to make in their crop rotations.

Besides considering the current farm program provisions and the possibility of another set-aside next year, farmers must take into account their typical rotation system, possibilities for forage use, the herbicide history of their farmland, and the erosion potential of different fields.

Farmers' options may be more complicated than they first appear, Benson said. For example, those who planted legumes on their 1983 set-aside acres to fix nitrogen for next year's corn on that land, have, in many cases, committed themselves to planting successive soybean crops on at least some of their other land.

"Disease buildup can occur when soybeans follow soybeans in a crop sequence," Benson said. "Yields are typically about 10 percent lower and the soil erosion potential is greater than for other sequences."

In some cases, farmers might want to

reconsider their original crop sequence plans, he said.

"If the legume wasn't planted until June or if the stand is poor this year, it may be better to plant corn after soybeans (40 pounds per acre nitrogen benefit) and soybeans after the 1983 set-aside acres," he said.

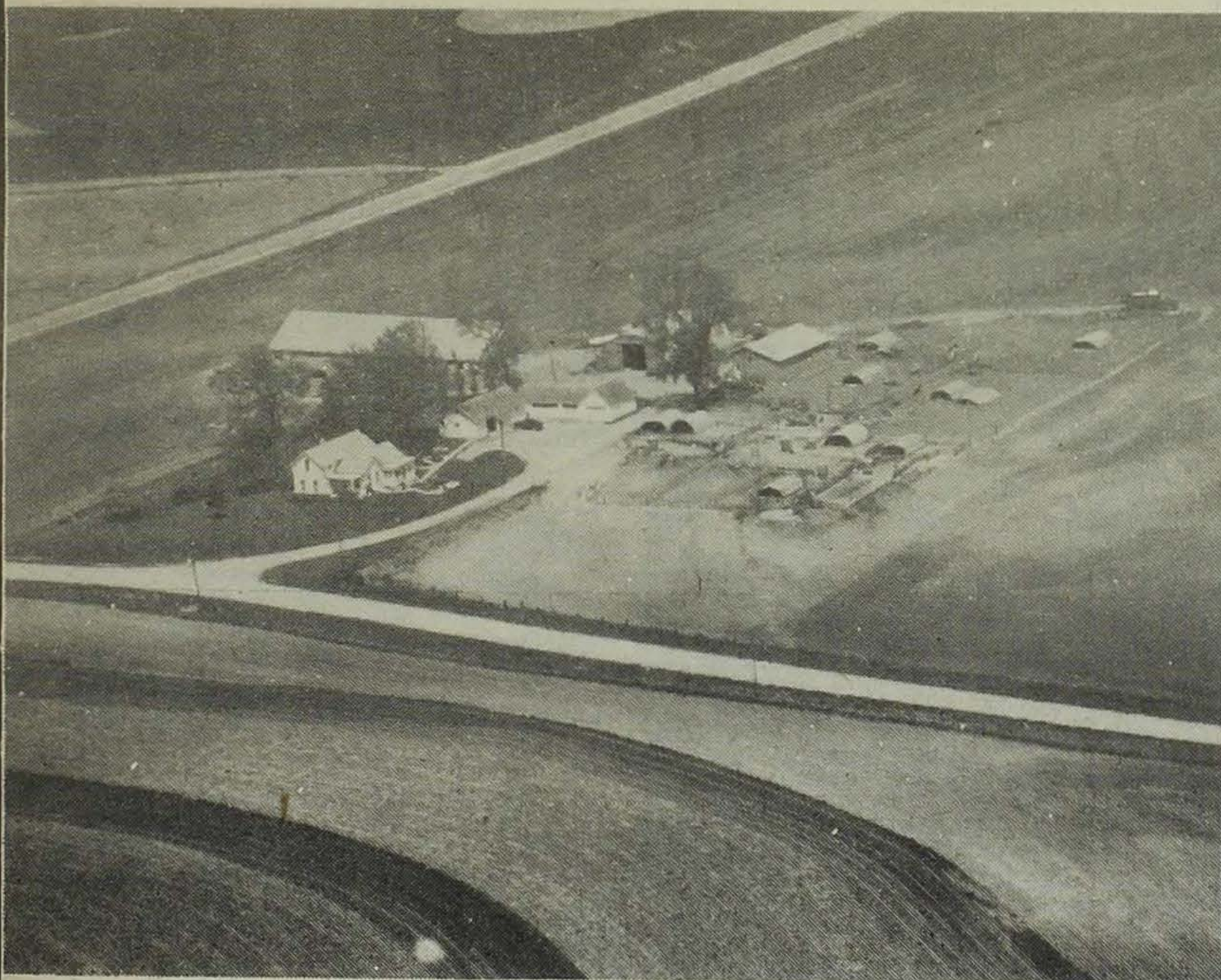
If a government set-aside program is approved for 1984, Benson and Barnhart agree the most logical plan for farmers may be leaving the same land they seeded to legumes this year out of production again next year.

