The PA Nutrient Management Act (formally Act 6, now Act 38) Grant Program also installed many practices within Snyder County. Almost all of the practices were funded in conjunction with the Chesapeake Bay Program, CREP, EQIP or other NRCS programs. However, there were some practices that were solely funded by the Nutrient Management Grant Program. They are listed below. Practices also funded by the Chesapeake Bay Program, CREP, EQIP and other NRCS programs are not listed below. They would be listed on Tables 24 through 26. (SCCD, December 2005)

Table 27: Nutrient Management Grant BMPs Installed in Snyder County

Number	Description
1 item	Waste Storage Structures
1 acre	Critical Area Seeding
3 miles	Diversions
300 ft.	Rock Lined & Grass Waterways
1 items	Roof Storm Water Control Systems
285 ft.	Underground Outlet Lines
1 unit	Mortality Composter

The conservation district has recently been participating with the South Central Chapter of Pennsylvania Project Grass's cost share program in which pastures are improved with prescribed grazing plans and the installation of related grazing best management practices. Funding originated from DEP's Growing Greener grants. They are listed below. (SCCD, December 2005 and February 2010) Practices funded in part by other programs, but not listed below, would be found on Tables 24 through 27.

Table 28: Project Grass BMPs Installed in Snyder County

Practice	Amount Installed
Perimeter Fence	19,583 ft.
Interior Fence	18,947 ft.
Grazing Plan (Treated Acres)	130.9 acres

Note: Southcentral Project Grass now has a cost share program in cooperation with the Capital Rural Conservation & Development Council and the National Fish & Wildlife Federation titled Grass Roots 21: Prescribed Grazing for the 21st Century (GR21). (SCCD, February 2010)

Since 2005, the conservation district has participated in Chesapeake Bay Program special projects (CBP-SPs) with DEP. Successful programs offered by the Conservation District include:

List 1: Successful Chesapeake Bay Program Special Projects

- Cover crop incentive program (yearly)
- No-till cover incentive programs (either one or two years)
- Chlorophyll nitrogen testing program (offered for 3 years)
- Pasture improvement & barnyard improvements
- A list of no-till drills & planters for interested farmers

Some other CBP-SP programs did not work out too well. Only one conservation plan (already counted with NRCS figures) was written in an impaired watershed and no farmers were interested in our vegetative crop buffer program. As of now, the Conservation District has funds for future pasture improvements, a cover crop voucher program, no-till incentives and an agricultural consulting supplement program. (SCCD, February 2010)

Table 29: Chesapeake Bay Program—Special Project BMP Accomplishments in Snyder County

Practice	Amount Installed
No-Till (acres)	954.3
Cover Crops (acres)	775.2
Chlorophyll Meter Nitrogen Testing for Corn (acres)	839.6
Improved Barnyard	1
Cattle Crossings	2
Pasture Improvements	2 watering systems with 6 hydrants & troughs

There was also a few instances in which either the conservation district or DEP had given technical or financial assistance to farmers that had not been listed above. Also, DEP has offered its Chesapeake Bay Streambank Fencing program for over ten years. In October 2009, eight properties were part of a five-county program in which riparian buffers were installed with help from the American Recovery & Reinvestment Act of 2009's Green Project Reserve (ARRA-GRP) and the Pennsylvania Infrastructure Investment Authority (PENNVEST). (SCCD, February 2010)

There are probably other farmer installed practices that the conservation district is not aware of at this time. The chart below tries to show some of these non-cost shared practices. (SCCD, January 2005 and February 2010)

Table 30: DEP Streambank Fencing Program, ARRA-GRP & Known Non-Cost Shared BMPs Installed in Snyder County

Practice	Times Installed
Milkhouse Wastewater Treatment System with no financial assistance	1
Filter Area with no financial assistance	1
Streambank Fencing with DEP	16,702 ft.
Cattle Stream Crossings with DEP	17
Waste Storage Structure with no financial assistance	1
Riparian Buffer planted	17.4 acres

Since 2001, the Conservation District has held the following educational and informational events and publications regarding agricultural conservation as shown on the list on the next page. (SCCD, February 2010)

List 2: Agricultural Educational & Informational Events & Publications offered in Snyder County

- Ten annual meetings held between January and March since 2001.
- Agricultural BMP Tour in June 2005 in which participants visited a dairy farm and poultry farm.
- Three printings of the "Snyder County Agricultural BMP Guide" started with the June 2005 BMP tour.
- No-Till Field Day near Meiserville in July 2006 with horse drawn no-till equipment.
- With Union County Conservation District, promote and explain basic agricultural compliance. A workbook and a picture guide were also produced.
- Held eight no-till informational meetings held in March (2007 – 2009) for farmers at local restaurants.
- Three Women in Agriculture workshops held yearly since 2007.
- No-Till & Manure Field Day near Mt. Pleasant Mills in September 2009 where manure spreading, calibration and no-tilling were discussed on a poultry farm. Visitors also saw a working poultry manure burner heating turkey raising facilities.

