

# Summary of Landowner Survey Results

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## I. Introduction

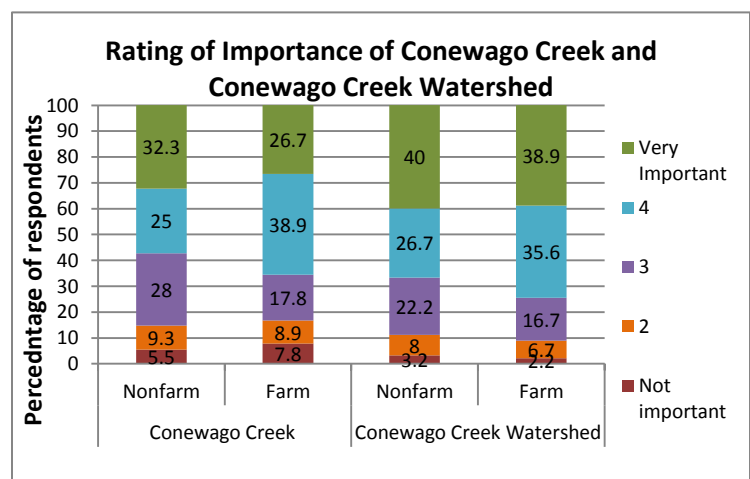
The Conewago Creek Initiative is a locally-led, collaborative partnership effort in the Conewago Creek watershed in Dauphin, Lebanon, and Lancaster Counties of Pennsylvania. The Initiative is a ‘discovery’ approach in which local, state, and federal partners, along with research institutions, unleash their own respective resources to focus on one watershed – and build one success. The end goal is to reduce the nutrient and sediment pollution within the Conewago, improve the health of the local watershed, and engage citizens across all sectors – while developing an integrated approach that will benefit other watersheds throughout the region. The Initiative seeks to improve water quality in the Conewago Creek watershed by working with local residents and landowners in the community to increase awareness of and interest in adopting land management practices that will improve water quality of local streams, ensure healthy farms, forests, and communities, and protect and maintain quality of life.

In 2011, The *Conewago Creek Initiative* conducted a survey of watershed residents to better understand how both farmers and non-farm residents access and value the Conewago Creek and its surrounding watershed. The survey was conducted by Penn State faculty, students and staff. This report summarizes the survey results, specifically focusing on findings that will help to target resources to landowners. This information provides the context for developing future projects aimed at increasing the use of conservation practices in the watershed.

## II. Survey Results

### Importance of the Conewago Creek

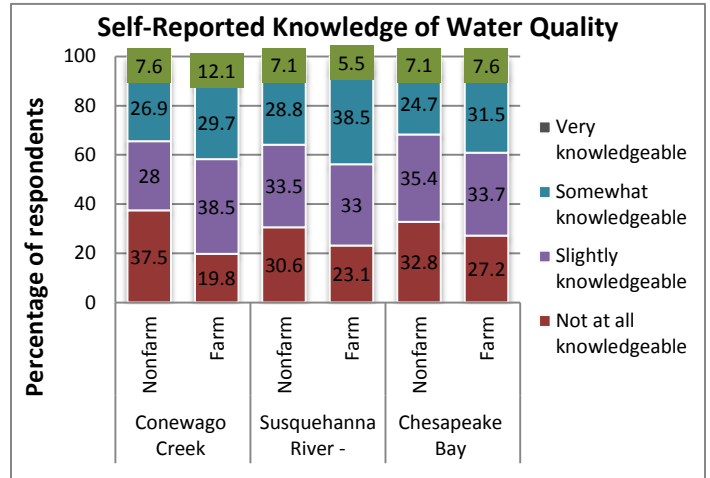
The Conewago Creek is important to 66% of farmers and 57% of non-farmers. The watershed is even more important to the residents with 75% of farmers ranking the watershed as important and 67% of non-farmers ranking it as important. Residents demonstrate this value through their use of the Conewago Creek for recreational purposes. 51.9% of non-farmers and 58.6% of farmers reported that they wildlife or bird watch at least sometimes near the Conewago Creek. Over 60% of the entire population reported walking, hiking, or relaxing near the creek at least sometimes. About 75% of the



population agreed with the statement, “The quality of life in my community depends on good water quality in streams, rivers, and lakes.”