"If a good legume stand was achieved and a winterhardy variety was used, the legume would protect what may be some of the more erosive land on the farm," Benson said. "Plus, farmers wouldn't have to worry about seeding costs next year, and additional nitrogen would be fixed for corn in 1985."

Since hay harvest probably would not be permitted on the set-aside acres next year, Barnhart said the legume stands should be clipped only if necessary for weed control.

"Maintaining active growth of leaf area and avoiding windrow-like smothering should be your goal," he said.

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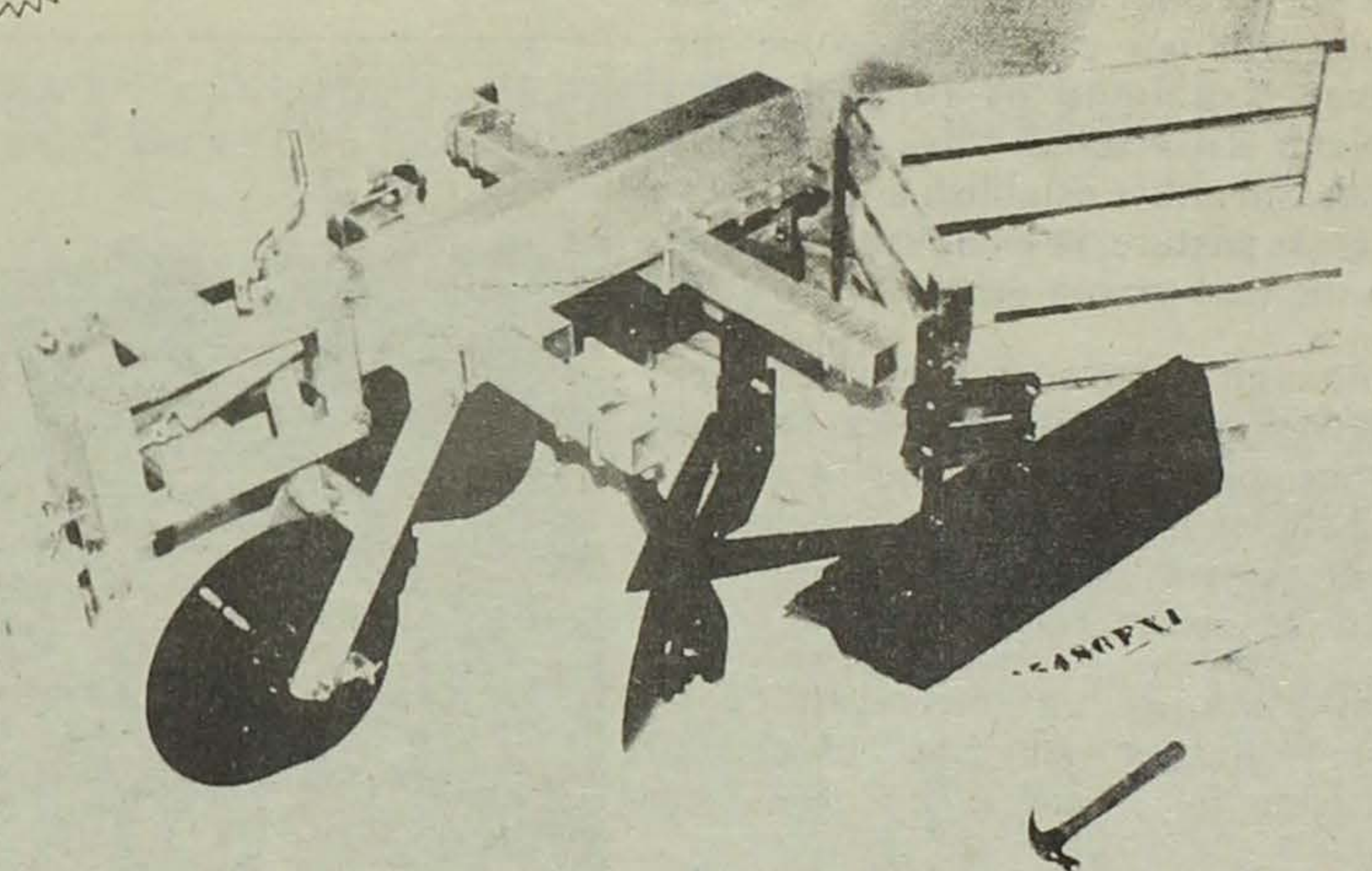
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Production and soil depend on management

AMES—Grassland serves an important role in minimizing soil losses on some of the state's most erosive land. Stephen Barnhart, Iowa State University extension agronomist, said good management practices can make grassland more productive, as well as more efficient in curbing soil erosion.

Applying nitrogen to grass pasture in early spring is one of the most efficient ways to boost pasture production, the specialist said.