The conservation district also reviews erosion and sedimentation plans, inspect excavation sites, assists with general permits and reviews and issues NPDES (National Pollution Discharge Pollution Elimination System) permits for the PA Department of Environmental Protection. Since 2000, the conservation district also has worked with four townships to improve some of their dirt and gravel roads. The conservation district, with CBP-SP funds, held five educational workshops for homeowners regarding proper maintenance of on-lot septic tanks in 2008. (SCCD, February 2010)

The conservation district sponsored a cost-share on-lot septic maintenance pumpout program in 2008-2009. In 2009, a section of the North Branch Mahantango Creek was stabilized with technical and financial assistance from the conservation district and others. (SCCD, February 2010)

Some specific information regarding these programs is listed below. (SCCD, December 2005, February 2010)

Table 31: Non-Agricultural Conservation District Program Information

Program Accomplishment	Amount
Review Erosion & Sedimentation Plans (2002-2005)	179
Have been reviewing E&S plans since 1980s	
NPDES Permits Issued (1988-2005)	95
Dirt & Gravel Roads Improved since 2000 (ft.)	21,243
On-Lot Septic Maintenance Pumpouts	48
Stream Restoration (ft.) – Urban	370

When the process began for conservation districts to gather information for their plans, DEP has supplied information regarding what their records showed regarding certain practices being implemented. This information was used by the U. S. Environmental Protection Agency (EPA) in its Chesapeake Bay models for what was accomplished so far in the clean up of the Chesapeake Bay and what is still needed. (PA-DEP, 2004 spreadsheets)

Table 32: Chesapeake Bay Program 2002 Credited Practices, Cumulative Total of Practices Reported from 1985 through 2002: (For Snyder County)

Practice	Units	Amount
Abandoned Mine Reclamation	Acres	36
Animal Waste Management- AEUs	AEUs	24,264
Conservation Plans	Acres	32,069
Conservation Tillage	Acres	18,012
Erosion and Sediment Control	Acres	211
Forest Buffers	Acres	78
Grass Buffers	Acres	4
Land Retirement	Acres	2,523
Nutrient Management	Acres	30,763
Off-stream Watering With Stream Fencing	Acres	439
Off-stream Watering Without Fencing	Acres	34
Rotational Grazing	Acres	198
Septic Connections	EDUs	499
Tree Planting	Acres	493
Wetland Restoration	Acres	17

Note: AEUs = Animal Equivalent Units = 1,000 lb. animal weight
Note: EDUs = Equivalent Domestic Unit = family unit

NRCS, along with the conservation district and FSA, used to conduct a survey every two years regarding the amount of conservation tillage on Snyder County farms. Below are figures supplied from NRCS for figures from 2002 and 2004. This table shows an increase in conservation tillage from 2002 to 2004. (NRCS, January 2005 and FSA, January 2005) Unfortunately, no county estimates exist after 2004.

Table 33: Conservation Tillage Estimates for Snyder County

[redacted]	Conservation Tillage (Greater than 30% Residue)			Reduced Tillage	Conventional Tillage
Year	No-Till	Ridge Till	Mulch-Till	15-30% Residue	0-15% Residue
2002	14,710	0	2,340	3,290	21,460
2004	19,740	0	3,300	3,190	11,909

The USDA's National Agricultural Statistic Service's (USDA-NASS) Pennsylvania Office has recently conducted tillage surveys. (This information is shown on Tables 34A and 34B in the next page.) Although USDA-NASS does not have county specific information, state-wide trends are showing that farmers are no-tilling more acres. (USDA-NASS, July 2009)

Table 34A: Pennsylvania: Tillage Practices by Crop, 2009

Crop	Total Acres Planted	No-Till (1) Acres	No-Till (1) % of Total (4)	Other Conservation Tillage (2) Acres	Other Conservation Tillage (2) % of Total (4)	Conventional Till (3) Acres	Conventional Till (3) % of Total (4)
Corn	1,350,000	770,000	57.0	270,000	20.0	310,000	23.0
Soybeans	450,000	315,000	70.0	90,000	20.0	45,000	10.0
Barley	60,000	33,000	55.0	17,000	28.3	10,000	16.7
Winter Wheat (5)	200,000	110,000	55.0	50,000	25.0	40,000	20.0
Oats	110,000	25,000	22.7	26,000	23.6	59,000	53.6
Total (6)	**2,170,000**	**1,253,000**	**57.7**	**453,000**	**20.9**	**464,000**	**21.4**
Alfalfa Seedings (7, 8)	-	-	36.0	-	24.0	-	40.0

(1) No-Till – A procedure whereby a crop is planted directly into a seedbed not tilled since harvest of a previous crop, or the planting of a crop into sod, previous crop stubble, or a cover where only the intermediate seed zone is disturbed. (2) Other Conservation Tillage – Tillage practices prior to planting which result in a minimum of 30 percent ground cover or residue being retained on the surface following planting. Grass and weed control is accomplished primarily with herbicides. Includes ridge till, strip till, and mulch till. (3) Convention Till – Systems where 100 percent of the surface is mixed or inverted by plowing, power tilling, or multiple disking. (4) Sum of no-till, other conservation tillage and conventional till percents of total may not add to 100 percent due to rounding. (5) Wheat seeded the previous fall for all intended purposes including grain, cover, silage, hay or any other utilization. (6) Total excludes Alfalfa Seedings. (7) New alfalfa seeded or to be seeded during 2009. (8) Alfalfa seeded acres will be available in January 2010.

Table 34B: Pennsylvania: Tillage Practices by Crop, 2008

Crop	Total Acres Planted	No-Till (1) Acres	No-Till (1) % of Total (4)	Other Conservation Tillage (2) Acres	Other Conservation Tillage (2) % of Total (4)	Conventional Till (3) Acres	Conventional Till (3) % of Total (4)
Corn	1,350,000	650,000	48.2	286,000	21.2	414,000	30.7
Soybeans	435,000	269,000	61.8	78,000	17.9	88,000	20.2
Barley	60,000	29,000	48.3	11,000	18.3	20,000	33.3
Winter Wheat (5)	195,000	95,000	48.7	40,000	20.5	60,000	30.8
Oats	105,000	30,000	28.6	18,000	17.1	57,000	54.3
Total (6)	**2,145,000**	**1,073,000**	**50.0**	**433,000**	**20.2**	**639,000**	**29.8**
Alfalfa Seedings (7, 8)	110,000	45,000	40.9	25,000	22.7	40,000	36.4

(1) No-Till – A procedure whereby a crop is planted directly into a seedbed not tilled since harvest of a previous crop, or the planting of a crop into sod, previous crop stubble, or a cover where only the intermediate seed zone is disturbed. (2) Other Conservation Tillage – Tillage practices prior to planting which result in a minimum of 30 percent ground cover or residue being retained on the surface following planting. Grass and weed control is accomplished primarily with herbicides. Includes ridge till, strip till, and mulch till. (3) Convention Till – Systems where 100 percent of the surface is mixed or inverted by plowing, power tilling, or multiple disking. (4) Sum of no-till, other conservation tillage and conventional till percents of total may not add to 100 percent due to rounding. (5) Wheat seeded the previous fall for all intended purposes including grain, cover, silage, hay or any other utilization. (6) Total excludes Alfalfa Seedings. (7) New alfalfa seeded or to be seeded during 2008. (8) Alfalfa seeded acres will be available in January 12, 2009.

