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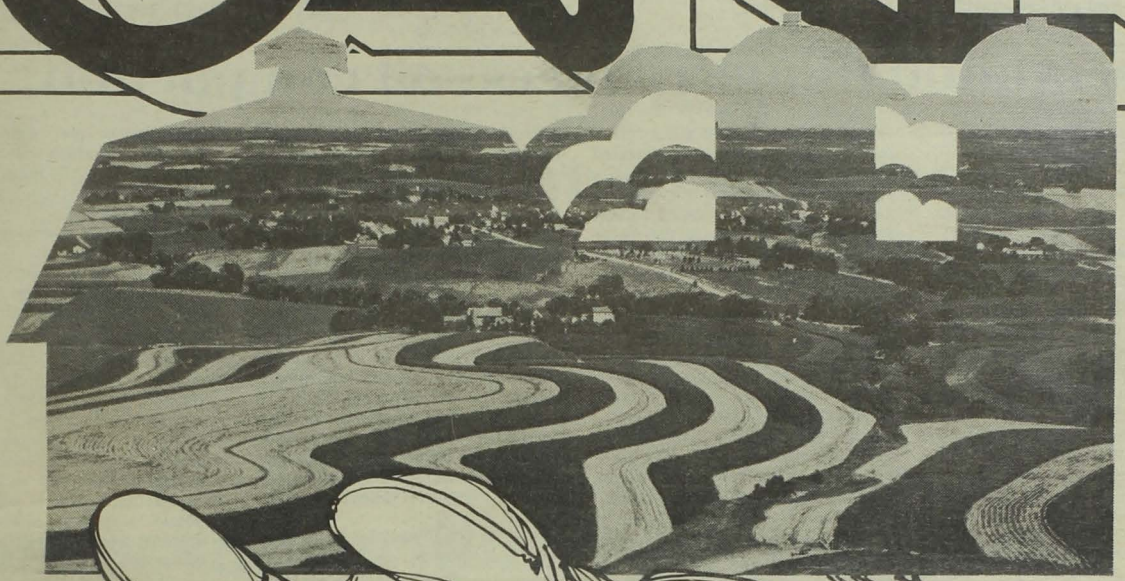

for your land...

...By using, not abusing our wealth of natural resources. The land should be treated with respect, so that we all may benefit from its rich supply of food, fiber and minerals. As a farmer, *you* can see to it that what we take from the land is given back...by replenishing and conserving...rotating crops and irrigating...using the land to its fullest, yet leaving time and space for regrowth. As a farmer, *you* can provide a vital contribution to the future of this nation...by keeping our precious land thriving for generations to come.

The Future Is In YOUR Hands! Practice Farm Conservation And Reap The Rich Rewards!

Tinkle Branch project is started

The RC&D project for Tinkle Branch watershed area is becoming a reality. The project purpose is to control and stabilize the upper ends of the large gully system. The gully is endangering county roads and voiding farmland at several sites in the watershed.

The first site completed is on a county road west and north of Glenwood. The gully was rapidly cutting into the road and had created a dangerous situation. Construction at the site included a series of sediment and water control basins with tile outlets, and associated terraces on cropland draining into the gully. The work was contracted by the Mills County Board of Supervisors who co-sponsor the project with the City of Glenwood and the Mills County Soil Conservation District.

The method used to stabilize the site was unusual. Normally a grade stabilization structure would be built to impound water and stop further gully growth. Such a structure would have cost around $80,000 and may not have held enough water to do its job. The system of basins and terraces installed cost less than $25,000 total, giving a substantial savings and successfully stabilizing the gully.

This new approach to gully stabilization will be used on 13 other similar sites in Tinkle Branch watershed. Benefits to be realized include reduced gully damages to county roads and farmland, reduced flooding and siltation and maintenance costs.

The Tinkle Branch project was developed as part of the Golden Hills Resource Conservation and Development Project area plan.

Conservation tillage reduces soil compaction

AMES-"It is a poor assumption that natural environmental conditions such as freezing and thawing and wetting and drying eliminate all potential soil compaction problems," according to Stu Melvin, Iowa State University Extension agricultural engineer.

He said compaction problems have been observed more frequently in recent years in Iowa and surrounding states for several reasons: equipment has become larger; timely operations have become more important, especially in wet springs when field worktime is reduced; fields are larger and less likely to have uniform moisture conditions' and row cropping has become more intense.

"Even though some compaction problems can be attributed to tillage operations, especially tillage of wet soils in the spring, it appears that wheel traffic in the field and its effect on crop growth present the greatest compaction problems," Melvin said.

Studies in Iowa show the effect of one pass of a wheel in spring reduces corn yields 22 percent in the wheel-tracked area, he said. Other Midwestern states show similar yield decreases.

Heavy equipment increases soil compaction problems, Melvin said. Studies show that axle weights exceeding 10,000 pounds may compact the soil deeper than 1 foot in moist conditions. Many combines, wagons, manure spreaders and large tractors exceed these axle loads.

"It appears that subsoil compaction is our major long-term problem," Melvin said. "Periodic tillage can reduce surface layer compaction but deep tillage may be too expensive for subsoil compaction relief. Freezing and thawing apparently do not readily eliminate subsoil compaction below 1 foot."

