

# WV Envirothon 5<sup>th</sup> Topic Scenario

## Agricultural Soil and Water Conservation Stewardship

**Introduction:** Agriculture is an integral part of West Virginia's history, culture, and economics. While some basic aspects of farming have remained the same over the years, many agronomic practices, environmental stewardship, and financial aspects have changed drastically. West Virginia has the highest percentage of small family farms in the nation and making a profit can be challenging. To absorb the fluctuating market prices, farmers either work off the farm part-time or have to be creative in the diversification of their operation.

At this point in time, West Virginia agriculture faces more challenges than ever before as agriculture has been flagged as the most significant contributor of nutrients and sediment to the Chesapeake Bay. While conservation efforts have been ongoing for quite some time, the pace of implementation accelerated when Governor Bob Wise signed onto the Chesapeake Bay Agreement in 2002. Implementation rates then drastically ramped up after President Barack Obama signed the Chesapeake Bay Executive Order in 2009. West Virginia and other Bay jurisdictions were tasked with the challenge of stepping up adoption and implementation of agricultural Best Management Practices (BMPs) in a manner that didn't cause financial hardships for small family farmers.

Many farmers, such as those in the poultry industry, already have huge debt from their initial investment and are faced with having to make occasional required upgrades per poultry company requirements. They have now been asked to spend additional money, out of pocket, for conservation BMPs to help protect and restore state streams and downstream neighbors. Even though there are cost share programs, these practices can be very expensive.

Education and outreach have been key to West Virginia's unprecedented implementation of agricultural BMPs. This implementation has all been done in a voluntary manner with the assistance of University Extension, as well as State and Federal agencies. While many farmers were early or middle adopters of conservation BMPs, not all farmers have participated for various reasons. Many that have refrained from installing BMPs are skeptical of government assisted programs. And, of course there are also those who have relocated to the area or are "new" farmers that are unfamiliar with standard practices and BMPs. In the following scenario you will get to know a farmer who could use a little help and guidance along the way from you... a trained conservation professional.

### **Fictional Farmer Scenario:**

Mary Watson was a small animal veterinarian who lived and worked for eighteen years in the Washington D.C. area. Ms. Watson had a very successful career but she was getting burnt out and wanted to get out of the hustle and bustle of the city. With her life's savings, she packed her belongings and moved to West Virginia where she purchased 60 beautiful acres on top of a mountain in Baker, WV.

The 60-acre farm lies high on a mountain overlooking a new watershed dam that is being constructed. She was told that this lake will be used in the future for public drinking water which was one reason she bought the farm. For her main source of income, Ms. Watson constructed two poultry houses in the fall of 1998 to raise poultry for an integrator based in Moorefield, WV. She also grows 20 acres of corn each year on the north side of the farm. The hills are steep on the north side, and tractor work is a little dangerous, but the views while plowing and planting definitely make it worthwhile. Overall, Ms. Watson's experience of owning her farm has been wonderful. She is proud of her independence and all of the birds she has raised and sent to market to help feed a hungry world.

A nice, cold, spring fed stream runs through her property. The head of the spring is located on the national forest just above her property. The stream offers her two horses plenty to drink and a way to cool off. Vegetation on the stream bank has become somewhat sparse due to trampling and grazing by the horses but the vegetation that does remain consists primarily of invasive species such as multiflora rose and autumn olive, so she has worked tirelessly to clear it. After all, the horses need to be able to access the stream easily and it is part of the overall awe factor of the property.

After a rain storm passes through, Ms. Watson has noticed that the stream gets murky and it stays that way for a few days. This wasn't a problem when she first moved to the property. She has also heard that Brook Trout were once common in the stream, however, she hasn't seen any recently.

In an effort to improve the appearance of her property, she has begun spraying weeds and grass with a very effective herbicide that her neighbor, Bob, mixes and hand labels. She did notice that after spraying for a couple of years, she is no longer seeing Monarch butterflies and there has been a tremendous reduction in the amount of honey bees, bats and birds that once inhabited the property.

Ms. Watson plans to construct an additional poultry house this year. The site that she has chosen is in close proximity to the existing houses but it is a little steeper. She has gotten to know her neighbor, Bob, fairly well and he has volunteered to begin grubbing the nearly 5-acre site. While Ms. Watson's service technician has advised her that protocol and permitting requirements have changed since the original construction in 1998, she sees no reason why Bob can't go ahead and begin the clearing process while she investigates the necessary steps to proceed.

There is talk from the locals that a State or Federal regulatory agency may be inspecting poultry farms in the area in the near future. She has heard about the possibility of expensive fines for not being in compliance with environmental regulations and is scared that an inspection could cause her to go out of business.