Remaining & Future Needs

When the process began for conservation districts to gather information for their plans, DEP has supplied information regarding what their records showed of being implemented. This information was being used by EPA in their Chesapeake Bay models for what was accomplished in the clean up of the Chesapeake Bay and what was still needed. The information about what was accomplished was supplied from DEP, the conservation district and NRCS. Refer to Table 35 on page 66 for more information. (PA-DEP, 2004 spreadsheets; SCCD, 2005 and February 2010 and NRCS, 2005 and February 2010)

Please note that Snyder County could claim more practices than what is recorded on Table 35 on page 66. For instance, the conservation district is not certain whether practices solely funded under the Act 6 (now Act 38), EQIP and CREP programs are counted by DEP. Some practices that farmers would have installed, without financial assistance, technical assistance, knowledge of the conservation district or NRCS, would not have been recorded by any agency. Also, DEP has not have a history of recording certain practices, such as horse pasture management and street sweeping. (Refer to Table 35 on the next page.)

Both the conservation district and NRCS field office staffs are very proud of what has been accomplished in the agricultural and non-agricultural communities. These results are good considering that for many years each agency has had a small staff to work with compared to some other larger counties such as Bradford, Westmoreland, Dauphin and Lancaster Counties. However, the conservation district and NRCS realize that much needs to be done, especially since the clock is ticking for the Commonwealth of Pennsylvania to meet their nutrient and sediment reduction goals that will be mandated by future water quality regulations from DEP and the U.S. Environmental Protection Agency (EPA).

Table 35: Practices needed to be met by Snyder County (in Bold), Accomplishments and Remaining Practice Amounts needed to meet Goal.

Practice (SWM = stormwater management)	Units	**Goal (c)**	Accomplished by 2002 (DEP) (a)	Other Sources and Estimates (SCCD & NRCS) (a)	Remaining (b)
Abandoned Mine Land Reclamation	Acres	**74**	36		38
Animal Waste Management Systems	AEUs	**41,347**	24,264	(d)	17,083
Carbon Sequestration	Acres	**7,871**			7,871
Conservation (Farm) Plans	Acres	**67,209**	32,069	18,853	16,287
Conservation Tillage	Acres	**27,884**	18,012		9,872
Cover Crops (early)	Acres	**26,502**		(e)	26,502
Dirt & Gravel Road Practices	Feet	**47,506**		16,660	30,846
Erosion & Sediment Controls	Acres	**40**	211	(e)	-171
Forest Buffers	Acres	**2,812**	78	260	2,474
Forest Harvesting Practices	Acres	**0**	4		-4
Grass Buffers	Acres	**583**		(e)	583
Horse Pasture Management	Acres	**3,204**			3,204
Land Retirement	Acres	**6,605**	2,523		4,082
Managed Precision Agriculture	Acres	**30,271**			30,271
Mortality Composters	AEUs	**0**		(e)	0
Non-Urban Stream Restoration	Feet	**1,635**			1,635
No-Till	Acres	**12,592**		(e) 20,694	-8,102
Nutrient Management	Acres	**10,098**	30,763	(e)	-20,665
Off Stream Watering w/Fencing	Acres	**8,499**	439	(d)	8,060
Off Stream Watering w/o Fencing	Acres	**5,099**	34		5,065
Precision Rotational Grazing	Acres	**1,785**		(e)	1,785
Rotational grazing	Acres	**1,360**	198	(e) 36	1,126
Septic Denitrification (family units)	Units	**4,154**	499		3,655
Street Sweeping	Acres	**175**		(e)	175
SWM - Filtration	Acres	**1,660**		(e)	1,660
SWM - Infiltration practices	Acres	**1,837**		(e)	1,837
SWM - Wet Ponds & Wetlands	Acres	**1,837**			1,837
Tree Planting	Acres	**509**	493		16
Urban Growth Reduction	Acres	**151**			151
Urban Nutrient Management	Acres	**3,860**			3,860
Urban Stream Restoration	Feet	**1,416**		370	1,046
Wetland Restoration	Acres	**99**	17		82
Yield Reserve	Acres	**10,097**			10,097
Dairy -Precision Feeding	AEUs	**12,058**			12,058
Dairy - Ammonia Emission Controls	AEUs	**4,019**			4,019
Swine - Phytase Feed Additive	AEUs	**24,485**		(e)	24,485
Swine - Ammonia Emission Controls	AEUs	**12,492**			12,492
Poultry - Phytase Feed Additive	AEUs	**6,903**		(e)	6,903
Poultry - Ammonia Emission Controls	AEUs	**5,868**			5,868

(a) DEP, SCCD, NRCS – source of records and estimates in 2002 and beyond on prior tables in this section.
(b) Some items not easy to quantify in any agency's report (c) Original goal date set at late-2010
(d) Some items were installed and data collected, but not quantified to match units.
(e) Know that practice performed due to observation, but cannot be quantified by the conservation district

Most Effective Approaches to Address Needs

After gathering information from conservation district records and other sources of information, six needs were identified for the conservation district to concentrate its efforts on: They are as follows:

1. Reduce soil erosion from agricultural cropland that enters nearby streams.
2. Reduce nutrient pollution from improperly maintained on-lot sewage disposal systems.
3. Reduce nutrient and sediment pollution from entering nearby streams coming from grazing lands.
4. Reduce sediment pollution from excavation and construction sites and unstable streambank segments.
5. Reduce nutrient and sediment pollution from entering streams and ground waters by improving manure management and installing certain practices.
6. Increase public awareness of the importance of watersheds and water quality protection.