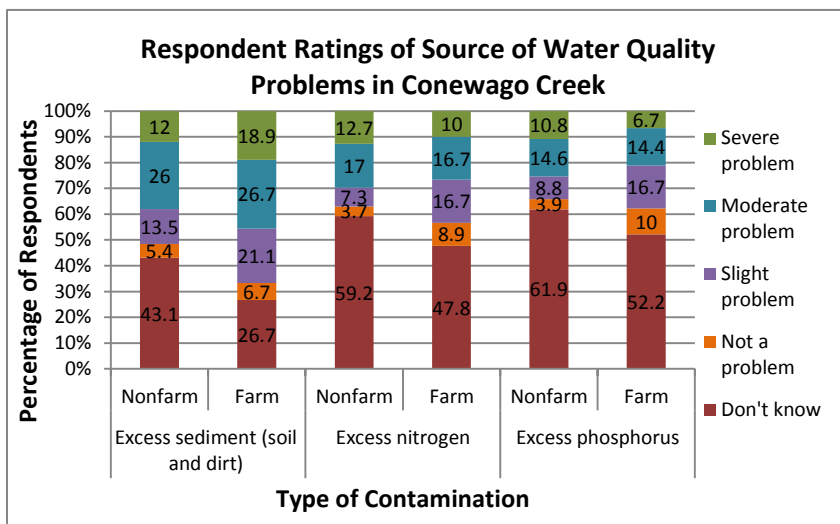
### Knowledge and Concern about Water Quality

The survey found that residents are concerned about water quality and feel they have a personal responsibility to protect water quality (91.4% farmers, 78.9% non-farmers). They do not however feel they are very knowledgeable about the water quality in the Conewago Creek, with less than 50% of respondents reporting that they are somewhat or very knowledgeable about water quality. They are even less familiar with the quality of water in the Susquehanna River and the Chesapeake Bay. The knowledge they do have causes them to think water quality is better in the Conewago than in the larger watersheds.



The unfamiliarity with water quality issues

was further highlighted by answers to a question asking residents to rate the pollutants causing water quality problems in the Conewago Creek. Almost half of all residents responded that they didn’t know whether sediment, phosphorus, or nitrogen were contaminants causing problems in the creek. When asked what the sources of these contaminants are, non-farmers chose “soil erosion from farm fields,”



“run-off from animal manure from farms,” and “excessive use of fertilizers on farms” as their top three concerns. Farmers chose “excessive use of lawn fertilizers,” “stormwater runoff,” and “soil erosion from farm fields” as their top three concerns. This shows that although responding residents reported have a personal responsibility to protect water quality, they also feel that others are contributing as much or more than themselves.

### Knowledge and Use of Land Management Practices

Both the farming population and the non-farming population are very familiar with common BMPs used on their respective property types. The majority of farmers practice common BMPs including: conservation tillage (83.8%), manure management plans (77.3%), livestock fencing (60.4%), riparian buffers (59.4%), cover crops (73.9%), and on-lot septic maintenance (88.2%). Farmers are less familiar with more innovative best management practices. Of the new farming practices, most farmers use manure storage facilities (66%) and over 40% practice rotational grazing, precision feeding, and composting. None of the farmers that responded use energy from animal waste. Usage of BMPs is

lower for the non-farming population. Very few use rain gardens or rain barrels (17%), or riparian buffers (12%). 72.7% do however regularly maintain their on-lot septic system.