"Where fertilizer dollars are limited, a modest amount of nitrogen applied in early spring will return the greatest yield response. Another application in late summer can boost grass growth in the autumn until 'fall-rested' legume grass pastures, corn stalks or other crop fields can be grazed."

Barnhart said the most profitable fertilization practice for cool-season pastures is probably an application of nitrogen in late spring.

"From a late-spring nitrogen application, we'll see a moderate increase in cool-season grass growth in early summer," he said. "And a grazing day's worth of forage in that otherwise deficit period is worth more than an extra day's worth of forage during a period of excess."

However, Barnhart said, nitrogen usually will not completely solve the typical "summer pasture slump" problem. To combat this, he said a farmer can either establish a warm-season grass pasture, or establish a legume with the cool-season grass.

Although warm-season grasses such as switchgrass require extra care in establishment and grazing management, he said they can work well in a pasture system comprised of both cool and warm-season forages.

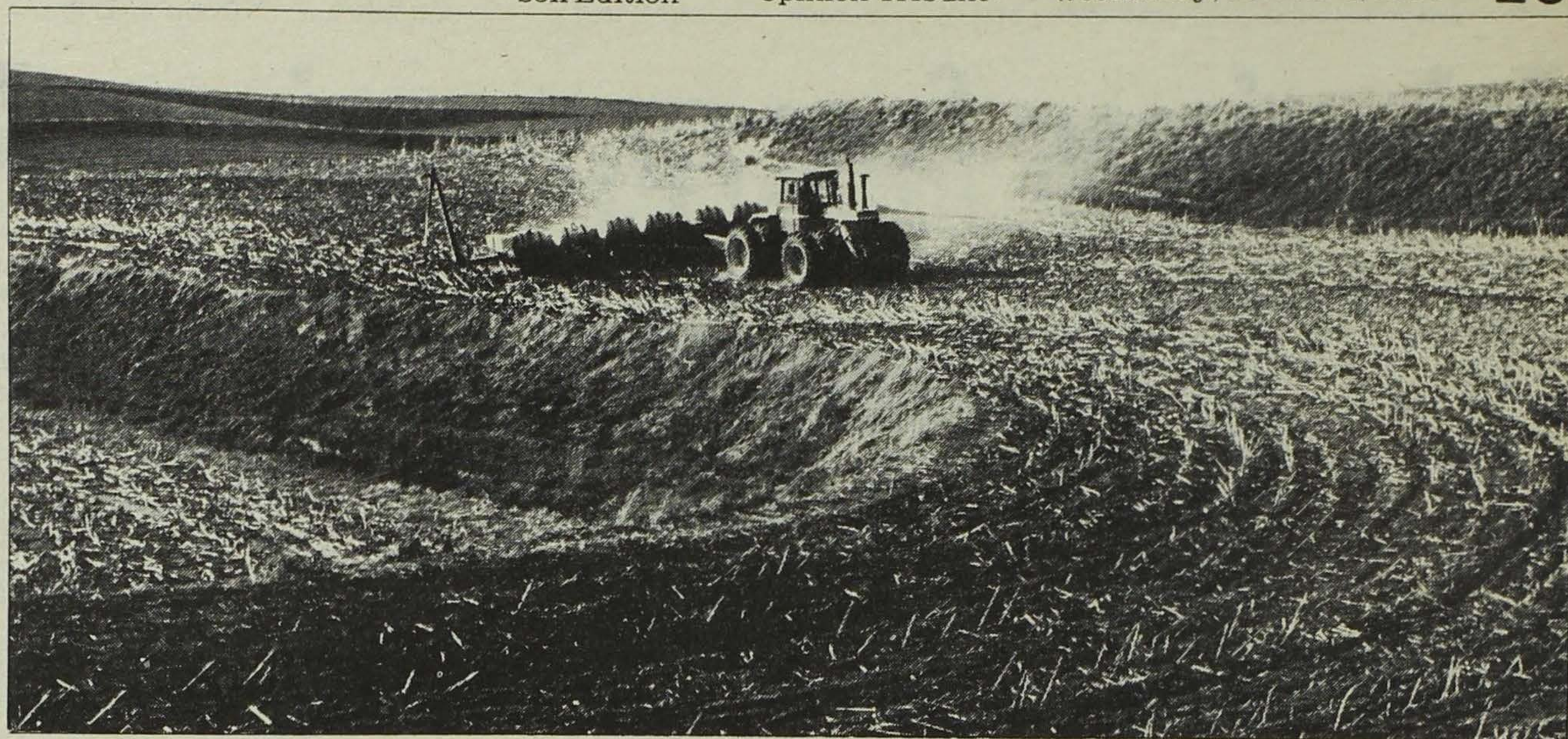
Establishing legumes with cool-season grasses may be especially promising for livestock producers, he added.

