

Annual Plan

DODGE SOIL AND WATER CONSERVATION DISTRICT

916 2nd Street SE
Dodge Center, Minnesota



January 1, 2009 – December 31, 2009



Soil and Water Conservation District Board



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Thomas Johnston	District Technician
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Natural Resources Conservation Service (NRCS)



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Donna Klapperich	Soil Conservation Technician
Jeff King	Water Quality Specialist

Cooperating Agencies

- Board of Water and Soil Resources (BWSR)
- Natural Resources Conservation Service (NRCS)
- Farm Service Agency (FSA)
- Dodge County
- Department of Natural Resources (DNR)
- University of Minnesota Extension Service

Mission Statement

The mission of the Dodge Soil and Water Conservation District is to provide leadership in natural resource protection through promotion and implementation of soil and water's best management practices.

Introduction

This annual plan will be a tool used by the Dodge Soil and Water Conservation District to effectively carry out soil and water conservation responsibilities within Dodge County as designated by State law.

Resource needs and controls will be identified through objectives in this plan as well as which needs and goals the District will pursue. Estimates as to the amount of conservation work needed, as established by the District, will also be addressed.

Improper land use has caused wind and water erosion on much of the prime agricultural and in some instances, urban land in Dodge County. Increased runoff of polluting materials from eroding soil has increased costs to: maintain agricultural productivity, maintain water quality and to prevent flooding.

It is the mission of the District to encourage landowners to conserve the County's soil and water resources through the implementation of best management practices that effectively reduce or prevent soil erosion thus preserving water quality, soil productivity, and reducing flooding within Dodge County.

Annual Objectives

Objective 1 -To inform all county residents of the environmental and economic benefits of soil and water best management practices (BPM's).

Actions

- a. Write and distribute four (4) soil and water conservation related articles to the county's five newspapers.
- b. Promote the District's "Land and Water Stewardship Program" through personal contacts with school officials and teachers.
- c. Participate with the Farm Service Agency (FSA) and the Natural Resources Conservation Service (NRCS) in a newsletter which is sent to all county landowners and operators.

Objective 2 -To promote the use of soil and water conservation best management practices to improve water quality.

Goals

- Establish 50 acres of grassed waterways.
- Establish 6,000 feet of terraces.
- Establish 5 water and sediment basins
- Establish 5 erosion control structures.
- Establish 25 acres of riparian buffer and filter strips.

Actions

- a. Provide technical assistance for the above mentioned conservation practices in the design, layout, and construction checks according to NRCS specifications.
- b. Provide landowners with information about cost-sharing available through the District and USDA.
- c. Provide technical assistance to two landowners with high priority feedlot problems.
- d. Assist the Dodge County zoning administrator with the implementation of MPCA's feedlot rule 720.

Objective 3 - Promote the implementation of conservation tillage on agricultural cropland in Dodge County.

Goal

- Increase the use of conservation tillage used on agricultural cropland by 500 acres in Dodge County.

Actions

- a. Assist landowners in developing tillage methods best suited for their farm operation.
- b. Provide landowners information regarding cost-sharing available through the USDA Environmental Quality Incentive Program (EQIP).
- c. Sponsor and/or co-sponsor with the Board of Water and Soil Resources (BWSR) and the Natural Resources Conservation Service (NRCS) workshops and demonstrations.

Objective 4 – Promote the establishment of farmstead and field windbreaks.

Goal

- Increase the acreage of farmstead and field windbreaks by 5 acres.

Actions

- a. Make quality trees available to landowners at a reasonable price
- b. Provide general information about the varieties and availability of tree species.
- c. Provide technical assistance in the design and layout of windbreaks according to NRCS specifications.
- d. Inform landowners of the availability of a tree planter and tree spades through the District.
- e. Promote windbreak establishment through the federal Conservation Reserve Program (CRP).

Objective 5 – Provide technical assistance to the Farm Service Agency (FSA) for the implementation of the Conservation Reserve Program (CRP).

Actions

- a. Utilize GIS and Arcview computer programs to determine watersheds, soil types, and acreages for CRP contracts.
- b. Provide technical assistance for the layout and/or design of approved soil and water conservation practices for the Conservation Reserve Program (CRP).

Objective 6 – Assist the Natural Resources Conservation Service (NRCS) with implementation of the Environmental Quality Incentive Program (EQIP).

Action

- a. Provide technical assistance for EQIP best management conservation practices in the design, layout, and construction checks according to NRCS specifications.

Objective 7 – Promotion and implementation of the Reinvest in Minnesota (RIM) reserve program.