There are other concerns identified in the county. For example, atmospheric deposition and mercury stream contamination are not easily curable and beyond the ability and scope of what the conservation district can realistically address. Also, roadway and urban stormwater problems are the responsibility of other agencies such as municipal and county planning commissions.

Conservation District staff can use existing (and hopefully additional) resources to work on the four issues listed above. Please refer to the next section on how the Conservation District believes that it can do its part to help Pennsylvania meet its sediment and nutrient needs that will be mandated by future water quality regulations from DEP and the U.S. Environmental Protection Agency (EPA).

County's Implementation Plan Goals

As mentioned earlier, the conservation district will be attempting to focus its energy on these six issues:

1. Reduce soil erosion from agricultural cropland that enters nearby streams.
2. Reduce nutrient pollution from improperly maintained on-lot sewage disposal systems.
3. Reduce nutrient and sediment pollution from entering nearby streams coming from grazing lands.
4. Reduce sediment pollution from excavation and construction sites and unstable streambank segments.
5. Reduce nutrient and sediment pollution from entering streams and ground waters by improving manure management and installing certain practices.
6. Increase public awareness of the importance of watersheds and water quality protection.

Goals 1, 5 and 6 listed above have sub-goals that target specific activities related to agricultural or other activities.

Each numbered goal lists three parts: a.) action plan, b.) resources/assistance needed, and c.) expected results.

- The **action plan** describes how the Snyder County Conservation District will meet the specific goals in the county and within the state's Chesapeake Bay watershed.

- The **resources/assistance needed** section discusses the financial, technical and personnel resources needed to work on each goal.

- The **expected results** for each goal are listed, provided that enough resources and assistance is received. Goal results are for July 1, 2005 to December 31, 2015.

Goal 1: Reduce soil erosion from agricultural cropland that enters nearby streams.

1A. Create a no-till incentive payment program or purchase a no-till drill or planter for crop producing farmers.

Action Plan

The Snyder County Conservation District can create an incentive payment program to encourage farmers to start and maintain no-till systems. The conservation district can also purchase a no-till drill or planter for interested farmers to use so they can try it for themselves. Although 2004 estimates show that there is more farmland acreage no-tilled than what the U. S. Environmental Protection Agency (EPA) model reports that Snyder County must contribute to clean up the Chesapeake Bay (20,694 acres over 12,592 acres), there is still a large amount of land still under conventional tillage management.

Resources/Assistance Needed

The Snyder County Conservation District will be applying for money from the PA Chesapeake Bay Program to fund a county-wide incentive program for farmers to start or continue a no-till management system. The conservation district may also be applying for the purchase of a no-till planter or drill for interested farmers to use on their farms. The conservation district will also be applying to fund a partial technical staff position under the same program. Additional funding to promote and educate Snyder County farmers may also be needed from other sources. Currently, the Natural Resources Conservation Service (NRCS) can offer incentive payments to successful farm applicants for no-till farming under the Environmental Quality Incentives Program (EQIP).

Expected Results: Add 2,000 no-till acres in Snyder County

1B. Educate and demonstrate the advantages and techniques of no-till systems.

Action Plan

Although 2004 estimates show that there is more farmland acreage no-tilled than what the U. S. Environmental Protection Agency (EPA) model reports that Snyder County must contribute to clean up the Chesapeake Bay (20,694 acres over 12,592 acres), there is still a large amount of land still under conventional tillage management. Conducting education workshops and demonstration field events will accomplish this goal.

Resources/Assistance Needed

The conservation district has applied (and will apply again) for funding to promote and educate Snyder County from a private organization's mini-education grant program. Coordination between farmers (who either already no-till or farmers who are interested in trying no-till) and technical staff will be needed. Applying for additional funding to hire a partial technical staff position may also be needed.

Expected Results: Add 500 no-till acres in Snyder County

1C. Write more agricultural conservation plans for farmers.

Action Plan

The Natural Resources Conservation Service—Middleburg Field Office (NRCS) cannot meet the increasing needs of conservation plan writing within the county. With more and more farmers needing updates due to changes in crop field tillage management, and the expected necessity that conservation plans must correspond with nutrient management plans under the PA Nutrient Management Act (Act 38) regulations, the conservation district will likely have to fill that need. NRCS places a greater priority to complete conservation plans for federal programs such as Environmental Quality Incentives Program (EQIP). Some concentrated animal operations (CAOs) have many importing farms or rent other farms which utilize the manure. Additional pressure from PA Department of Environmental Protection (DEP) is expected on farmers to have current conservation plans or at least agricultural erosion and sedimentation plans. (Currently, there are many farmers under EQIP contracts and about 47 CAOs within the county. Also, there are ten concentrated animal feeding operations (CAFOs) in the county.)

Resources/Assistance Needed

The Snyder County Conservation District will continue to apply for money from the PA Chesapeake Bay Program and PA Department of Agriculture's Agricultural Conservation Technician (ACT) program to fund a technical staff position to write conservation plans under the guidance from the NRCS Middleburg Field Office and needs for farmers who need updates due to proposed PA Nutrient Management Act (Act 38 of 2005) regulations. One technical staff person has received training through the NRCS field office staff as well as other NRCS staff in the regional level, state level and the National Employee Development Center (NEDC).