"Legumes may have a double benefit when used in a pasture system. Not only do they provide a more uniform supply of forage throughout the summer than the cool-season grass alone, they can fill some of the pasture's nitrogen needs."

Legumes can be established through a conventional tillage and reseeding renovation, or they can be interseeded directly into the existing sod.

Good pasture management is not haphazard; it is a well-thought-out plan to make the most of a farmer's existing resources. To do that, Barnhart said producers must learn to fine-tune their skills in matching the nutritional requirements of their livestock with the quality and productivity of their pastures.

"This requires knowledge of the growth and nutritive quality of the different types of pasture grasses and legumes, as well as an understanding of the nutritional requirement of livestock," Barnhart said.



On this farm, no-till soybeans grow through the residue left by the fall corn harvest. No-till planting leaves nearly all the residue of the previous crop intact to act as a barrier to slow down runoff.

Grassed waterways still important tools

AMES—Although many crop producers consider grassed waterways a thing of the past, they still are an excellent conservation practice. Siltation and herbicide damage have caused many waterways to fail, but these problems can be solved with good management.

Stewart Melvin, Iowa State University extension agricultural engineer, said even though conservation tillage is being used on more acres of Iowa farmland, waterways are still one of the best techniques for preventing major rill erosion. "Excessive rill erosion occurs where channeled water runs across unprotected land surfaces," Melvin said.

Even no-tilled land is subject to erosion by a concentrated flow of water, he said. And good grassed waterways can provide a stable channel for runoff water without causing erosion, sediment buildup or flooding in a field.

Good waterways must be properly constructed and maintained. Soil Conservation Service technicians can help design a waterway that is of the proper shape, width, depth and alignment for a field.

After design work is done, Melvin said trees and brush should be cleared from the waterway site. Where subsoil is unproductive, topsoil should be removed and stockpiled for spreading after the waterway has been shaped. In

very wet areas, subsurface drains should be laid on both sides of the waterway.

As soon as possible after the waterway has been shaped, the producer should establish a quick initial ground cover and a permanent sod-forming grass on it. Stephen Barnhart, Iowa State University extension agronomist, said good soil fertility in the waterway seedbed is important for rapid stand establishment.

Fertilizer should be applied on the basis of soil test recommendations, Barnhart said. "Consider the seeding as a forage or pasture establishment when you request fertilizer rate recommendations. In the absence of a soil test, apply about 50 pounds per acre each of nitrogen, phosphate and potash."

There is no one best seeding choice for grassed waterways. Barnhart said smooth bromegrass is a good all-purpose grass, but reed canarygrass may be better suited for waterways that will be wet for long periods. Kentucky bluegrass is a good choice, but it may require more careful management at first because it establishes more slowly than other grasses.

"Whatever kind of grass you decide to use in your waterways, don't skimp on seed," he said. "A thick initial stand is what you want to develop."

"Don't disk in grass seed," he said. "Roll or harrow it in to achieve the shallow coverage and good seed-to-soil contact you want."

Early stands can be protected from erosion by a light covering of straw or other mulch. Or, producers can sow a companion crop of oats into waterways during the establishment year.

Once established, waterways still require maintenance, Melvin said. Two problems that have kept many farmers from maintaining their grassed waterways are sediment deposits and herbicide damage. With careful management and the use of some additional conservation practices, Melvin said these problems can be solved.

"Conservation tillage, strip cropping and using terraces along with grassed waterways will reduce soil losses on the land being drained and protect the waterways from sediment buildup," Melvin said. "And effective shut-off valves and no-drip nozzles on sprayer equipment will prevent accidental herbicide application to the waterways."



Good approach: Planting no-till corn on contour of land that has been terraced

Land, like children, is changing here

By Richard Biermann

Chairman, Mills County Soil Conservation District.

Your land is like your children, in one way. That is, it's changing year by year, if not day by day. But, since you're so close to it, and the change is gradual, it's difficult to see dramatic differences.

One trip with a disk, harrow or cultivator can smooth the small rills left after a heavy rain, and erase the erosion problem from your mind, for the time

being.

But that erosion mounts up after a time, to the tune of an average loss in Iowa of an inch every 15 years; soil conservationist say. On steep land, it can be twice that much and more.

It's easy to see erosion after heavy rainstorms, with evident rills, sediment fans, and buried crops at the bottom of a slope. But the "hidden" erosion that

takes place year after year from lighter rains is just as much a problem.

The answer? A total soil conservation system for your farm—especially the cropland. Practices to use include conservation tillage, crop rotations, stripcropping, contouring, grassed waterways, and terraces. Each of these practices has merits, but one alone isn't enough. Only a combination of soil conservation practices can insure your topsoil's future productivity.

For example, economics have made conservation tillage very attractive, and farmers in the county have adopted some form of reduced tillage. But, one practice isn't usually enough insurance against erosion.

Targeting federal conservation funds

to high priority areas is proving to be an excellent way to speed adoption of complete soil conservation systems. We look for more target areas in the state in the future.

