

## Soil Health and it's impacts on rainfall infiltration:

### **A Mississippi River Basin Landscape example:**

By increasing the water absorption of all of the cropland in the Mississippi River Basin by just one-half inch (through improved soil quality), just that additional water retention would be the equivalent of ..... The amount of water that flows over Niagara Falls in 83 days.

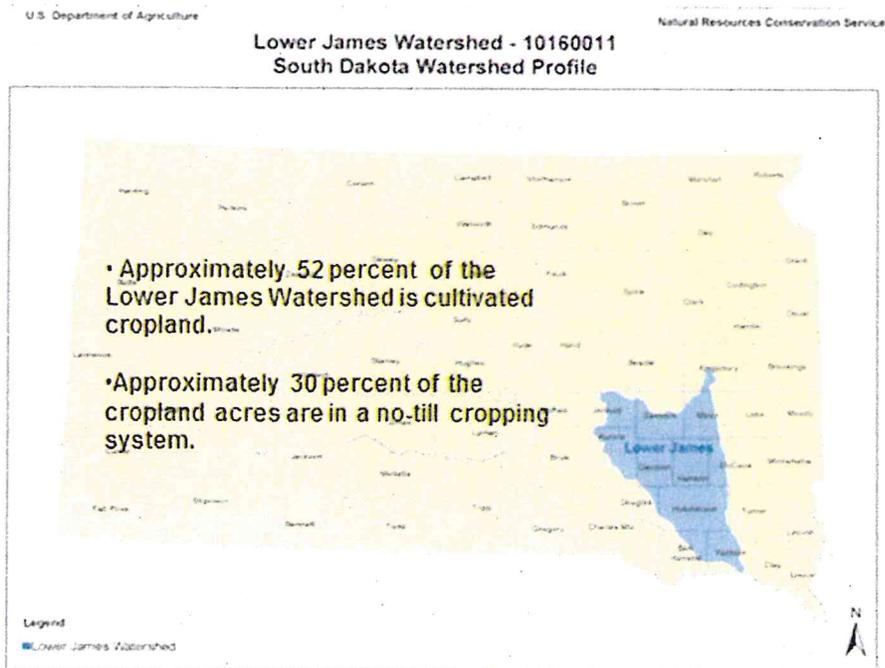
### **A Missouri River Basin example:**

By infiltrating one more inch of rainfall into the soil (through soil health) on all of the cropland and grassland (143,644,000 acres) in the Missouri River Basin above Sioux City, IA, that amount of water retention would be the equivalent of 12 Million Acre-Feet (MAF). This amount would have reduced last year's 2011 record 61 MAF runoff by 20%, down to 49 MAF. Two inches would have reduced it by 40%.

This shows the potential that doing the right thing on the land can have on downstream flooding.

This additional rainfall that was infiltrated is helping produce more bushels of grain or pounds of beef and reducing the downstream impacts of water that runs off.

### **A South Dakota Watershed Example:**



In the Lower James River 8-digit Hydrologic Unit (HU) approximately 52 percent is cultivated cropland. Approximately 30% of the cropland acres are in a no-till cropping system. If a no-till system was applied to 25% of the acres that are currently not in a no-till system, we could expect to infiltrate an additional two tenths of an inch of rainfall over those acres from just one 2.5 inch rainfall. That doesn't seem like a lot. However, that 0.2 inch increase in infiltration is nearly 1.1 billion gallons.

- That amount of water will fill 1,700 Olympic sized pools.
- If we filled standard semi tanker trucks with that water and lined them up on Interstate 90, they would stretch from Sioux Falls to Rapid City, back to Sioux Falls, back to Rapid City, back to Sioux Falls, and then as far as Chamberlain.
- That amount of water would potentially flood over 3,440 acres downstream (a foot deep) if it ran off instead of infiltrated.

#### **A South Dakota Field-sized example:**

If I improve my soil so that it absorbs another 1-inch of water, how many gallons of water is absorbed on a 160 acre field?

There are 27,152 gallons in 1 acre-inch of water (that is 1 inch of water covering an acre). Over a 160 acre field that equates to 4.3 million gallons of water. Semi tanker truck carry between 5,500 to 9,000 gallons. Let's figure 7,500 gallons. That is 573 tanker trucks.

For more information on Soil Health; contact NRCS South Dakota Soil Quality Specialist Jeff Hemenway, [jeffrey.hemenway@sd.usda.gov](mailto:jeffrey.hemenway@sd.usda.gov), 605-352-1239.