Actions

- a. Promote RIM to local landowners through the media and personal contracts.
- b. Assist landowners in making program eligibility determinations
- c. Prepare conservation easements as needed.

Objective 8 – Assist agricultural landowners with surface and sub-surface drainage management.

Actions

- a. Assist individual farmers in determining the feasibility of installing tile drainage systems on existing cropland.
- b. Assist organized tile and ditch groups with technical guidance in the design, layout, and maintenance of drainage projects.
- c. Provide current NRCS specifications to drainage contractors and update them on issues concerning the Wetland Conservation Act (WCA).

Objective 9 – Promote the implementation of 500 acres of nutrient and pest management.

Action

- a. Assist NRCS with promoting cost-sharing through EQIP for eligible nutrient and pest management plans.

Objective 10 – To actively pursue and promote projects of special needs and interest for soil conservation and water quality in Dodge County.

Actions

- a. Assist in the implementation of Dodge County's Comprehensive Water Management Plan.
 - Assist in the inventorying of land uses and management practices used on these lands.
 - Promote the preservation and restoration of wetlands through education, technical services and easement programs
 - Educate the general public about water quality through the District's Land and Water Stewardship education program, news articles, and booth at the county fair.
- b. Assist the Local Governmental Unit (LGU), Dodge County, in the technical administration of the Wetland Conservation Act of 1991.
- c. Assist landowners in the Ripley and Havana County Ditch watersheds with conservation planning and best management practice applications.
- d. Assist Dodge County in the implementation of a maintenance program for its County ditch and tile systems.
- e. Target and promote to the landowners in the Cedar River watershed and Milliken Creek watershed, the Environmental Quality Incentive Program (EQIP) and the Conservation Reserve Program (CRP).
- f. Support the efforts of the Basin Alliance of the Lower Mississippi in Minnesota (BALMM).
- g. Cooperate with the Zumbro Watershed Partnership (ZWP) to help meet the goals outlined in their 5 year implementation plan.

Objective 11 – The District will assist landowners with the treatment of sinkholes and abandoned wells identified as contributing to the degradation of water quality.

Action

- a. Provide technical assistance for the implementation of approved best management practices (BMP's) and promote available cost-share programs.

Cost-Share Program Requirement

A. High Priority Areas

- 1. Milton, Mantorville and Eastern Concord Townships**, located in northeastern Dodge County, consist of extensive areas of Downs, Hersey, Tama, Dinsmore and Mantorville soils. These soils, except for Mantorville, are well drained soils formed in wind-blown silt on uplands. Mantorville is a well drained outwash soil. Slopes are generally "B" slopes (2-6%) or greater. About 90% of these soils have a moderate to severe potential for sheet or gully erosion. Flooding and stream bank erosion are problems in and near watercourses, but the high cost of controlling stream-bank erosion prevents extensive treatment. Therefore, emphasis must be placed on upland treatment. The majority of the county's dairy farming takes place in these two townships; thus they also have the greatest concentration of feedlots within 300 feet of a stream. The principal conservation practices needed on these areas are: crop rotation, contour farming, contour strips, conservation tillage, grass waterways, grade stabilization structures, livestock exclusion with riparian buffers and animal waste systems.
- 2. Canisteo and Vernon Townships**, located in southeastern Dodge County, consist of extensive areas of Marquis, Readlyn, Kasson, Oran, Kenyon, Floyd, Clyde and Bassett soils. These soils are well drained to poorly drained soils formed in glacial till on uplands. Slopes are generally "B" slopes (2-6%) or greater. About 40% of these soils have a potentially moderate to moderately severe problem of sheet and rill erosion. Fifty percent of these soils need removal of surplus water from the surface and sub-surface. Cash-grain farming along with some dairy farming is the principal types of farming in these areas. The principal conservation practices needed in these areas are: contour farming, conservation tillage, terraces, water and sediment basins, grass waterways, filter strips along drainage ditches and streams, side inlet structures, and sub-surface drainage.
- 3. Ellington, Western Concord, Claremont, and Wasioja Townships**, located in northwestern and central Dodge County, consist of extensive areas of Klinger, Maxfield, Marquis, Readlyn, Tripoli, Floyd, Clyde, Kasson, Merton, Moland, Maxcreek, Newry and Blooming soils. These soils are well drained to poorly drained. The dominate slopes are long "A" and "B" slopes (0-2%) and (2-6%). On approximately 70 to 80 percent of these soils, removal of excess surface and sub-surface water is a major problem. A potentially moderate problem of sheet and rill erosion is present in this area. The principal conservation needs in these areas are: contour farming, conservation tillage, terraces, water and sediment basins, filter strips along drainage ditches and streams, side inlet structures, grass waterways and sub-surface drainage.