What are some management techniques to control soil compaction?

Don't subject soil to heavier loads than necessary, Melvin said. Select the lightest equipment to complete the job.

Watch soil moisture. If soil at tillage depth readily "balls up" when squeezed in your hand, it is prone to compaction and should not be tilled or driven over with heavy equipment.

Melvin said tillage can relieve compaction near the soil surface. Conservation tillage can improve the porosity of surface soil in time by increasing organic matter near the surface.

Conservation tillage may also prevent some deep compaction problems, he said, because the soil has greater strength near the surface than conventionally plowed soils.

"Controlled traffic farming is one long-term solution to soil compaction problems," he said. "All field operations are conducted using the same wheel tracks and traffic is separated from crop rows."

Melvin said controlled traffic is best accomplished using no-till or ridge-till systems, where old rows are guides for traffic operations. He said controlled traffic farming has been tested and appears to be an acceptable solution to most soil compaction problems. The major obstacle is to obtain equipment with uniform tread width for all field operations, he added.

True or false?

Once terraces are constructed on a hillside, the erosion is stopped.

Doing conservation tillage will completely stop the erosion on my farm.

Contouring does not reduce erosion to any extent.

Soybeans are less erosive than other row crops.

Soil erosion is just a farmer problem.

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The answer to all the above statements are false. Terraces alone do not stop erosion. But terraces in conjunction with contouring, which can reduce soil erosion by as much as 50%, crop rotations, and conservation tillage can reduce soil erosion to less than 5 tons an acre a year.

Not only rural, but urban citizens need to be concerned about soil erosion. Soil erosion is everyone's problem, it effects everyone, including the next generation. What we do now, or what we fail to do now, will have a lasting impact. It is better to prevent erosion than to try to stop it once it has started or to correct the damage after it has continued for some time.

Stewardship responsibility

Each person cannot produce all of the food, obtain all of the energy sources, or manufacture all of the products that we use in our society. People have always used the plant and animal resources of the land to supply themselves with food and shelter. This is just as true today as it was when the land was inhabited by Native Americans. The Native Americans had a limited technology to alter the land and soil to produce items they needed. In contrast, modern technology can alter the land and the soil in both beneficial and detrimental ways on a massive scale. Intensive row cropping or extensive urbanization can increase soil erosion and remove large acreages from farming.

With our ability to alter land and soil comes a responsibility. This responsibility needs to be considered to balance the benefits of land use with the detriments it may cause.

Stewardship refers to our responsibility to manage natural resources to assure a supply for future generations. Stewardship means the practices of wise use, conservation and preservation.

Conservation plan helps landowners

Most farmers have noticed neighbors that have built some new terraces or tried some no-till. These are two of the most common conservation practices seen in Mills County. A no-till system allows a farmer to save time, energy, labor and money while still producing a high yielding crop. Terraces are used on steeper slopes and easily eroded soils to prevent rilling and gullying. Even though these are the most common practices used, there are other conservation alternatives that need to be considered. To help farmers make these decisions the Soil Conservation Service can assist them by writing a conservation plan.

A conservation plan is free of charge and can be written for any landowner upon request. This plan involves just a small amount of the landowner's time and can be very beneficial.

One of the benefits of the plan is the soils map and aerial photo that is given to the landowner. On this photo we not only draw field boundaries and acreages but we will draw on the approximate location and length of any new terraces that may be needed. From this drawing it is very easy to estimate the cost of the terrace work that needs to be done. Of course, if there are old terraces on a field we may be able to space them differently or convert them to another type of terrace.

The conservation plan also provides calculations of the present soil loss. If the present soil loss is at a rate that the soil can not rebuild itself and maintain current productivity various alternatives will be given to the landowner to consider using. The alternatives may include contouring, terracing, using conservation tillage, using no-till, or trying a different crop rotation which will help hold the soil in place while it is rebuilding. The landowner is not required to do any alternative but this information will allow him to plan ahead and make more cost-effective decisions for his farm.

For more information about a conservation plan and what it includes, contact your local Soil Conservation Service office in Malvern.

Warm season grasses extend your pastures

Would you like to keep your cattle grazing high quality forage throughout the grazing season? If you do, then having a warm-season grass pasture may be for you. Warm-season grasses like switchgrass, big bluestem and Indiangrass are native to this part of Iowa. But through natural competition with other grasses, uncontrolled grazing and mans intervention you don't see them like you used to. Now may be the time for farmers to take a serious look at bringing these grasses back to Iowa.

Switchgrass, big bluestem and Indiangrass are perennial, bunchlike grasses that grow 3 to 5 feet tall. They work very nicely into a rotational grazing system. While a cool-season grass pasture like bromegrass is dormant in July and August a warm-season grass pasture will be putting on its major growth. This allows cattle to start out in the spring on a cool-season grass pasture, graze the warm-season grass pasture during the summer, and then be turned back into the cool-season pasture in the fall. This provides a more uniform supply of forage and greater seasonal animal gains can be expected.