Likewise, funding for the "Iowa Soil 2000 Program" is providing more state assistance to Mills County soil conservation needs. Beginning this year, the district will start distribution of conservation folders to all landowners in the county.

The Mills County Soil Conservation District Commissioners urge farmers to examine their fields for erosion. Please feel free to contact us for any assistance in evaluating your situation and suggesting options to control erosion in problem areas.

Narrow base terraces reduce soil erosion

By Leo M. Van Fosson

SCS Soil Conservation Technician, Malvern

Due to the highly erosive soils we have in this country, we need to take advantage of all practices that will help reduce soil erosion to a minimum.

One of these practices I am referring to is narrow base terraces.

Since we have started installing these terraces on farm land over three years ago nearly 45 miles have been constructed.

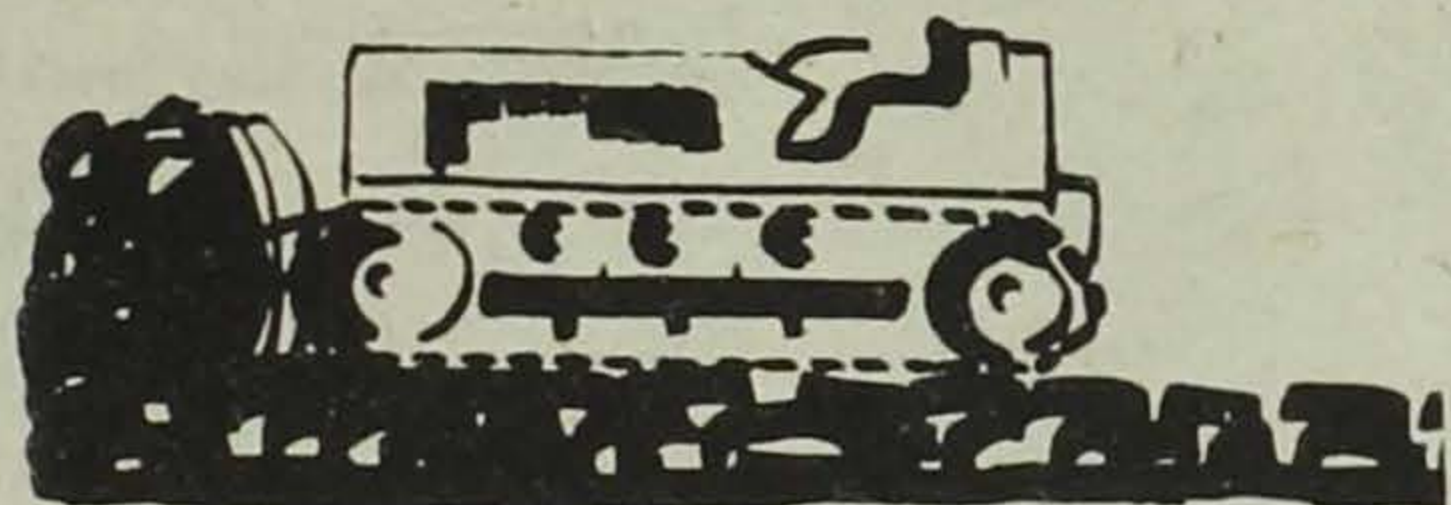
Some of the advantages of narrow base terraces are: they are less expensive to build because of less dirt used for construction. These terraces also have more capacity for water and silt because of greater height and a steeper front slope. During farming operations you do not touch the terrace with farming equipment therefore you maintain the original height and shape of the terrace for a long period of time.

Maybe the most important feature is that they have been almost maintenance free even through the 1982 growing season when we had so much rain. Only two holes were reported to us that needed repair.

The narrow base terrace does have one disadvantage. They do take up more ground space under the terrace at its base because both sides of terrace are seeded. This disadvantage is somewhat overcome by using less lineal footage per acre of ground. To do this, we space them wider apart to maintain a 120 feet of farmable area between terraces.

After summing the advantages and disadvantages, maybe the narrow-base terrace has a place in our farming operations. Since economy of construction and reports of very little maintenance it seems it would be another conservation tool to help save our NO. 1 natural resource, the soil.

