THE SPIGOT
from the NORTH DAKOTA RURAL WATER SYSTEMS ASSOCIATION

Ellingson & Oster Win North Dakota Rural Water Award

By Julie Hein, NDRW Wastewater Trainer

Each year North Dakota Rural Water Systems Association gives out awards for the best science fair projects dealing with water or wastewater at the regional science fairs across the state. This year, Ben Ellingson of Maddock and Cara Oster of Lisbon received these cash awards at their regional science fairs.

Ellingson, a student at Maddock High School, competed in the Northeast Regional Science Fair in Grand Forks. He also competed at the North Dakota State Science & Engineering Fair and won the NDRWSA award there. The purpose of his project was to develop remediation techniques to restore salt contaminated soils back to productive farmland. The goal of the study was to develop an inexpensive and affordable technique that could be used by landowners.

Ellingson's project, "Bringing Contaminated Soils Back to Life: Remediating Brine Contaminated and Alkaline Soils Using Phytoremediation and Engineered Drainage," consisted of testing the amount of water required to remediate highly, moderately and slightly contaminated soils by monitoring the electric conductivity and chloride concentrations while simulating different amounts of rainfall. He then experimented with different drainage systems to determine the most effective method to relocate the water carrying salt from the contaminated soils to the phytoremediation area. Different salt tolerant plant species were then tested to determine which crops were best for varying EC levels (levels of contamination). Finally, phytoremediation techniques were analyzed to determine the most efficient crop for removing salt from the soil.

Ellingson concluded that "through saturation, proper drainage, and the use of phytoremediation techniques, soils that have been infertile for decades can be remediated and put back into agricultural production in a matter of weeks."

Cara Oster, an eighth-grader at Lisbon, competed at the Southeast Science Fair in Hankinson. In her project entitled "Water: What's in It?" she wondered what source of water would contain the most bacteria. After testing different types of water, she concluded that river water contained the most bacteria, with well water and bottled water not growing any bacteria.

Science fair participation is an exceptional way for students to engage in active learning and develop sufficient science literacy. Students can take their natural curiosity and advance their understanding in a given area through research. The science fair program facilitates skills that are essential in preparation for undergraduate and graduate degrees, including academic writing, verbal, written and public communication, and problem-solving skills. Students gain confidence and crucial presentation skills and are able to network with their peers who, like Ellingson and Oster, share similar interests. Besides giving students opportunities to earn significant prizes or qualify for scholarships and advancement, science fair is fun!

Ben Ellingson

Cara Oster

Everyone Lives in a Watershed

By Julie Hein, NDRWSA Source Water Protection Specialist

What is a watershed? It is an area of land that drains to a common water body. In North Dakota, we live in one of two watersheds. The Missouri River Basin drains the land on the south side of the Northern Divide. The Hudson Bay Basin drains the lands north of this divide.

According to the Environmental Protection Agency, the leading source of pollution in surface drinking water supplies is polluted rainwater runoff. Many pollutants are found in legal, commonly used household products – cleaning chemicals for our homes, oil and gasoline for our vehicles, pesticides and fertilizers for our lawns, and pharmaceuticals for ourselves. Your actions, habits and decisions influence our watershed and the animals and plants that share life with us. What can you do to protect our watersheds?

The U.S. Bureau of Transportation reports there are more than 263 million registered passenger vehicles on the road. The opportunity for an oil and/or antifreeze leak to happen on your driveway is tremendous. Those leaks can then run off your cement and enter the watershed through the storm drains which then pollutes water sources. Check your vehicle health often so you can catch leaks and get them repaired quickly.

Pick up after your pet. The American Pet Products Association reports that in 2016, 68 percent of U.S. households owned some sort of pet. And you know what that means … a lot of poop! Looks, size and diet do not matter; pets can pollute if you do not pick up after them. If your pet defecates in your backyard, chances are it will quickly enter the watershed. Waste components, such as fecal bacteria and nutrients, are washed into storm drains, streams and other receiving waters by irrigation, rain, melting snow and flooding. They can also simply leach through the soil and into the groundwater. Clean up after your pets daily to prevent pet pollution.

Your storm drain is not a means for you to dispose of grass clipping, leaves and other trash. These wastes should be swept up and collected, not pushed or poured down the nearest storm drain. You will save water and keep harmful pollutants from shedding into the drains by disposing of yard waste properly. If it is not rainwater, it does not belong in the storm drain.

When it rains, whatever does not soak into the ground runs off roofs and yards, down streets, into storms drains and then directly into rivers, lakes, creeks, and other local water bodies. If that runoff is polluted, it is most likely that our own actions caused the problem, and we are contaminating our water. If you do not want to drink it, swim in it, or fish in it, do not put it in the water.