Of these three warm-season grasses switchgrass is usually the first choice among farmers trying to establish a warm-season grass for the first time. It is easier to seed, seed cost is lower, and it gets established quicker than big bluestem and Indiangrass. These grasses all do better if they are seeded in a pure stand rather than a mixture. Even though switchgrass is your choice it will take almost a full year to really get it established. But once it is established you should have no trouble grazing it, baling it for hay or taking a seed crop off of it.

If you are interested in establishing some switchgrass, big bluestem, or Indiangrass for a pasture, a critically eroding area, or an add area for wildlife, contact your Mills County SCS office in Malvern for further information.

Conservation tillage facts offered

A low-cost conservation practice that is gaining support in Mills County is conservation tillage. Over 9,000 acres of conservation tillage were reported in Mills County last fiscal year. Many of you are probably not quite sure what this term means. The SCS defines conservation tillage as any tillage and planting system that maintains at least 30 percent of the soil surface covered by residue after planting to reduce soil erosion by water. Now 30 percent may not sound like that much, but you would be surprised how many fields don't qualify, especially crops planted into last years soybean fields.

Soybean residue is much smaller than corn residue and much more care must be taken to preserve it. Many farmers in Mills County are finding that it is very easy to plant directly into the soybean residue without even modifying their planter. This is the best way to treat soybean ground because the soybean root system deeply fractures the soil and leaves the soil in a very erosive state. Even one pass with a tillage implement can bury most of the soybean residue.

Corn residue is much larger and so you can do a little more tillage to it and still leave the 30 percent residue on the surface. One pass with a disc will bury approximately 50 percent of the residue which will still leave 30 percent on the surface in most cases with corn ground. One pass with a disc on soybean ground may bury most of the soybean residue.

We recommend that after harvesting a field that nothing be done to it at least until spring. Leaving this residue on the surface over the winter will help trap snow for moisture, prevent blowing and washing away of topsoil, and save you the expense of driving over that field one more time.

If you would like to learn more about conservation tillage please contact the SCS office in Malvern.

Wildlife and songbird packages are available

AMES-Wildlife and songbird packages are available again this year from the State Forest Nursery, according to Laura Spess Jackson, urban biologist for the Iowa Conservation Commission.

Jackson said the wildlife package is geared toward rural landowners and includes 200 plants: 50 conifers, 50 hardwoods and 100 shrubs. These plants can be used for establishing windbreaks or reforestation.

Urban dwellers can order the songbird package and enhance their yards for wildlife, she said. The package includes 20 shrubs. Plants can be used to establish a hedge to increase privacy or to fill in an odd corner in the yard while providing habitat for wildlife.

The songbird and wildlife packages can be ordered by filling out a 1986 State Forest Nursery application form. The wildlife package costs less than $20 and the songbird package costs less than $15.

For more information about the packages, contact the State Forest Nursery, 2404 South Duff Ave., Ames, Iowa 50010; phone (515) 294-4622.

DSC offers some financial incentives

DES MOINES— A no-interest loan? What's the catch?

"No-interest loans are for real," according to Bill McGill, resource conservationist for the Iowa Department of Soil Conservation (DSC). "The only 'catch' is that loan money must be used to install permanent soil conservation practices."

McGill said a revolving loan fund was created in 1983 to assist landowners to implement soil conservation practices. He said the no-interest loan is one of several financial incentive programs administered by the DSC.

More landowners should be eligible for no-interest loans this year because the legislature removed the $300,000 net worth restriction from the loan requirements, McGill said.

Under terms of the no-interest loan plan, eligible landowners may receive a maximum of $10,000 for installation of permanent soil conservation practices such as terracing, grade stabilization structures or waterways. He said local soil conservation district commissioners specify allowable practices in Iowa's 100 districts. Local financial institutions handle loans that are to be repaid in equal installments over a 10-year period.

Cost sharing is another DSC-administered program where eligible participants may receive 50 percent of the costs for constructing approved soil conservation practices on their land, McGill said.

The state cost-share program, known as the Iowa Financial Incentive Program (IFIP), has existed since 1973. Practices funded through IFIP include: critical area planting, diversion, field windbreaks, grade stabilization structures, grass strips, grassed waterways or outlets, pasture and hayland planting, terraces, underground outlets and water and sediment control basins. Additionally, district may assign up to 10 percent of their yearly allocation of cost-share funds as incentive payments to encourage no-till planting.

A third DSC financial program is the Wind Erosion Control Incentive Program (WECIP) for installation of conservation measures on land adjacent to state highways.

McGill said the no-interest loan program fund has a balance of $700,000 and $8.8 million has been appropriated for cost sharing in 1985-86. Funding for WECIP totals $250,000, which has been allocated from state road use taxes.

Landowners interested in any of the programs may file an application with their local soil conservation district describing the type of conservation project they desire to implement, he said. Soil conservation district commissioners review applications, and SCD staff prepare an estimate of labor and other costs of a particular project.

The district is available to help applicants complete paperwork and can provide technical assistance at any stage of the process.

"We're urging landowners to use these programs," McGill said. "These programs are cost-effective ways to achieve long-term benefits for Iowa farmland."