B. High Priority Erosion Problems

1. **Gully erosion** is found throughout Dodge County. Silt loam soils are most prone to this type of erosion. These soils erode rapidly in areas of concentrated flows (waterways) where farmland and woodland merge because of dramatically increased land slopes at this merger, where surface water enters channels over unprotected banks, and where upland watersheds outlet into major watercourses. An estimated 800 erosion control structures are needed to control existing and potential gully erosion at an approximate cost of \$12,000,000. In addition, approximately 1,600 acres of grass waterways at an estimated cost of \$3,700,000 are needed. Approximately 500 acres of filter strips along drainage ditches and streams are needed at a cost of \$1,300,000.

It is the goal of the District to do the following to help eliminate gully erosion:

- a. Assist in the establishment of 5 erosion control structures annually.
- b. Assist in the establishment of 50 acres of grass waterways annually.
- c. Promote the Reinvest In Minnesota (RIM) program and the Conservation Reserve Program (CRP).
- d. Promote the use of conservation tillage.

2. **Sheet and rill erosion** varies throughout Dodge County. The northeastern part of the county, which includes Milton, Mantorville, Concord, and Wasioja Townships, has characteristically short, steeply rolling slopes on silt loam soils (Class Iie through class VI). The combination of these often steep and erodible soils, coupled with increased row-crop farming, less hayland, and conventional tillage make for potentially high erosion rates.

The east central and southeastern parts of the county, which includes Canisteo, Vernon, Ashland, and the east half of Hayfield Townships, has characteristically long gentle slopes on predominantly class II soils. Erosion in this area is more subtle than in the northeast. To the naked eye, it doesn't seem to be eroding in most cases; but, in fact with these long gentle slopes, corn-bean rotations, and conventional tillage, the potential for sheet and rill erosion is high.

Approximately 50% of 62,250 acres of all class Iie through class Vie soils are eroding at a rate of 2T. Conservation needs and costs for sheet and rill erosion include the following: 20,000,000 feet of sub-surface drainage on cropland with class IIw and IIIw soils at a cost of approximately \$15,000,000, residue management of 60% or 133,000 acres of cropland, contour farming on 6,000 acres of farmland, contour buffers and strips established on 3,000 acres of farmland at an estimated cost of \$4,000,000.

The west and southwestern parts of the county have large areas of class IIw and IIIw soils. Because this area is intensely row-cropped, conventionally tilled, and has average unsheltered distances of 2,500 to 3,000 feet, wind erosion can become a problem. Soil loss by wind erosion in these areas of the county range from 2.5 to 4.5 tons per acre per year.

It is the goal of the District to do the following to help reduce sheet and rill erosion

- a. Assist farmers in developing conservation tillage plans best suited for their farming operation.
- b. Assist agricultural landowners with surface and sub-surface management.
- c. Assist in the establishment of 6,000 feet of terraces and 5 water and sediment basins.
- d. Assist in the establishment of 5 acres of field and farmstead windbreaks.
- e. Promote the Reinvest In Minnesota (RIM) program and the Conservation Reserve Program (CRP).

3. Lack of adequate surface and sub-surface outlets used for the support of conservation practices is a problem in some areas of the county.

The west and southwestern areas of the county have predominantly flat slopes. Poorly maintained drainage ditches are a problem in some of this area. Siltation is the major problem in these ditches. Existing tile outlets become covered by silt making drainage systems work less efficiently than designed for. New tile outlets must be designed on flatter grades, thus increasing the cost up to 60% because of the bigger tile size that is needed. Grassed waterways must be designed larger because of the flat grades and slower velocities.

If drainage systems are not installed and maintained properly, conservation tillage, as well as other conservation practices, would not be practical in these areas. Drainage ditch systems are often difficult to organize and maintain. This is because several landowners are usually involved and costs are high to install a proper drainage ditch system; but in the long run, with proper maintenance, it is least costly.

The east central and southeastern areas of the county have moderate, more erosion prone slopes. Long, broad, sometimes flat, drainage ways are characteristic of these areas. Surface and sub-surface drainage outlets for conservation practices in these areas are usually farther away from the erosion sites.

In many cases, the cooperation of several landowners is needed to establish sub-surface outlets. Again, initial installations of proper drainage outlets are more costly and complex; but in the long run, with proper maintenance, it is much less costly. Forty-seven percent or 130,000 acres of the soils in Dodge County are classified IIw and IIIw soils and need sub-surface drainage. Approximately sixty percent of these class IIw and IIIw soils have already been drained, leaving approximately 25,000 acres of cropland with IIw and IIIw soils yet to be adequately drained. Because of the remaining undrained soils, crop productivity suffers and the proper installation and maintenance of conservation practices on these soils are difficult and in some cases impractical.