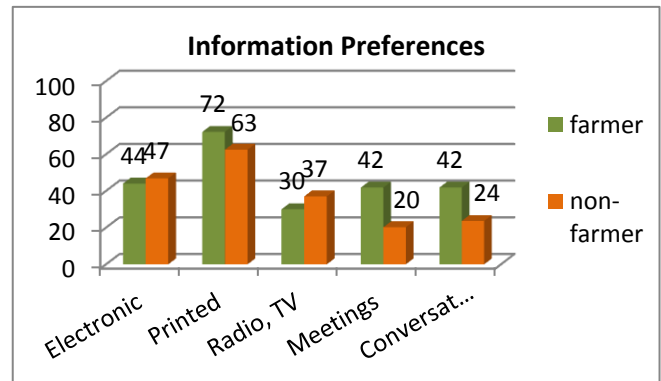
### Willingness to Adopt Practices

Both farmers and non-farmers indicated that they are willing to change practices to improve water quality because they also feel that their actions have an impact; however they are not willing to pay more to do so. Farmers in particular take cost (out-of pocket expense, effects on yield, maintenance) into account when changing management practices. Non-farmers also care about cost, but are also concerned with the impact the practice will have on water resources, and the availability of information on the practice.

Top 5 Concerns Impacting Willingness to Adopt Practices	
Farmers	Non-farmers
Amount of maintenance required	Impacts on local water resources
Out-of-pocket expense	Out-of-pocket expense
Fit with views on effective farm management	Availability of information
Effects on farm income	Amount of maintenance required
Labor required for implementation	Access to equipment needed

### Outreach Methods and Messengers

Residents were also asked questions regarding how they utilize media sources. Both farmers and non-farmers are more likely to use printed media over any other type. Electronic sources, from both types of residents, have a high likelihood of usage while also have a high percentage of unlikely usage. Demonstrations or events are more likely to be attended by farmers while non-farming respondents are slightly more likely to use radio and TV as a source of information.



The last set of questions focused on conservation-related organizations. Farmers were more familiar with all organizations than the non-farming population although both were the most familiar with their municipality. The farmers also rated organizations higher for trust and competency than the non-farming population. The County Conservation Districts and Penn State Extension received the highest average ratings in both trust and competency, although no organization received an average rating of very trustworthy or very competent. All organizations received average ratings for all categories.

### III. Discussion of Results: Informing the Initiative’s Work

Based on these results, an outreach strategy has been created for the Conewago Initiative that will help to guide outreach efforts in the future. The strategy has been broken into three sections: methods, messages, and messengers.

In the methods section, it has been determined that print materials need to be the primary method of outreach to promote available events and programs to all residents. Field days and

demonstrations will be targeted to the farming community, while electronic communication will be valuable in reaching non-farmers. Additionally, both farmers and non-farmers utilize the rail-trail system that runs along the Conewago Creek and this would be a valuable way for the Initiative to connect with the majority of the population.

The messages that need to be shared with the community are broad and many. There is a lack of understanding about water quality in small and large watersheds including what causes poor water quality and what water quality effects. These are important messages for encouraging BMP adoption. Basic information about the different Best Management Practices as well as details about their impact and cost need to be shared with both farmers and non-farmers. The available cost share and maintenance programs need to be advertised to help overcome implementation concerns.

Municipalities are the organizations most familiar to area residents so stronger relationships need to be made between the Initiative and the local municipalities. These governing bodies could be instrumental in encouraging landowners, particularly non-farmers, to adopt stormwater BMPs. The County Conservation Districts and Penn State Extension are considered the most trustworthy and competent organizations and should therefore take the lead educating the residents about water quality issues and BMPs.

The survey confirmed many of the actions that the Initiative has already taken to educate landowners but has also identified some key needs that have not been addressed very strongly up to this point. The basics of “everyone has an impact,” still needs to be communicated to most residents.

#### **IV. Conclusion**

The survey has been helpful to the Initiative and will continue to guide decisions moving forward. The survey itself was a way to reach out to the local residents and encourage them to think about the watershed they live in and how they feel about water quality. Since the survey was distributed, progress has been made in the Conewago Watershed including an increased adoption of farming BMPs although there is still work to do. The Outreach Strategy that was produced from the survey will help the Initiative to tweak current practices, and adopt additional methods to have a stronger impact on the watershed community. A follow up survey will be sent out in a few years to estimate how knowledge and practices have changed following the work of the Initiative and all its partners. This follow up survey will be important for judging the effectiveness of the Conewago Initiative and guiding efforts in other watersheds.