Land use inventories protect your farmland

AMES—The Iowa Land Preservation and Use Law passed in 1982 protects farmland in four ways, according to Stu Huntington, Iowa State University Extension planning and development specialist.

The law creates county land preservation and use commissions, requires county land use inventories, gives counties the option of developing land use plans and policies, and gives farmers the right to form agricultural areas.

Huntington said each Iowa county has its own land preservation and use commission composed of representatives from the county, cities in the county, the Soil Conservation Commission and the Extension Council. The commission is responsible for putting together the county's land use inventory.

Each county land use inventory includes information on the amount of land used for agriculture, public facilities, open space and other purposes in the county, he said. County land converted from agricultural use to other uses since 1960 must be specifically identified.

Huntington reports that 92 or Iowa's 99 counties have submitted land use inventories. The State Inter-Agency Resource Council (IARC), a group that oversees whether counties have complied with the Land Use Law, has determined that 68 of the inventories are complete and in accordance with all legislative guidelines.

Some counties have gone beyond the inventory stage, he said. Five Iowa counties have completed land use plans and eight counties have prepared findings to guide land use decisions.

Another provision of the Iowa Land Preservation and Use Law enables a landowner or group of farmland owners to submit a proposal to the county board of supervisors to create agricultural areas. A description of the proposed agricultural area and its boundaries must be included in the proposal.

"The proposed area cannot be located within the corporate limits of a city, and must include at least 500 acres of farmland," Huntington said. "The territory should be as compact and as adjacent as feasible, and all landowners within the proposed area must consent to the area's formation."

He said the use of land in agricultural areas is limited to farm operations, residences constructed for occupation by persons engaged in farming, non-conforming pre-existing residences and telephone company or utility properties.

Landowners who form agricultural areas are offered protection from nuisance suits, special tax assessments and certain state regulations, Huntington said. Agricultural areas also are granted limited water priority by the new law.

He said agricultural areas have been formed in Cedar, Clay, Emmet, Mossuth and Muscatine counties. These areas range in size from the 500 acre minimum to several thousand acres.

For more information about the Iowa Land Preservation and Use Law, contact your County Extension Office for a copy of PM-1079, "Iowa Land Use Law Explained."

Conservancy districts address water mgt. problem

DES MOINES—Iowa's conservancy districts (CDs) are completing steps to develop and implement water resource plans, according to Dan Lindquist, soil conservation engineer for the Iowa Department of Soil Conservation.

"The goal of conservancy districts is to preserve and protect the public interest in the water resources of their respective districts," Lindquist said. "With the development of formal CD plans, elected CD boards are on the way to reaching this goal.'

The six conservancy districts in Iowa were created by the general Assembly. The boundaries of each CD are along the natural hydrologic (watershed) boundaries of major streams and their tributaries.

Lindquist said a drainage laws study committee, established by the Iowa Legislature, concluded that a coordinated approach is needed to solve problems such as drainage, flooding and channel instability along the state's major waterways. As a result, conservancy districts were created to identify watershed problems, to prepare comprehensive plans for water management in those areas and to prioritize implementation of water management projects.

To date, Lindquist said, five of the six Iowa conservancy districts have elected boards and developed water resource management plans subject to approval by the State Soil Conservation Commission.

Terraces still Number 1 conservation priority

Terraces are still one of the most important soil conservation practices that landowners can put on their land to control erosion.

During the past 30 years several new types of terraces have emerged from demonstrations and individuals trying new methods to stop soil erosion. Erosion not only takes place in cropland but also in pasture and hayland. After a heavy rain one can see several types of erosion that has taken place in crop fields. Among these are rills and small ditches coming down the steeper slopes. Also silt bars that have accumulated at the bottom of hills and silt that has been deposited in county and state road ditches.

Terraces can help stop this type of erosion. But, along with terraces, other resource management practices need to be used to bring soil loss down to what we call "T."

"T" (Tolerable Limits) is what soil conservationists set as a goal for the maximum soil loss that certain types of soils can withstand and still keep productivity to a maximum. On most soils in Mills County a five ton per acre per year soil loss would be acceptable. The several types of terraces like broadbase, narrow-base and bench, along with other management practices such as no-till, contouring and crop rotations can achieve a goal of "T."

Gold, silver and other precious metals will not feed the world if the food supplies are not there to be bought.

The soil is the economic standard of any nation. If we are to maintain our standard of living now and for the generations to come, we must save our food producing soils now, not fifty years hence.

Create habitat for nongame wildlife

DES MOINES—More than 140 nongame birds spend some portion of the year in Iowa. Because of this great variety in bird life and their habitat needs, there are many ways to "enhance areas for wildlife, ourselves and future generations," according to Laura Spess Jackson, urban biologist for the Iowa Conservation Commission.

"Wildlife essentially need food, cover, water and areas to reproduce," Jackson said.

For example, cavity-nesters such as woodpeckers, nuthatches, chickadees, Eastern bluebird, American kestrel and various owls require mature to over-mature trees or dead snags for nesting.

"Decaying wood provides insects for these insect-eating birds, and the soft wood is easily excavated for nest cavities," she said.