Expected Results: Update 4,000 acres worth of conservation plans in Snyder County

1D. Increase the number of cover crops planted.

Action Plan

There are farmers who plant cover crops after silage corn (or plant other field crops that, after harvest, are more susceptible to erosion). Although no one has any estimates or records of cover crop acreage, it is safe to presume that the number does not reach the U. S. Environmental Protection Agency's (EPA) Chesapeake Bay model recommendation of 26,502 acres within Snyder County.

Resources/Assistance Needed

The Snyder County Conservation District will talk with farmers about the advantages of cover crops during Nutrient Management Act (Act 38 of 2005) Program status and plan reviews, meeting with farmers during conservation plan writing process and other informal meetings. The conservation district has applied (and may apply for additional funding) to promote and educate Snyder County farmers about the advantages of cover cropping from a private organization's mini-education grant. Currently, the Natural Resources Conservation Service (NRCS) can offer incentive payments to successful farm applicants for no-till farming under the Environmental Quality Incentives Program (EQIP) The Snyder County Conservation District may also apply for money in the future from the PA Chesapeake Bay Program or other programs to fund a county-wide incentive program for farmers to start or continue a no-till management system. This may also include the funding of a partial technical staff position under the same program.

Expected Results: Add 1,000 acres of cover crops in Snyder County

1E. Educate and demonstrate the need for conservation plans and soil erosion prevention implementation on farmland owned by farmers who do not traditionally work with government agencies.

Action Plan

When traveling many parts of Snyder County, it is obvious that the county has a large population of Amish and Mennonite families. Unless the conservation district works with an individual regarding general permits or nutrient management plans, many do not choose to work with any government agency. However, some of their farming practices with crop land tend to promote soil erosion. Many live within an agriculturally impaired watershed in the county. A plan of action with these farmers who normally do not voluntarily work with the conservation district has to be developed. Also, there are many non-Amish and non-Mennonite farmers who do not work with the Conservation District or other conservation agencies.

Resources/Assistance Needed

The Snyder County Conservation District will try a multiple prong approach in reaching Amish and Mennonite farmers within the county. The conservation district may work with neighboring conservation districts to develop workshops, demonstration areas or materials geared toward these farm communities. (Two field day events have been held in southeastern Snyder County, an area where many Amish and Mennonites reside.) Individual visits between farmer and a conservation district staff member may be conducted. Explaining soil health and potential compliance issues will likely be discussed. The Snyder County Conservation District may also apply for money in the future from the PA Chesapeake Bay Program and other sources to fund a county-wide or multiple county-wide program or educational materials for this outreach program. This may also include the funding of a partial technical staff position under the same program.

Expected Results: Reduce the amount of agriculturally impaired streams by 2 miles within the county.

Goal 2: Reduce nutrient pollution coming from improperly maintained on-lot sewage disposal systems.

2A. Create an educational and incentive payment program for homeowners in order to maintain their on-lot sewage disposal systems properly.

Action Plan

Snyder County has roughly 50% of housing units that use on-lot sewage disposal systems. Therefore, the homeowner, not a professionally trained sewage treatment employee or manager, is responsible for the proper maintenance of these sewage systems. Education and proper maintenance is needed to not only ensure proper function of these systems, but also that nearby groundwater (and possibly surface water) is not polluted. The conservation district can create educational workshops and an incentive payment program in order to achieve a higher percentage of proper on-lot system management.

Resources/Assistance Needed

The Snyder County Conservation District may apply for Chesapeake Bay special project grant funds to create a combined educational and incentive program for homeowners. Since this is a new endeavor, the conservation district would likely need technical assistance from the PA Department of Environmental Protection and local sewage enforcement officers. Educational mini-grants may also be sought.

Expected Results: Reduce the amount of nutrient impaired streams by 0.5 miles within the County.

Goal 3: Reduce nutrient and sediment pollution from entering nearby streams coming from grazing lands.

3A. Install streambank fencing and riparian buffers in livestock pastures and encourage better grazing management.

Action Plan

Snyder County consists of many farms that graze their livestock in pastures. Many of these cattle have unlimited access to streams which create sediment and nutrient pollution problems due to animal traffic and manure deposition. There are 19.728 miles of impaired 305(b) problem streams caused by the effects of overgrazing and streambank degradation by siltation. The Snyder County Conservation District is currently an active member of the Southcentral Chapter of Pennsylvania Project Grass. This chapter has successfully applied (and will be applying in the future) Growing Greener and other funds to cost share intensive/rotational grazing best management practices (BMPs) on farms. Educating farmers is also part of current and future approved grants. There have been thirteen different farmers who have applied for this cost share program in the county.

Resources/Assistance Needed

The Snyder County Conservation District is currently an active member of the South Central Chapter of Pennsylvania Project Grass. This chapter has successfully applied for (and will be applying in the future) Growing Greener and other funds to cost share intensive/rotational grazing best management practices (BMPs) on farms. The Conservation District will work with the NRCS grazing specialists for technical assistance on this matter. Educating farmers is also part of current and future approved grants. The conservation district may also individually apply for grant funds in the future to cost share the installation of streambank fencing and/or improving grazing practices. Educational mini-grants may also be sought.

Expected Results: Add 2 miles of streambank fencing, 50 acres of riparian buffers and convert 100 acres of existing pasture into intensive grazing.

Goal 4: Reduce sediment pollution from excavation and construction sites and unstable streambank segments.

4A. Increase staff personnel time to review and inspect the increasing number of expected excavation and construction sites.

Action Plan

With the ever expanding number of housing units increasing in Snyder County (15,159 in 2002), more time is needed for the Snyder County Conservation District to participate under the 25 PA §102 regulations. Proposed changes in §102 regulations will likely increase the demands of the conservation district staff regarding erosion and sedimentation prevention. In the future, another person may be needed to review erosion and sedimentation plans, issue NPDES (National Pollution Discharge Pollution Elimination System) permits and inspect excavation and construction sites.