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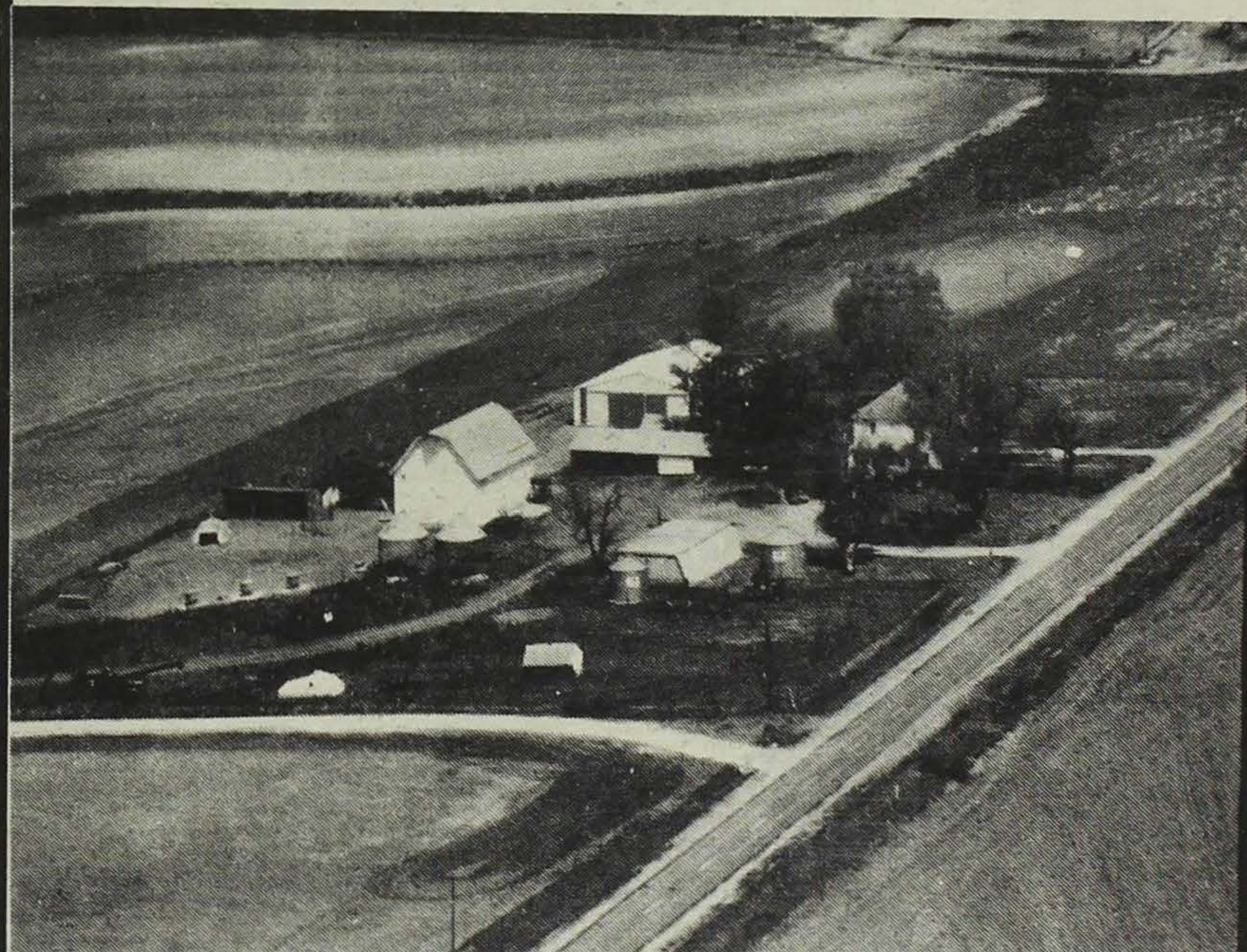
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