However, Jackson said, as woodlots and forested bottomlands are cleared, fewer nest sites are available for these species.

"Whether you're managing a farm, woodlot, park, town or your own backyard, there are numerous ways to help wildlife," she said.

Landowners can aid these species by preserving forested areas, particularly on highly erosive slopes or bottomlands that flood periodically. On forest tracts managed for wood production, landowners should leave three dead cavity trees and two live cavity trees per acre of forest, Jackson said. Wooded fencerows or shelterbelts should also be retained or established to provide nest sites for birds that nest in cavities but seek food in open areas.

Urban dwellers can also help these nongame birds, Jackson said, by leaving existing cavity trees in their yards or erecting a dead trunk as an "artificial" snag tree.

Communities, clubs and individuals can do their part by providing various nest boxes, she said. Bluebird and wren boxes are popular to build. Boxes can also be constructed for kestrels, screech owls, barred owls and barn owls.

Jackson said hay cutting should be delayed until after July 15 to allow birds such as the dickcissel, meadowlark, horned lark, bobolink, field sparrow and goldfinch to nest and rear their young. Heavy grazing of pasture lands should also be avoided during the nesting period.

Other ways to create habitat are to plant native prairie grasses for grassland birds in rural areas, open parks, business grounds, backyards, ditches and around wastewater ponds, she said. This not only creates habitat but also reduces mowing expenses.

Jackson said individuals can also plant small food plots of milo, grain sorghum, millet and sunflower or leave a few rows of corn for birds to feed on.

She said many birds such as the robin, brown thrasher, catbird, cedar waxwing and oriole relish soft fruits. Mulberry, serviceberry, elderberry, honeysuckle, cherry, grape and crabapples planted in fencerows, odd corner, parks and backyards provide food for wildlife on a year-round basis. Conifers also provide winter cover for wildlife.

Soil erosion effect on crop yields is studied

AMES—It is generally accepted that soil erosion decreases crop yields. Just how much, however, is a question asked frequently as soil erosion becomes widely recognized as a national problem.

The answer depends on soil type. This is one of the early projections an Iowa State University researcher is making after reviewing two years of data.

Lloyd Dumenil, associate professor of agronomy is heading a study on erosion-productivity with the U.S. Department of Agriculture Soil Conservation Service.

"We do not have conclusive data yet," Dumenil said. "We have looked at 38 different soil types on 270 sites in almost half of Iowa's counties and have found that yields drop more from soil erosion on glacial till soils than on the loess soils of western Iowa, for instance."

The study, which began in 1983, is looking at corn yields over a five-year period on soils with varying depths of topsoil.

Mark Berkland, state resource conservationist with SCS in Iowa, said, "Ideally, we have tried to find a soil with varying degrees of erosion in the same field."

Erosion is categorized as slight when 7 or more inches of topsoil remain, moderate with 3 to 7 inches and severe when fewer than 3 inches of topsoil remain.

The data being collected from the farmer involved include corn stand levels, crop residue amounts, available moisture, and soil and crop management patterns. Other data being gathered include silking dates, nutrient content of leaf samples, insect and disease damage and weed pressure. Soils are being tested for organic matter, fertility and texture.

"We believe technological advances have increased corn and soybean yield in spite of soil erosion over the past 30 to 50 years," Berkland said. "But we also think we can expect some significant yield drops on some Iowa soils as the soil changes from a slightly eroded to a severely eroded state. This study will give us the best date in Iowa."

Berkland said the 38 soil types are representative of many of the 350-plus soil types in Iowa.

"We know soil erosion is costing us, and will cost more in the future. We need a better handle on how much the cost is," Berkland said.

Switchgrass cost-share program provides some wildlife habitat

DES MOINES-The Iowa Conservation Commission's switchgrass cost-share program is proving to be all that wildlife biologists and cattle producers had hoped. The program provides good summer pasture for livestock and needed nesting cover for game birds and songbirds, according to Larry Wilson, director of the Iowa Conservation Commission.

Wilson said the goal of the switchgrass program is to establish wildlife habitat on private land. Also, since switchgrass is a warm-season grass, it shows potential as a cure for reduced animal production that plagues many cattle producers during Iowa's long, hot summers.

Wilson said the Commission recently completed a survey of landowners who first participated in the switchgrass as forage, 28 percent rated it excellent, 47 percent rated it good, 13 percent rated it fair and 12 percent did not rate it or did not respond. In addition, 66 percent of the landowners said they would highly recommend switchgrass to other landowners as forage.

Jeff Joens, wildlife management assistant and coordinator of the switchgrass program, said, "Interest in the program started slowly because warm-season grasses are relatively new to Corn Belt states such as Iowa. That's not the situation anymore. The hot, dry summers of the last three years have shown cattle producers how valuable switchgrass can be.

"Good products have the ability to sell themselves. That's what we're discovering with switchgrass and other warm-season grasses," he added.

In addition to its forage and wildlife value, Joens said switchgrass provides good soil erosion control.

"Established switchgrass fields quickly become sod-bound and the plants last indefinitely under proper management. Switchgrass is also tolerant to atrazine and other chemicals, making it a logical choice for waterways in crop fields."