Resources/Assistance Needed

The Snyder County Conservation District will monitor the ever-increasing needs of the erosion and sedimentation (E&S) program with DEP under the 25 PA §102 regulations for earth disturbance sites. Currently, the E&S duties are conducted by one-half of a technician. This technician's duties also include nutrient management, farmland preservation and watershed organization and protection.. They review E&S plans, issue NPDES (National Pollution Discharge Pollution Elimination System) permits and inspect excavation and construction sites. It may be necessary for the conservation district to either: 1.) Redirect current technical staff personnel responsibilities so that E&S can be managed to a greater degree or 2.) Hire an additional technical staff person to solely manage the E&S program.

Expected Results: Review and inspect 150 erosion and sedimentation plans and sites consisting of 500 acres of disturbance

4B. Increase riparian buffers and stabilize streambanks to reduce sedimentation..

Action Plan

There are 68.145 miles of streams impaired by some type of siltation, either from agriculture or urban effects. Many of these streams have their banks degraded and need improvement. In 2009, 370 ft. of streambank was improved in Mt. Pleasant Mills with logs and other low cost methods with PA Fish & Boat Commission technical assistance. USDA has promoted tree plantings for years through Conservation Reserve Enhancement Program (CREP) and the conservation district has recently had 17.4 acres of trees planted along streams through a five-county project.

Resources/Assistance Needed

The Snyder County Conservation District will seek areas in which riparian buffers and streambank stabilization should improve water quality. Educating the public will be important in this enterprise. Funding for technical and financial assistance will be sought for installation and possible maintenance. Funding may also be needed for conservation district technical staff for this sub-goal.

Expected Results: Identify critical sites and stabilize 1 mile of streams within County.

Goal 5: Reduce nutrient and sediment pollution from entering streams and ground waters by improving manure management and installing certain practices.

5A. Install additional milkhouse wastewater treatment systems.

Action Plan

The Snyder County Conservation District can help in the design and installation of milkhouse wastewater treatment systems for dairy farmers. Milkhouse wastewater can severely decrease surface water quality with its cleaners and diluted milk. Phosphorous levels can increase in streams. Dissolved oxygen already in the stream breaks down the milk instead of helping aquatic life thrive. Several farms within the county need to properly treat their milkhouse wastewater. Vegetative filters and temporary storage tanks are low cost alternatives to solve this problem.

Resources/Assistance Needed

The Snyder County Conservation District may be applying for money from the PA Chesapeake Bay Program to fund a local program to give technical and financial assistance to dairy farmers to install milkhouse wastewater treatment systems. The conservation district will also be applying to fund a partial technical staff position under the same program. The technical staff person chosen could design these systems under the guidance from NRCS field office and technical office staff. Other NRCS staff members may be utilized. Additional technical training will be needed in order for the chosen conservation district staff person to design practices that meet PA Soil and Water Technical Guide standards. Educating farmers on this matter will also be stressed.

Expected Results: 6 milkhouse wastewater treatment systems serving 350 animal equivalent units (AEUs).

5B. Install additional best management practices (BMPs) to manage animal waste.

Action Plan

Snyder County produces a large amount of manure due to its large number of cattle and calves sold (14,957), hogs and pigs sold (140,256), layers (300,957) and meat-type birds sold (13,283,321). The county is second among the fourteen counties within DEP's Northcentral Region in contribution to nitrogen and phosphorous "edge of stream loads" toward the Chesapeake Bay watershed. Structures to manage animal manure are still needed. Snyder County is also second in Pennsylvania in number of broilers, which do not include breeder birds, layers, turkeys and guineas. Poultry manure has to be kept dry in order for farmers to land apply it properly at light loads (1 to 2 tons/acres), especially if manure can be land applied to lower phosphorous crop needs instead of higher nitrogen crop needs. Concentrated animal feeding areas must be managed to handle and store manure. This is why manure storages and barnyards are still necessary in Snyder County.

Resources/Assistance Needed

The Snyder County Conservation District will be working with Snyder County farmers to install BMPs to manage animal waste by encouraging them to sign up for existing financial assistance programs such as the PA Nutrient Management Grant Program and Environmental Quality Incentives Program (EQIP). The conservation district will also seek additional funding to increase the number of BMPs installed to better manage animal waste in Snyder County. Funding for conservation district technical staff persons will likely be coming from the Agricultural Conservation Technician (ACT) and other funding sources.

Expected Results: Install 12 animal waste BMPs (barnyards and storages) serving 1,200 AEUs.

5C. Educate and demonstrate the need for nutrient management on farmland toward farmers who do not traditionally work with government agencies.

Action Plan

When traveling many parts of Snyder County, it is obvious that the county has a large population of Amish and Mennonite families. Unless the conservation district works with an individual regarding general permits or nutrient management plans, many do not choose to work with any government agency. However, some of their farming practices with manure management tend to promote nutrient leaching or runoff. Many live within an agriculturally impaired watershed in the county. A process of meeting with these farmers who normally do not voluntarily work with the conservation district has to be developed.

Resources/Assistance Needed

The Snyder County Conservation District will try a multiple approach in reaching Amish and Mennonite farmers within the county. The conservation district may work with neighboring conservation districts to develop workshops, demonstration or materials geared toward these farm communities. Individual visits between farmer and a conservation district staff member may be conducted. Explaining proper nutrient and manure management and potential compliance issues will likely be discussed. The Snyder County Conservation District may also apply for money in the future from the PA Chesapeake Bay Program, agricultural compliance special project grants, and other sources to fund a county-wide or multiple county-wide program or materials for this outreach program. This may also include the funding of a partial technical staff position under the same program.

