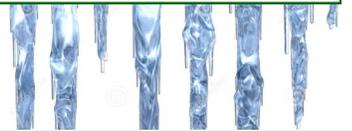


The existence of man depends on six inches of topsoil & the water that falls on it.....Save them

Newsletter



Feb. 2015

Soil is a living and life-giving substance, without which we would perish

As world population and food production demands rise, keeping our soil healthy and productive is of paramount importance. So much so that we believe improving the health of our Nation's soil is one of the most important endeavors of our time. By focusing more attention on soil health and by educating our customers and the public about the positive impact healthy soils can have on productivity and conservation, we can help our Nation's farmers and ranchers feed the world more profitably and sustainably – now and for generations to come. The resources on this section of our site are designed to help visitors understand the benefits of soil health – and to help them understand the benefits of Soil Health Management Systems from farmers who are using those systems.



So whether you're a farmer, a researcher, a conservationist or an interested citizen, the information on this site will help you "Unlock the Secrets in the Soil. Check out NRCS website for more valuable information & links. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/mo/soils/health/>

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Soil Health Events in Missouri

The USDA's Natural Resources Conservation Service (NRCS) and the University of Missouri are hosting a free Soil Health Exposition August 13-14. The exposition will be at MU's Bradford Research and Extension Center (4968 Rangeline Road), about six miles east of Columbia.

The two-day exposition will feature vendors, tours, demonstrations and presentations by farmers who have successfully incorporated cover crops into their operations. The exposition will feature an open admission, so participants may attend as few or as many of the sessions as they choose. Events will be occurring from 9 a.m. until 5 p.m. each day. **Topics will include:** climate variability; understanding soil data; economics of cover crops; cover cropping and improved infiltration; effects of Glyphosate on soil biology; the latest soil health field equipment; field demonstrations; soils exhibits; and soil pits and properties. Equipment and seed dealers also will be present. For information, or to register for the free event, contact Mark Abney at mark.abney@mo.usda.gov



If you have received this publication in error or wish to be removed from the mailing list please call 417-723-8389.

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MORE ON SOILS



GET YOUR HANDS IN IT;
FEEL IT, SMELL IT.

... it is our work with living soil that provides sustainable alternatives to the triple crises of climate, energy, and food. No matter how many songs on your iPod, cars in your garage, or books on your shelf, it is plants' ability to capture solar energy that is at the root of it all. Without fertile soil, what is life?

—VANDANA SHIVA, 2008



Soil Health Integral to Sustainable Agriculture

With the new emphasis on sustainable agriculture comes a reawakening of interest in soil health. Early scientists, farmers, and gardeners were well aware of the importance of soil quality and organic matter to the productivity of soil. The significance of soil organic matter, including living organisms in the soil, was understood by scientists at least as far back as the 17th century. John Evelyn, writing in England during the 1670s, described the importance of topsoil and explained that the productivity of soils tended to be lost with time. He noted that their fertility could be maintained by adding organic residues. Charles Darwin, the great natural scientist of the 19th century who developed the modern theory of evolution, studied and wrote about the importance of earthworms to the cycling of nutrients and the general fertility of the soil.

Around the turn of the 20th century, there was again an appreciation of the importance of soil health. Scientists realized that “worn-out” soils, whose productivity had drastically declined, resulted mainly from the depletion of soil organic matter. At the same time, they could see a transformation coming: Although organic matter was “once extolled as the essential soil ingredient, the bright particular star in the firmament of the plant grower, it fell like Lucifer” under the weight of “modern” agricultural ideas (Hills, Jones, and Cutler, 1908).

With the availability of inexpensive fertilizers and larger farm equipment after World War II, and the availability of cheap water for irrigation in some parts of the western United States, many people working with soils forgot or ignored the importance of organic matter in promoting high-quality soils.

A new logic developed that most soil-related problems could be dealt with by increasing external inputs. This is a reactive way of dealing with soil issues—you react after seeing a “problem” in the field. If a soil is deficient in some nutrient, you buy a fertilizer and spread it on the soil.

“[Organic matter was] once extolled as the essential soil ingredient, the bright particular star in the firmament of the plant grower . . .”

If a soil doesn't store enough rainfall, all you need is irrigation. If a soil becomes too compacted and water or roots can't easily penetrate, you use an implement, such as a subsoiler, to tear it open. If a plant disease or insect infestation occurs, you apply a pesticide.