Establishing realistic yield gains based on soil type

AMES—Are you managing for 150-bushel average corn yields when your soils have a 98-bushel optimum average yield potential? Or are you managing your program for 110 bushel average corn yield when the soils have a 140 bushel optimum average yield potential?

"Establishing realistic yield goals provides a basis for increased management effectiveness and increased efficiency of crop production," according to Gerald Miller, Iowa State University Extension agronomist. "Realistic yield goals should be established on a field-by-field basis."

Miller said yield goals can be established by using historical records, by projecting a maximum yield based on management inputs without regard to the soil resource base or by using soil maps and soil productivity potentials.

Historical Record Approach

Yield goals can differ from the yield a field or area has been known to produce, Miller said. A producer can manupulate known average county wide yield information to identify an historical yield level for a general area. Similar field-by-field data can be analyzed where such data are available.

Maximum Yield Approach

In practice, Miller said it is expensive to strive for the maximum potential yield based soley on management inputs without regard to the soil resource and differences in soils within a field. Realistic yield goals are yield levels that provide optimum returns for costs of production from planting through harvesting.

Management of specific crop production inputs such as amount of fertilizer per acre, plant population, cultivar selection and other best management practices can be adjusted on a field-by-field basis based on yield potential and yield goal, he said. For example, if fertilizer is applied to one field to produce 150 bushels of corn and the optimum yield potential is only 110 bushels, inputs are excessive and expensive for the optimum yield potential.

Soil Productivity Approach

Realistic yield goals based on soil productivity potential include rainfall and available subsoil moisture, management for past yield levels in a given field and current management skills of the producer, Miller said.

"Management is one factor the producer can control," he said. "Producers must consider how a given field has been managed during the past five years and determine their ability to modify or change management skills to achieve optimum yields."

The next step, Miller said, is to calculate the weighted average yield for the field by multiplying the yield potential times the acreage. The sum of these products is then divided by total acres in the field.

"The estimated yield potential for the field provides a benchmark to compare the producer's yield goal and actual yields," Miller said.

"Establishment of realistic yields for each field should be the goal of every producer," he added.

Iowa Soil 2000

Program makes progress

DES MOINES — "We're seeing progress in distribution of conservation folders, but the program needs continued support to reach its ambitious, but attainable goals."

That's how James Gulliford, director of the Iowa Department of Soil Conservation, assesses the Iowa Soil 2000 program in its second year.

Gulliford said the Iowa Soil 2000 program was established in 1980 to provide educational, financial and technical assistance to landowners in order to reduce excessive soil erosion on all land in the state by the year 2000.

Conservation folders are individually designed information packets that show farmers the nature of soil erosion likely to occur on the major soil types on their land. The folders also suggest management and structural alternatives for treating erosion and describe technical and financial assistance available to landowners through soil conservation district offices.

"Last year at this time, district commissioners across the state had distributed folders to about 7,000 landowners who were farming more than one million of the state's most critically eroding acres," Gulliford said. "With this year's effort, totals have risen to more than 15,000 landowners contacted and more than 2.5 million acres covered.

"Although much work remains to be done, we are encouraged by these figures," he added.

The objective of the folder distribution phase of the Iowa Soil 2000 plan, Gulliford said, is to contact all farmers across the state to generate awareness of erosion problems and to encourage the development of a soil conservation system for each farm.

Local soil conservation district commissioners determine areas that are most fragile or most excessively eroding and set priorities for folder distribution according to the severity of the erosion problems.

"Soil losses on Iowa farm land average more than nine tons per acre per year," Gulliford said. "We still have a long way to go to reach acceptable rates of erosion across the state." He said acceptable rates vary, but average four to five tons per acre per year.

"The Iowa Soil 2000 program provides information on technical assistance and financial incentives that can help landowners win the erosion battle on their farms," Gulliford said.

For more information on the Iowa Soil 2000 program, contact your local soil conservation district office or the Iowa Department of Soil Conservation.

Tillage can help control ag chemicals

AMES—Research studies in Iowa and around the country have identified an increasing incidence of agricultural chemicals present in both surface water and groundwater, according to Stu Melvin, Iowa State University Extension agricultural engineer and Jim Baker, ISU agricultural engineering professor.

Although the effects of some of these chemicals on human health and the environment are unknown, Baker said, water testing results indicate there is a potential for water pollution with the movement of agricultural chemicals over and through the soil.

Melvin said conservation tillage is a useful tool in controlling agricultural chemical pollution because it reduces soil erosion by leaving crop residue on the soil surface. Surface residue minimizes raindrop impact and reduces the velocity of runoff. Research shows that surface residue cover of 15 to 20 percent will decrease soil erosion by as much as 50 percent.

Baker said agricultural chemicals can be classified into three adsorption categories. Chemicals can be weakly, moderately or strongly absorbed by soil particles.

Research shows that tillage techniques to decrease soil erosion also keep agricultural chemicals in place that are strongly absorbed by soil particles, and to a certain degree those chemicals that are moderately absorbed.

"To obtain highest water quality, farmers need to practice good agricultural chemical management as well as conservation tillage, " Baker said.