Expected Results: Reduce the amount of agriculturally impaired streams by 1 mile within County.

5D. Encourage environmentally and agronomically sound decisions regarding nitrogen applications from manure and chemical fertilizers.

Action Plan

Many farmers raise corn in Snyder County. A large number of them utilize manure and chemical fertilizers. Over the years, many farmers will use side dress nitrogen fertilizer when the corn plant is roughly 2 feet high as a supplement. They have heard that corn needs nitrogen available for its quickest growth after it reaches roughly two feet high. While this is true, there may be enough nitrogen already available in the soil from prior nutrient applications of manure or chemical fertilizers. For years, pre-nitrogen side dress soil tests could be taken. However, this took time and labor. Now, a new pre-nitrogen side dress chlorophyll meter is available to give farmers results almost instantly, thus giving information needed to make a decision of whether to apply side dress nitrogen. This will allow the conservation district technician to work one-on-one with farmers and educate on the basics of nutrient management and other conservation topics. Post- harvest corn stalk testing may be looked upon by the conservation district.

Resources/Assistance Needed

The Conservation District purchased a pre-nitrogen side dress chlorophyll meter. The conservation district is offering a program in which farmers can ask a conservation district technician to use the device. A similar program with a post-harvest corn stalk test may also be offered by the conservation district. Explaining the environmental and economic advantages of the device can be explained during promotion events, one-on-on conversations with farmers, and other events. Funds may be utilized for technical staff time and educational purposes.

Expected Results: Reduce the amount of agriculturally impaired streams by 1 mile within the county.

5E. Install vegetative stream buffers (minimum 35 ft.) for crop fields that receive animal manure.

Action Plan

There are farmers who have installed vegetative buffers along streams through federal funding programs. Research has shown that vegetative buffers prevent nutrient loss between areas of manure and fertilizer application and water bodies. Due to the large number of streams (733.22 miles) in a small county, there are many locations in which manure and fertilizer nutrients can runoff and enter streams. Also, with the new nutrient management act (Act 38 of 2005), manure produced from Concentrated Animal Operations (CAOs) cannot be applied within 100 ft. of a stream unless there is a vegetative buffer of at least 35 ft. in width. This includes farmland in which it receives imported CAO manure. (It should be noted that the state 35 ft. figure is not an approved standard under NRCS's Field Office Technical Guide at this time.)

Resources/Assistance Needed

The Conservation District has offered financial program to promote the installation of vegetative buffers. Although unsuccessful, it may offer it again. With the Act 38's manure application restrictions; this can also be an incentive for farmers to install these buffers so they can still receive manure on certain fields. Other regulations may restrict manure application in the future. This financial program may help with installation costs, maintenance costs, rental payments, or incentive fees. Additional funds may be given to farmers who go beyond the 35 ft. width and install buffers that meet stricter NRCS standards. USDA may also be a source of funding.

Expected Results: Increase buffer acreage by 25 acres or along 5 miles of streams.

Goal 6: Increase public awareness of the importance of watersheds and water quality protection.

6A. Educate youth in school activities and the general public on importance of water quality protection and watersheds.

Action Plan

Since 2000, the conservation district has put on presentations to youth and the general public ranging from outdoor educations for 5th graders to rain barrel construction for homeowners. Creating awareness of the importance of watersheds and water quality is important for current regulation compliance and future resource conservation. The conservation district must continue, and hopefully expand, its promotion methods for current and future generations in the county.

Resources/Assistance Needed

The Snyder County Conservation District currently works with schools and other organizations to promote and educate water quality issues. Funds from technical, educational and other sources will be needed to continue this work. In the future, assistance from local watershed associations or the private sector may be needed. Some funds have been used in the past to purchase educational supplies to make miniature soil profiles, groundwater models and three-dimensional watershed models.

Expected Results: Educate 1,000 students and 350 adults in workshops and other activities related to water quality and watershed protection.

6B. Create new watershed associations within the County.

Action Plan

While many areas of Pennsylvania have thriving watershed associations, Snyder County currently has one such organization in its infancy. It received grants to conduct biological assessments of the lower Penns Creek and is tributaries with help from Susquehanna University and a local consultant. However, this only covers a portion of the county, since other sections are parts of the Middle Creek, Mahantango Creek, Juniata River and main stem Susquehanna River watersheds. Watershed organizations tend to have more leverage over other groups and government agencies to bring technical and financial assistance to improve local water quality. In 2008 and 2009, Snyder and Juniata County Conservation Districts have been working to create enough interest to form a Mahantango Creek watershed.

Resources/Assistance Needed

At this time, no watershed organization exists for the Middle Creek watershed, which covers roughly 50% of the county. Practically this entire watershed lies within the county. Mahantango Creek watershed also does not have a watershed organization. This watershed is shared with Juniata County. Funding for conservation district staff, as well as a grant for its creation, is needed to make another watershed association a reality.

Expected Results: Create one new watershed association.

County Implementation Plan Summation

Some identified practices to meet these goals are beyond the scope or function of the Conservation District. However, this Implementation Plan identifies six goals for the Conservation District to reach through current and proposed actions. They are:

1. Reduce soil erosion from agricultural cropland that enters nearby streams.
2. Reduce nutrient pollution from improperly maintained on-lot sewage disposal systems.
3. Reduce nutrient and sediment pollution from entering nearby streams coming from grazing lands.
4. Reduce sediment pollution from excavation and construction sites and unstable streambank segments.
5. Reduce nutrient and sediment pollution from entering streams and ground waters by improving manure management and installing certain practices.
6. Increase public awareness of the importance of watersheds and water quality protection.