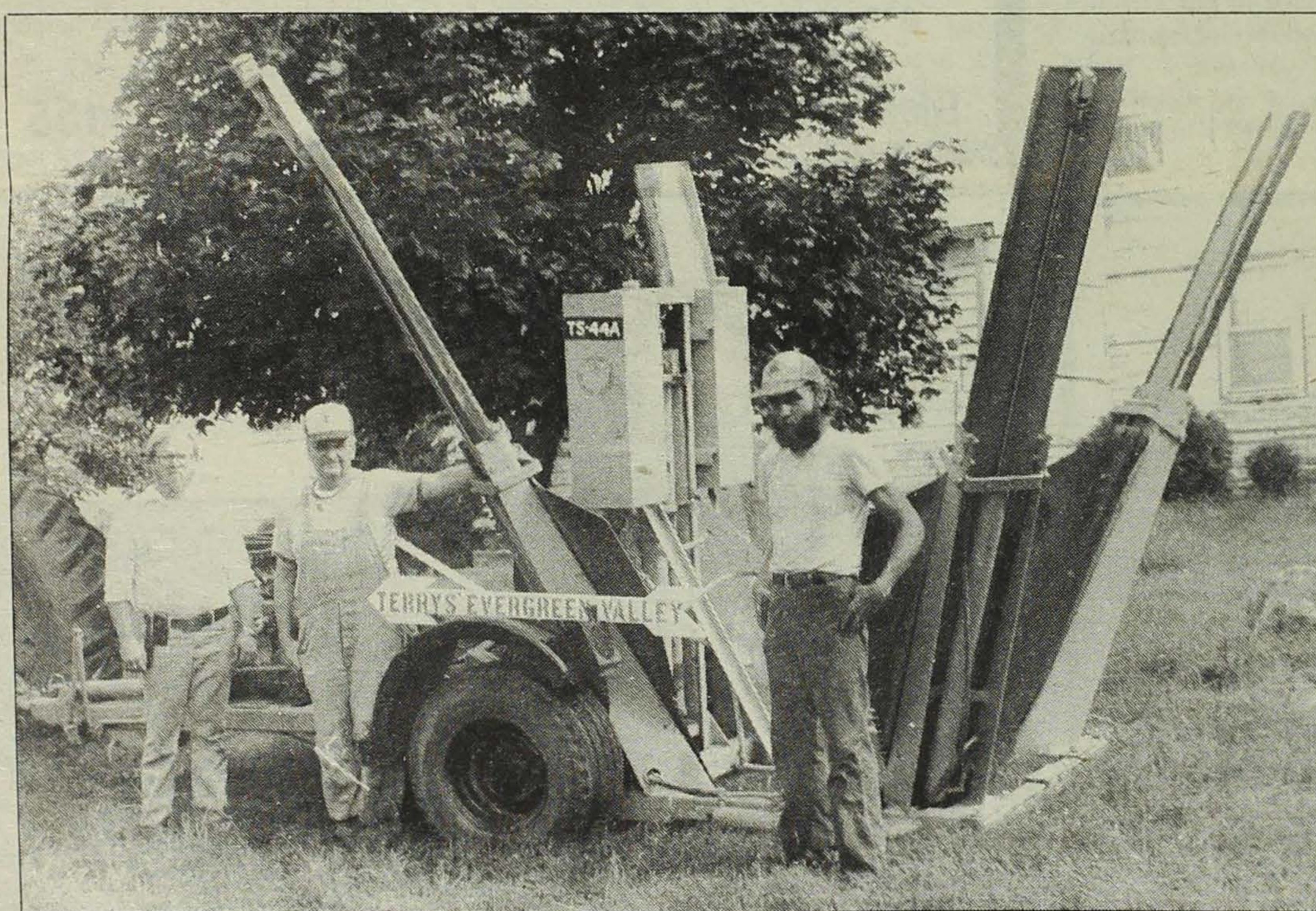
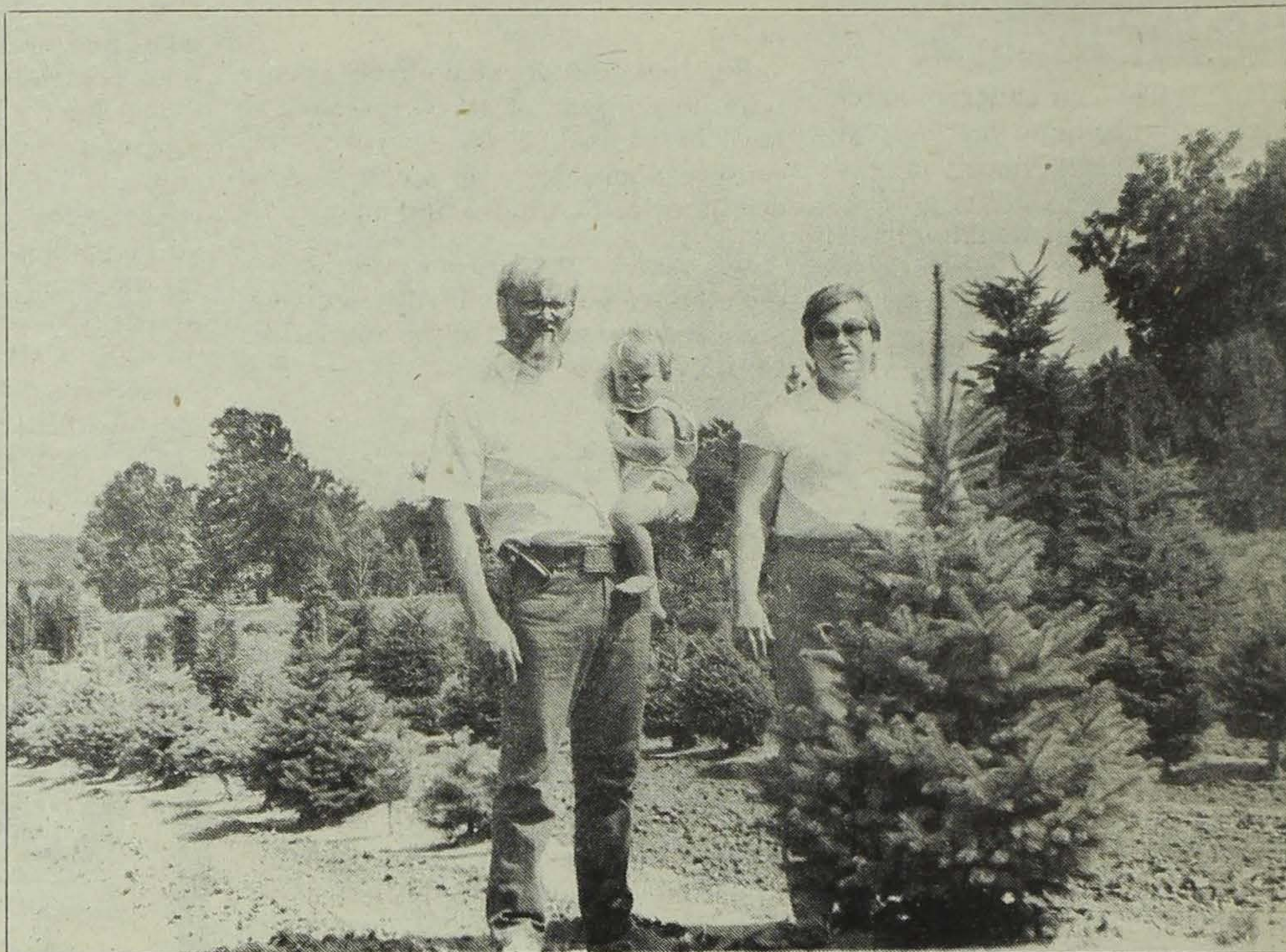