For those chemicals only weakly or moderately adsorbed, most of the losses are in solution and incorporation will significantly reduce losses in runoff water, he said.

For this reason, researchers are trying to develop systems that will incorporate agricultural chemicals while allowing residue to remain on the soil surface. For example, researchers have developed the point injector, a fertilizer applicator that pokes holes in the soil to inject liquid fertilizer thereby leaving crop residue on the surface nearly undisturbed.

There is some concern that increased infiltration (less runoff) with conservation tillage may increase chemical leaching. This potentially adverse effect is being researched, Baker said. Preliminary results do not indicate that there will be a major problem.

Melvin listed other management practices to control agricultural chemicals: a good soil sampling program, use of modern soil surveys, establishment of sound fertility management programs, adjustment of agricultural chemical applications on sandy or highly erosive soils, judicial incorporation of pesticides and agricultural chemicals where erosion is minimal, use of the universal soil loss equation, reduced row spacing where practical, alternate selection of pesticides, and pest management programs and use of integrated pest management techniques.

Ridge-till benefits outweigh new rules

AMES—"Farming on ridges requires more management and attention to details, but the benefits of reduced soil loss, water loss, labor, time, fuel consumption and soil compaction and the prospect of more timely planting more than compenate for increased management requirements," according to Min Amemiya, Iowa State University Extension agronomist.

Amemiya said a system of one-pass strip tillage and planting on ridges has many desirable features.

"The soil in the ridge provides an ideal environment for the planted seed," Amemiya said. "Weeds can be controlled in the row without residue interference."

Because cultivation is needed to rebuild ridges, herbicides can be banded over the cleaned strip to cut herbicide costs at least in half at planting, he said. Futhermore, soil compaction and crusting problems over the row are minimized because all traffic is confined to the middle of the row, and there is no compaction over the seed placement zone.

Another positive feature of farming on ridges is that residue in the middle of the rows helps absorb equipment traffic. Planting on ridges prevents water standing over the row because excess water drains from the ridge to the middle of the row. On sloping land, ridges on the contour act as mini terraces and provide additional erosion-control benefits.

"A one-pass tillage and planting system reduces field operations by eliminating fall and early spring work," Amemiya said. This means fuel and labor needs are reduced. In most instances equipment inventory can be reduced without affecting timely planting.

Amemiya said farming on ridges is attractive to farmers who want to practice conservation tillage but feel they cannot because of poorly drained soils that remain cold and wet in the spring. But, he said, there are some limitations:

There is a commitment to cultivate at least once to rebuild ridges and control weeds in the row middles. A cultivator designed for ridging is needed.

Herbicide options are reduced. There is no opportunity for preplant incorporation.

Ridges must be maintained throughout the year. This is important during harvest operations when axle loads of combines, wagons and trucks can cause excessive compaction. Wheel spacing on equipment should be modified to prevent traffic on ridge tops. This applies also to equipment associated with fertilizer, manure and chemical applications. Livestock grazing should be avoided on unfrozen land.

All crops in a rotation must have the same row width. Row widths narrower than 30 inches do not allow ridges of sufficient height to be built. This limitation precludes narrow row or drilled soybeans.

Ridging of soybeans may cover low setting pods or may result in pods being too close to the ground for efficient harvesting. Some farmers have delayed ridging soybean land until after harvest, with mixed results.

During planting, take care to keep the planter on the ridge. Stabilizer coulters and cone or angeled wheels running against the sides of the ridge may be needed to hold the planter on the ridge.

Ridges can accelerate erosion on sloping land if they run up and down the slope, Build ridges on the contour or at least across the slope, the agronomist suggests.

Soil conservation practices nonpoint source pollution

DES MOINES—Iowa's nonpoint source pollution control program combines soil conservation practices and nonpoint strategies to respond to an issue of concern to Iowans -- the quality of the state's surface water.

According to Bill Nicholas, natural resource engineer for the Iowa Department of Soil Conservation, "Soil conservation practices that control soil erosion can also be effective in controlling sediment pollution. These practices reduce levels of plant nutrient and pesticide pollution in surface water."

Sediment, by volume, is the greatest pollutant of Iowa's surface water. Therefore, the Iowa Statewide Water Quality Management Plan of 1979 emphasizes the control of sediment and sediment-related pollutants as a significant factor in improving the quality of Iowa's water.

Nicholas said positive results of combining nonpoint pollution control planning with soil conservation practices are evident at Prairie Rose Lake, a USDA Rural Clean Water Program (RCWP) demonstration project in Shelby County.

He said before the RCWP project began, the 215-acre man-made lake, with adjoining park, had serious sediment problems. In the lake's 4,610-acre watershed (most of which was cropland), average annual soil erosion exceeded 20 tons per acre--well over the tolerable limit of 4 tons per acre.

Nineteen percent of lake volume was lost due to sedimentation problems between 1971 and 1980. Fishing decreased as sediment reduced the quality of spawning habitat for bass, bluegill and crappie. Extreme turbidity occurred during and after rain when sediment washed into the lake from the surrounding watershed. The value of the area as a recreation site declined, Nicholas said, while off-site erosion increased.

In 1980, the RCWP project was implemented.

