

Stewardship: Part 3 of 4

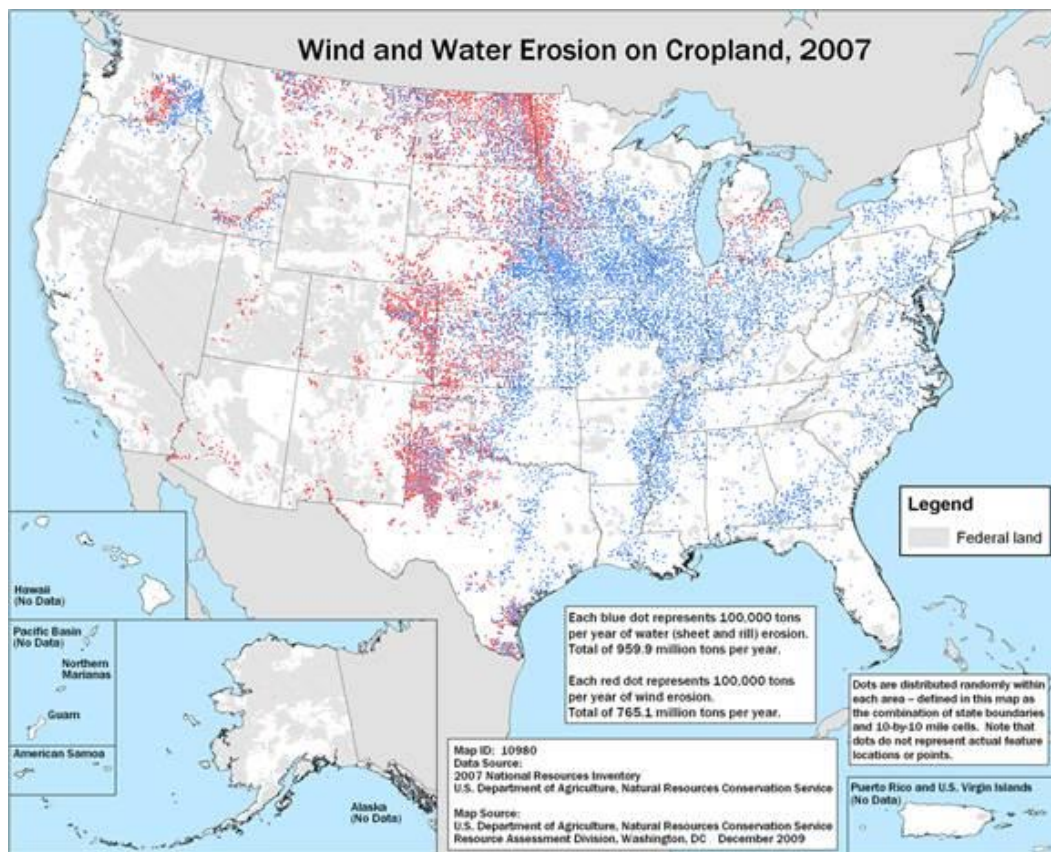
Cropland stewardship – by Darcy Goodson, NRCS

A friend recently commented to me, “take care of the land and it will take care of you.” Making a living off the land is the foundation of agriculture and essential to maintaining the way of life that agriculture provides. Many places in Montana have been blessed with fertile soils that make living off the land possible. It is important, then, that our cropland soils be treated as resource, and that we practice good stewardship to continue that way of life.

When looking at soil resources, the top couple of inches in a soil profile are where the bedrock or other parent material that forms the soil has weathered into fine particles and has combined with living and decomposed plant material to form “top soil”. This top soil is the primary source of fertility and organic matter which dictate important physical and chemical traits like infiltration, pH and nutrient cycling. An inch of top soil can take between 500 and

1000 years to form, but can be lost quickly to erosive forces like wind and water.

The good news is that wind and water erosion in the United States has steadily declined over the last 25 years according to data collected as part of a National Resources



Inventory (NRI). This shows the good work of cropland stewards in the US. There is still, however, over 959 million tons of soil lost from wind erosion and 765 million tons lost from water erosion every year. Between 1982 and 2007 The US also lost 14 million acres of prime farm land to development. For these reasons, continuing to improve stewardship and soil health is key to long-term, sustainable agricultural production.

The term “Soil Health” has been thrown around a lot lately and can be a little confusing. How can a soil be “healthy” and what does it have to do with stewardship? If we break it down, health refers to the proper structure and function of a system. So, soil health refers to the ability of the soil to perform its essential functions like infiltrating and holding

water or cycling nutrients with the ultimate goal of being a good habitat for crops. Promoting soil health into cropland operations not only helps to increase the fertility of the soil and crop health, but also protects soil from erosion. Experts have outlined several principles of soil health that seek to accomplish these goals.

Minimize disturbance. Soil that is not tilled forms a structure with soil particles, air and water which promotes soil biology and increases water infiltration.

Keep the soil armored. Maintaining residue on a crop field reduces its exposure to erosive forces and adds organic matter.

Keep a living root in the soil. Keeping something growing in the soil for as long as possible adds organic matter and keeps soil biology functioning.

Increase crop diversity. Maintaining a diverse rotation breaks disease cycles while each crop type adds unique benefits to the soil.

The use of these principles over time should result in increased soil organic matter, which is the key objective of improving soil health. They are also important for the fight against erosion and holding onto the fertility that we work so hard for. Cropland soil is vulnerable to degradation and erosion precisely because we use it as a resource. It is also a valuable resource that can take hundreds of years to replace, making cropland stewardship a worthwhile cause.

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