



MINNESOTA STATE ENVIROTHON

Agricultural Soil and Water Conservation Stewardship in Minnesota

Stuart Shipman, 58, has farmed his homestead farm for 30 years. The homestead farm has just over 75 acres of cropped fields that are currently in a Corn-Soybean rotation where he fall applies fertilizer and disks then spring field cultivates prior to planting soybeans. Corn seed is no-tilled into the bean stubble. His fields are dissected by concentrated flow and gullies that drain to a designated trout stream. Water quality is a major concern, the stream running through his farm is impaired with high sediment and nitrates. The landscape ranges from highly erodible (steep slopes) to floodplain areas.

The homestead farm is adjacent to land owned by the Minnesota Department of Natural Resources (MNDNR) and is part of the Eagle Ridge Wildlife Management Area (WMA). The MNDNR has agreements with nearby farmers; cooperating farmers can farm designated fields within the WMA without paying a rental fee. A cooperating farmer incurs expenses to establish and harvest the crop, but they are required to leave 1/3 of the crop unharvested. This provides winter food (food plots) for deer and turkeys. Farming of state lands has been done for 40-50 years and provides benefits for wildlife as well as farm operators. Mr. Shipman has benefited from this arrangement for the past 15 years. The WMA parcel that he farms has nearly 20 acres of cropland he operates them the same as his homestead farm.

Although Mr. Shipman has farmed profitably in the past, he is concerned about his decreasing profit margin. He knows about the water quality impairments and wants to do his part to implement best management practices (BMPs) where they make the most sense. He has heard about the state-wide buffer initiative and is not sure what that means for him in his operation. Will he lose cropping acres that result in decreased yield? Additionally, he just received a letter from the manager of the WMA. There are increased concerns for water quality and for impacts to pollinators. As a result MNDNR staff has determined that insecticides should not be used within the WMA. The intent is to manage the lands in a manner that is best for the WMA wildlife and environment, but Mr. Shipman is concerned about how this might impact his bottom line. He needs to farm the MNDNR acres. Other parcels that are available for rent are farther from his homestead; his fuel costs would be higher as well as the added annual rental payment.

Mr. Shipman is seeking advice on how to better manage his operation to maintain a profit as well as protect the land resources. When he stopped in the SWCD and NRCS offices, the technicians recommended he speak with a soil health specialist to assist with determining how to reduce inputs, such as insecticides, herbicides, fertilizer, and tillage; while maintaining profitability and yield goals.

The technicians also showed him a map of his parcel with numerous recommended BMPs. The map was created using a GIS technology called Agricultural Conservation Planning Framework (ACPF) and is able to site the locations that are suitable for BMP structures. This is a relatively new technology that can be used for decision-making by landowners. ACPF is a watershed level tool that assists conservation staff to determine areas that could use structural BMPs; however, ground truthing and common sense need to be used to interpret the ACPF recommendations for structures such as Water and Sediment Control Basins (WASCBs), also known as ponds. ACPF does not take into account in field conditions or farming tillage practices.



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Expectations:

Stuart Shipman has come to you, conservationists, to ask for assistance with updating his operation to comply with MNDNR's requirements and maintain profitability in all his cropping operations.

Remember, it is difficult to persuade landowners to change so be sure to give examples on how a producer can maintain or increase profits in addition to the environmental benefits.

1. Assist the landowner to determine how to make the necessary changes to his cropping operation on the DNR land.
2. Assist the landowner with determining BMPs that would benefit his own farm fields, such as WASCBs and contour buffers.
3. Address the need for stream buffers along the trout stream and how he can still profit or benefit from this area.
4. Discuss financial assistance opportunities available for agricultural BMPS through federal, state, and local agencies.

Resources:

1. Web soil survey
 - a. <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
2. MN NRCS – Agronomy (Soil Quality, RUSLE2), eFOTG (BMPs), Conservation Reserve Program, & Financial Assistance Programs
 - a. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/mn/technical/>
 - b. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/mn/programs/>
3. Soil and Water Conservation Districts (Winona County SWCD)
 - a. <http://www.winonaswcd.org/page4.html>
4. MN DNR (Bill and "Pollinator BMPs and Habitat Restoration Guidelines")
 - a. http://www.dnr.state.mn.us/pollinator_resources/index.html
5. ACPF
 - a. <http://northcentralwater.org/acpf/>

Attachments:

1. Ownership/Field Map
2. MNDNR Letter
3. Resource Concern Inventory and Estimate of Environmental Impacts
4. RUSLE2 Summary
5. Web Soil Survey Report, Soils Maps, and Descriptions
6. Topo Map
7. ACPF Recommendations Map