"The goal of the project was to control excessive soil erosion on at least 80 percent of the nonpark land area and to reduce sediment delivery to the lake by 60 percent," Nicholas said.

Today, soil losses in the Prairie Rose Lake watershed have been reduced by almost 50 percent, Nicholas said. With increased erosion control, pollution has been reduced. Pesticide levels in park drinking water are within safety standards and lake turbidity levels do not change appreciably following runoff from rain, he reports.

"The value of the park as a recreational site and the stability of the lake as a healthy environment for fish and water storage are being maintained," Nicholas said.

"The Prairie Rose Lake demonstration project is a good example of how soil conservation practices and nonpoint source pollution control strategies can work together to protect water and land resources," he added.

Manage timberland for soil conservation

AMES—"Good forest management is nothing more than working with the resource to provide desired goods without damaging the resource," according to Paul Wray, Iowa State University Extension forester. "Poor management practices may cause excessive damage to tree and soil resources."

Iowa forests are almost exclusively hardwoods except for some natural confier stands in northeast Iowa and some confier plantations throughout the state, Wray said. Oaks, both red and white, are the most common species. Oaks are found on upland slopes subject to erosion and soil loss if not managed properly.

"Almost all of Iowa's 1.5 million acres of woodlands are privately owned with farmers owning more than two-thirds of the forestland," Wray said. "Because most of the woodlands in Iowa are on steep sites and because forest soils typically are fragile and shallow, it is important that the resource be managed properly."

Wray said forest management involves an orderly plan for reaching specific goals. It involves first, deciding how to use forest land by evaluating the property's potential. The overall purpose of forest management, he said, is to keep the forest healthy and productive.

Products produced from Iowa's forest resource include sawlogs, fuelwood, and specialty products such as maple syrup and ginseng. Other benefits include recreation opportunities from picnicking to wildflower appreciation, wildflower habitat, aesthetics and climate modification.

In Iowa, he said, the most important step in managing forest land is protection from destructive agents including fire, insects, diseases and domestic livestock.

Wray said timber harvesting is also part of good forest management. Harvesting trees at proper size and age will ensure optimum quantity and quality of forest products.

For successful natural regeneration of a stand of timber, proper harvesting techniques must be used, he said. If improper techniques are used, the stand may not reproduce after harvest or undesirable species may appear.

Reduce heating bills and stop winter winds with an attractive windbreak from the gustbusting team from

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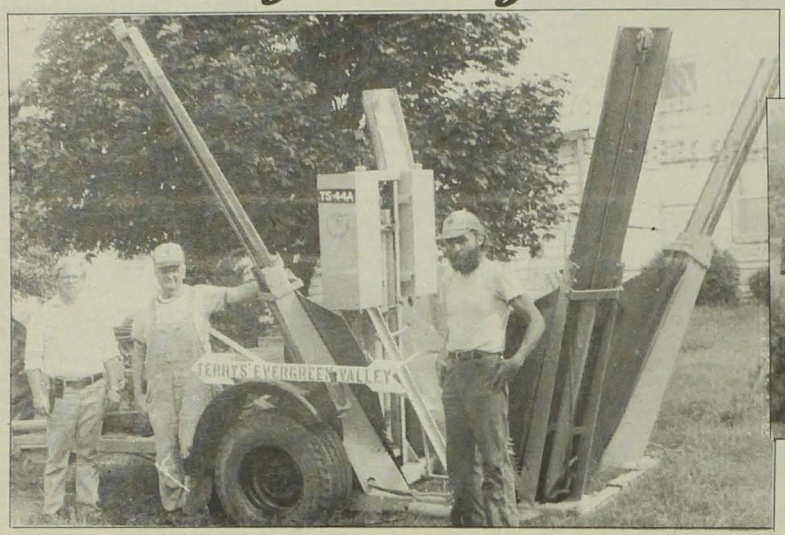
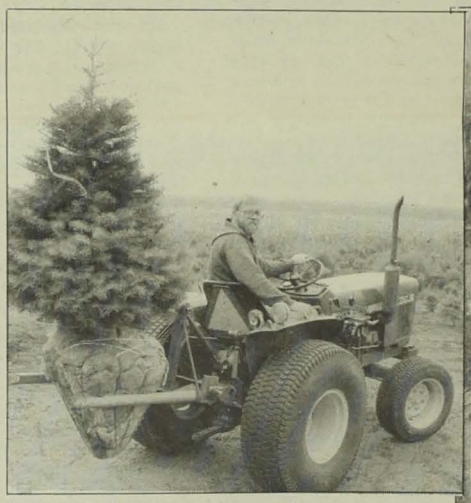


Digging with 44" Vermeer spade.

Basketing the trees with the spade.

Putting the burlap on.



Hauling the tree to its new home.

Patti, Richard, Morris and Joel Terry; the gustbusting team.

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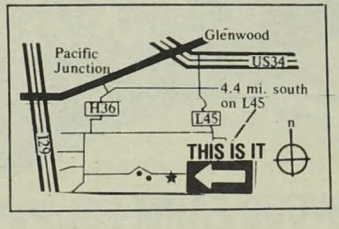

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