It is the goal of the District to assist formal drainage ditch groups in the proper development of operation and maintenance agreements for the groups.

C. High Priority Sedimentation

1. As discussed earlier, sub-surface drainage plays a major role in 2/3 of the farming operations in Dodge County. There is an extensive network of constructed drainage ditches throughout the county. There are approximately 80 miles of drainage ditch systems in the county. A majority of these systems are in the Ripley and Westfield Townships. These drainage ditches outlet into such major watercourses as the south branch of the middle fork of the Zumbro River, lower branch of the middle fork of the Zumbro River, and the Cedar River. Sediment delivered into these ditch systems can be severe at times because of: inadequately constructed berms or no berms at all along the ditch, inadequate seeding of ditch berms and channel slopes during cleanouts, and lack of side inlet structures to let runoff water into a ditch safely.

As these ditch systems build up with sediment, three major things happen that affect the farm communities along the ditch systems;

- Capacity of the ditch is lessened, thus creating more frequent flooding along the ditch which either destroys crops or stunts the growth of the crops.
- The water level is raised in the ditch, thus putting tile outlets under water which impedes the efficiency of the tile systems using these outlets.
- The ground stays wet longer which delays planting and harvesting causing yield losses on crops.

2. Along with the adverse economic effects to farmers along the drainage ditch systems, water quality suffers at times of heavy rains not only in certain stretches of these ditch systems but also in the major watercourses into which they outlet.

In order to help reduce and control the amount of sediment entering the county's drainage ditch systems and public watercourses, the SWCD will:

- a. Assist farmer groups in the establishment of formal drainage ditch groups.
- b. Provide technical assistance in the proper cleanout and maintenance of drainage ditches.
- c. Provide technical assistance in the design and stakeout of side inlet structures.
- d. Promote the proper leveling of ditch spoils and the establishment of at least 16.5 feet of filter strips along each side of drainage ditches as well as proper seeding of ditch slopes.
- e. Promote proper upland treatment on farmland draining into these ditch systems.
- f. Promote the Conservation Reserve Program (CRP) and Reinvest In Minnesota (RIM) filter strip and wetland restoration practices.

3. Gully erosion is found throughout Dodge County. However, the silt loam soils in Milton, Mantorville, and the north half of Ellington and Concord Townships are most prone to this type of erosion. These soils erode rapidly in areas of concentrated flows. Because of the dramatically increased slopes where farmland and woodland merge, gullies form when the surface water from a watershed enters an unprotected channel bank. Many of these upland watersheds outlet into major watercourses. Sediment loads are usually very heavy from this type of situation.

To control and /or prevent gully erosion, the SWCD will:

- a. Provide landowners with technical assistance in the designing and staking out of erosion control structures, stormwater control systems, and critical area seedings.
- b. Provide cost-sharing through the State cost-share program for these practices.
- c. Promote proper upland treatment.

D. High Priority Feedlots

Animal feedlots number approximately 491 in Dodge County. Of these, 47 are within 300 feet of a stream and are consequently considered a direct pollution to the county's water resources. A majority of these high priority feedlots are dairy farms located in the northeastern quarter and the eastern areas of the county. Also, these areas are most susceptible to groundwater pollution due to the Karst geology located in some parts of these areas. In addition to this, an ever increasing number of sinkholes are showing up in these areas creating even more potential for groundwater pollution. Very close attention must be paid to this situation near high priority feedlots. In order to minimize pollution from feedlots of surface and sub-surface water sources, the SWCD will:

- a. Provide technical assistance in the design and layout of animal waste systems with a feedlot evaluation (MinnFarm) rating, as well as those cited as polluters by MPCA.
- b. Provide cost-sharing to eligible animal waste systems
- c. Provide NRCS technical specifications to landowners not eligible for cost-sharing but who request assistance to help solve their pollution problem.
- d. Promote increased public awareness of the areas of Karst geology within Dodge County and the associated higher risks of groundwater contamination due to the uniqueness of this geology.
- e. Work with the NRCS soil scientist to identify and map sinkholes which exist in Dodge County.

Cost-Share Base Grant and General Service Grant Request

The Dodge Soil and Water Conservation District requests \$30,000 of cost-share funds for the installation of soil and water conservation practices in FY 2009. Of this request, \$6,000.00 would be used for the technical / administration of the program, \$14,400.00 will be used for the installation of grass waterways and \$9,600.00 for the installation of sediment retention systems. In addition, the District is requesting \$100,000.00 in General Service Grant funds for general District operations.