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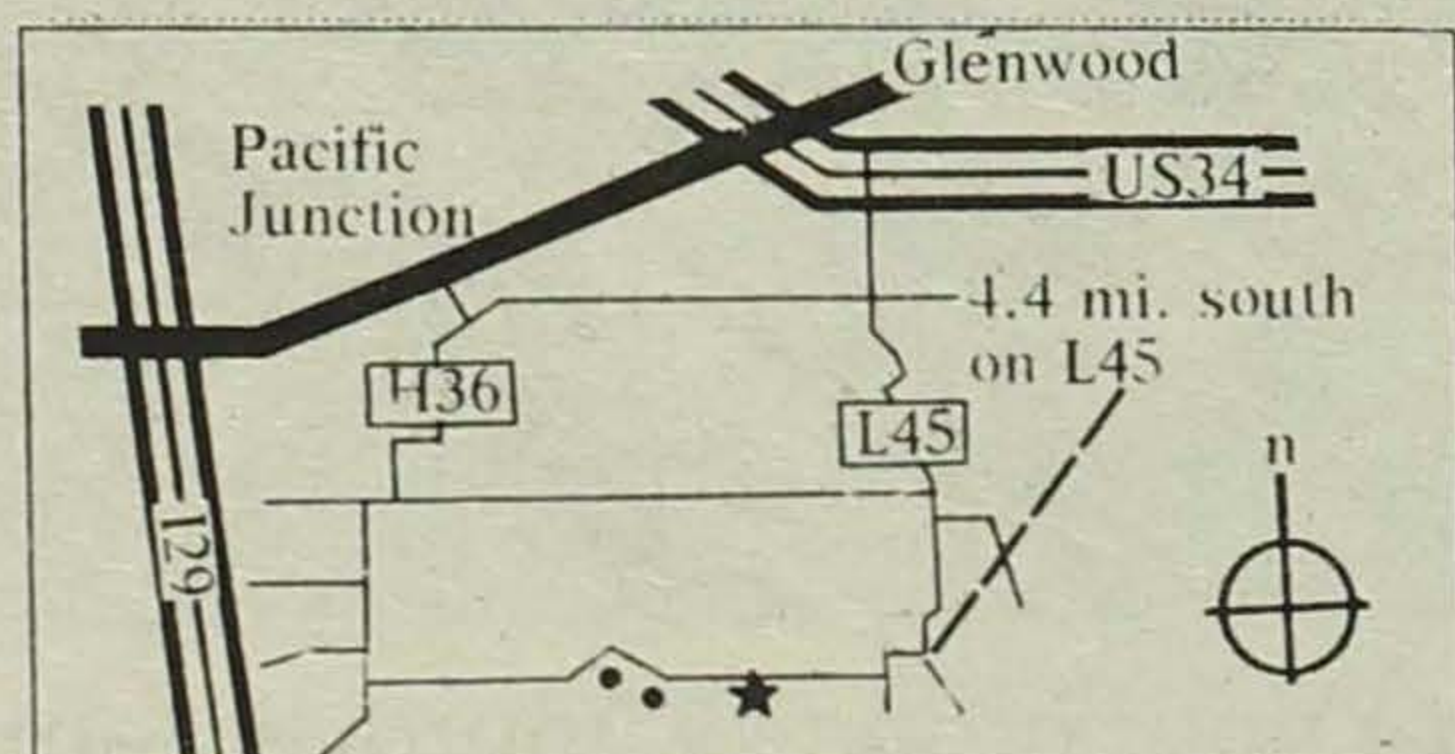
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