To reduce sediment and nutrients from entering the county waterways, the Conservation District is proposing a plan to encourage the public, specifically farmers, homeowners and land developers, to modify their management practices. This is to be done with a combination of 1.) Focusing technical resources on farmers in specific directions, 2.) Finding financial incentives and education resources to encourage farmers, homeowners and others to modify their management techniques and 3.) Enhancing technical staff resources towards erosion control monitoring of land development.

Refer to Table 36 on the next two pages.

It is the hope that the writing of this Implementation Plan will focus the Conservation District staff and directors, current and future, on the task at hand to help Snyder County in its small role to clean its portion of the Chesapeake Bay watershed and the larger role of improving the water quality of the Chesapeake Bay. However, other government agencies, private and non-profit organizations, and the general public must contribute their time, knowledge and finances to assist the conservation district in this task.

Table 36: Summary Chart Showing Goals, How to Achieve Goals, and What to Expect from July 2005 to December 2015

1. Reduce soil erosion from agricultural cropland that enters nearby streams.		
Goal	***Goal Achievement***	***Expected Results***
1A. Create a no-till incentive payment program or purchase a no-till drill or planter for crop producing farmers.	1A. Apply for grant money to create no-till incentive payment or purchase a no-till planter or drill for farmers to use. Also apply for staff funding.	1A. Add 2,000 no-till acres within County.
1B. Educate and demonstrate the advantages and techniques of no-till systems.	1B. Apply for education mini-grant money for educational workshops or field demonstrations. May apply for staff funding.	1B. Add 500 no-till acres within County.
1C. Write more agricultural conservation plans for farmers.	1C. Apply for grant money to fund staff time to write additional conservation plans needed for CAOs, farms within agriculturally impaired watersheds, and other farmers.	1C. Update 4,000 acres of conservation plans
1D. Increase the number of cover crops planted.	1D. Meet with farmers regarding importance of cover crops. May apply for incentive program and staff funding.	1D. Add 1,000 acres of cover crops.
1E. Educate and demonstrate the need for conservation plans and soil erosion prevention implementation on farmland toward farmers who do not traditionally work with government agencies.	1E. Apply for grant money for educational workshops for field demonstrations for agricultural erosion control and regulation compliance.	1E. Reduce the amount of agriculturally impaired streams by 2 miles within County.
2. Reduce nutrient pollution coming from improperly maintained on-lot sewage disposal systems.		
Goal	***Goal Achievement***	***Expected Results***
2A. Create an educational and incentive payment program for homeowners in order to maintain their on-lot sewage disposal systems properly.	2A. Apply for grant money to create an educational and incentive payment program to increase awareness and improve on-lot sewage disposal system maintenance.	2A. Reduce the amount of nutrient impaired streams by 0.5 miles within County.
3. Reduce nutrient and sediment pollution from entering nearby streams coming from grazing lands.		
Goal	***Goal Achievement***	***Expected Results***
3A. Install streambank fencing and riparian buffers in livestock pastures and encourage better grazing management.	3A. Utilize existing DEP and Project Grass funding sources. May apply for additional funding.	2A. Add 2 miles of streambank fencing, 50 acres of riparian buffers and convert 100 acres into intensive grazing.

4. Reduce sediment pollution from excavation and construction sites and unstable streambank segments.		
Goal	***Goal Achievement***	***Expected Results***
4A. Increase staff personnel time to review and inspect the increasing number of expected excavation and construction sites.	4A. Monitor excavation site numbers. Reorganize staff personnel priorities or apply for funds to hire additional staff.	4A. Review and inspect 150 erosion & sedimentation plans and sites for 500 acres of earth disturbance.
4B. Install riparian buffers and stabilize streambanks to reduce sedimentation.	4B. Identify and stabilize critical streambank sites. Seek funding for design and installation	4B. Identify critical sites and stabilize 1 mile of streams.
5. Reduce nutrient and sediment pollution from entering streams and ground waters by improving manure management and installing certain practices.		
Goal	***Goal Achievement***	***Expected Results***
5A. Install additional milkhouse wastewater treatment systems.	5A. Apply for funding to install milkhouse wastewater treatment systems. Also apply for staff funding.	5A. Install 6 milkhouse wastewater treatment systems serving 350 animal equivalent units (AEUs).
5B. Install additional best management practices (BMPs) to manage animal waste.	5B. Utilize EQIP and Act 38 grant funds. May also apply for additional funds.	5B. Install 12 animal waste BMPs (barnyards & storages) serving 1,200 AEUs.
5C. Educate and demonstrate the need for nutrient management on farmland toward farmers who do not traditionally work with government agencies.	5C. Apply for grant money for educational workshops for field demonstrations for agricultural manure and nutrient management and regulation compliance.	5C. Reduce the amount of agriculturally impaired streams by 1 mile within County.
5D. Encourage environmentally and agronomically sound decisions regarding nitrogen applications from manure and chemical fertilizers.	5D. Apply for grant money for educational workshops, mileage, and/or one-on-one training with interested farmers by offering pre-nitrogen chlorophyll meter service on corn fields.	5E. Reduce the amount of agriculturally impaired streams by 1 mile within County.
5E. Install vegetative stream buffers (minimum 35 ft.) for crop fields that receive animal manure.	5E. Apply for grant money for educational workshops, buffer installation incentive programs, buffer rental payment programs, and/or buffer maintenance payment programs.	5E. Increase vegetative buffer acreage by 25 acres or along 5 miles of streams.
6. Increase public awareness of the importance of watersheds and water quality protection.		
Goal	***Goal Achievement***	***Expected Results***
6A. Educate youth in school activities and the general public on importance of water quality protection and watersheds.	6A. Apply for educational grants for educational materials and promotion to school students and the general public.	6A. Educate 1,000 students and 350 adults in workshops and other activities related to water quality and watershed protection.
6B. Create new watershed associations within County.	6B. Apply for grants and other funds for promotion and creation of new watershed associations.	6B. Create one new watershed association.

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