Ms. Watson has also noticed a decrease in her corn yield when compared to the past two years. She continues to apply the same amount of poultry litter every year. It may just be bad luck and she does have a lot of extra poultry litter so she is considering increasing the litter this spring. After spreading litter on her crops, the remainder is piled outside the poultry houses where it will be convenient for an

upcoming fall application. Since Ms. Watson's self-designed and constructed composter collapsed under last winter's heavy snows, the litter piles also provide a convenient place to attempt to dispose of mortality.

Neighbor Bob still comes over with his trusty Allis Chalmers and mold board plow each spring to turn the ground over to prepare for more corn. Over the winter, she also turns the ground over and makes sure to leave the ground open for the freeze/thaw cycle. During the winter clean-outs, she removes more litter than will fit in her small homemade shed. She is able to spread some of her poultry litter when the ground is frozen which is helpful.

Knowing that times have changed since 1998, she wants to ensure she is farming in the most responsible manner. She has heard about the need for increased implementation of best management practices to help restore the Chesapeake Bay but she's not certain what BMPs are relevant to her operation and she has not exactly made a huge profit the past couple years. A considerable amount of the profits that she has made have been saved to upgrade some farm equipment and complete a few recommended upgrades to the poultry houses. She is not sure where she is going to get the money to install BMPs on her property. Ms. Watson has stayed mostly to herself and doesn't know who to go to for help.

### **Instructions:**

Ms. Watson saw your phone number on a brochure she recently picked up at her local County Fair. Your group, as trained conservation professionals, is to contact Ms. Watson to arrange a farm visit where you will look at her farming operation and the natural resource concerns and present a plan to restore this once thriving farming operation and ecosystem.

### **Learning Objectives:**

Upon completion of the training, the student will be able to:

1. Explain improvement to wildlife, forestry, water, and soil through various Best Management Practices.
2. Identify and recommend soil and water conservation best management practices in agriculture.
3. Describe federal and State conservation programs that benefit both agricultural producers and the environment.
4. Identify the concept of soil quality/health to provide the needed functions for the conservation planning process.
5. Explain why land-use planning is important to our ecosystems and to our economy to achieve sustainable agriculture.
6. Understand the Chesapeake Bay agreement and Executive Order.

## **Helpful Links and References:**

### **Online Resources:**

**The Farm Bill 2014 Programs- Fact sheet describing the conservation programs**

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/farmbill/>

Financial Assistance Programs through

[NRCShttps://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/](https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/)

**Farmers Guide to Conservation Stewardship Programs**

<http://sustainableagriculture.net/wp-content/uploads/2015/02/CSP-Farmers-Guide-2015-final.pdf>

**Guidelines for Soil Quality Assessment in Conservation Planning**

[http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051259.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051259.pdf)

**USDA Guidelines for Soil Health Assessment**

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/assessment/>

**Soil Quality Indicator Facts Sheets**

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/health/assessment/?cid=stelprdb1237387>

### **Expanded Resources**

#### **Textbook:**

Soil Science Management 6th Edition, Edward J. Plaster (Contact: Delmar Cengage Learning)

Perdue's comments on new housing

[http://www.perduefarms.com/News\\_Room/Statements\\_and\\_Comments/details.asp?id=1340&title=Statement%20on%20Responsible%20Poultry%20House%20Siting%20and%20Construction](http://www.perduefarms.com/News_Room/Statements_and_Comments/details.asp?id=1340&title=Statement%20on%20Responsible%20Poultry%20House%20Siting%20and%20Construction)

## Alt Court Case

<http://www.bayjournal.com/article/west-virginia-poultry-farmer-sues-epa-to-clarify-cafo-regulation>  
[s](#)

<http://modernfarmer.com/2014/10/epa-withdraws-high-profile-clean-water-act-case-farm-bureau-declares-victory-environmental-groups-dismayed/>

## Construction Permitting

<http://www.dep.wv.gov/WWE/Programs/stormwater/csw/Pages/home.aspx>

## Water Quality Standards

<http://www.dep.wv.gov/WWE/Programs/wqs/Pages/default.aspx>

## Forest Riparian Buffers

[http://www.chesapeakebay.net/issues/issue/forest\\_buffers](http://www.chesapeakebay.net/issues/issue/forest_buffers)

<http://www.extension.umn.edu/environment/agroforestry/riparian-forest-buffers-series/benefits-of-riparian-forest-buffers/>

## Agriculture and forests

<https://woods.stanford.edu/news-events/news/agriculture-and-deforestation-how-reduce-impacts>

## Pesticides and Bees

[www.rt.com/usa/bee-pesticide-scientist-research-600/](http://www.rt.com/usa/bee-pesticide-scientist-research-600/)

## Agriculture impacts to wildlife

<https://www.srs.fs.usda.gov/sustain/report/terra3/terra3-14.htm>