What many people think are individual problems may just be symptoms of a degraded, poor-quality soil. These symptoms are usually directly related to depletion of soil organic matter, lack of a thriving and diverse population of soil organisms, and compaction caused by use of heavy field equipment. Farmers have been encouraged to react to individual symptoms instead of focusing their attention on general soil health management. A new approach is needed to help develop farming practices that take advantage of the inherent strengths of natural systems. In this way, we can prevent the many symptoms of unhealthy soils from developing, instead of reacting after they develop. If we are to work together with nature, instead of attempting to overwhelm and dominate it, the buildup and maintenance of good levels of organic matter in our soils are as critical as management of physical conditions, pH, and nutrient levels.

Following practices that build and maintain organic matter may be the key to soil fertility and may help solve many problems. Practices for enhancing soil quality include the use of animal manures and cover crops; good residue management; appropriate selection of rotation crops; use of composts; reduced tillage; minimizing soil compaction and enhancing aeration; better nutrient and amendment management; good irrigation and drainage; and adopting specific conservation practices for erosion control.

Building Soils For Better Crops /Sustainable Soil Management. third edition by Fred Magdoff and Harold van Es; Handbook Series Book 10

This makes me very happy

Spring Green Up in Sight—New Life to Show Itself



LIME IS ONE OF THE MOST IMPORTANT ADDITIVES A PRODUCER CAN APPLY TO A FIELD
A SOIL CONDITIONER ALLOWING OTHER NUTRIENTS TO BECOME AVAILABLE

This optimizes the soil pH. Spring is a good time to be thinking about that soil test. It is best to wait at least 3 mo. after an application of phosphorus fertilizer, lime or manure before sampling. Take samples every 3-5 years. It is best to sample fields at the same time of year each time. Avoid areas within 150ft. of shade areas, watering points & field edges where livestock may congregate. Taking a representative soil sample is imperative to receiving accurate soil test results & that is the first step in correcting soil pH.

Lime is graded according to the ENM—effective neutralizing material. In southwest Mo., this ranges from 400-450. The finer the lime, the higher the ENM; finer grinding of limestone improves breakdown & speeds reaction with the soil to change pH levels. The effectiveness of limestone refers to its ability to neutralize soil acidity. To measure the ability to reduce acidity, a rating system was developed called ENM.

Priority on a limited fertilizer budget should go to correcting soil pH through liming. Lime increases the efficiency of fertilizers like phosphorus and many micronutrients, by increasing their availability to the plant. Many fertilizers acidify the soil but the impact on soil pH is relatively small. Nitrogen has been known to acidify the soil. According to John Lory, MU Plant Sciences, it takes about 180 lb. of calcium carbonate to neutralize 100 lbs. of nitrogen added as anhydrous ammonia. At this rate, less than 1 ton/ac. of pure lime is needed every 5 yrs., to offset an application of 200 lbs./ac./yr. of nitrogen. If you have a corn-soybean rotation, only 1 ton/ac. of lime is needed every 10 yrs. to offset that same nitrogen application. Nitrogen fertilizers vary in their ability to acidify the soil. Ammonium sulfate is the most acidifying nitrogen fertilizer; the impact of urea will be similar to anhydrous ammonia. Given these slow effects of fertilizer such as nitrogen on soil pH, the best way to manage acidification is to monitor soil pH using soil testing. Besides fertility, there are other best management practices to implement to help build soil health and increase forage production. For instance, proper rotational grazing. Your cows will thank you.

Think like a root!

If you were a root, what would *you* like from an ideal soil? Surely you'd want the soil to provide adequate nutrients and to be porous with good tilth, so that you could easily grow and explore the soil and so that soil could store large quantities of water for you to use when needed. But you'd also like a very biologically active soil, with many beneficial organisms nearby to provide you with nutrients and growth-promoting chemicals, as well as to keep potential disease organism populations as low as possible. You would not want the soil to have any chemicals, such as soluble aluminum or heavy metals, that might harm you; therefore, you'd like the pH to be in a proper range for you to grow. You would also not want any subsurface layers that would restrict your growth deep into the soil.

"It is our philosophy that an ounce of prevention is worth a pound of cure."

COST SHARE FUNDING AVAILABLE

FUNDING FOR LIVESTOCK EXCLUSIONS & STREAM PROTECTION

Stone County Soil & Water Conservation District has funding for landowners who would like to protect soil & plant resources from grazing by livestock in the woods and stream protection by reducing excess amounts of sediment, nutrients and pesticides in surface runoff.

Stream Protection applies to areas immediately adjacent to permanent, losing, or intermittent streams that have a defined stream bed where livestock have uncontrolled access for watering purposes. There is a one-time incentive of \$500 per ac. for area excluded. We do not cost share on boundary perimeter fence. Cost share is authorized for another water source such as a well or reconstruction of ponds that aren't adequate or developing an access for limited watering from the stream if deemed the least cost alternative. Components also include fencing and energizer.

There is a separate practice available for any necessary pipeline & tanks for developing a spring as well as buffering a stream. With the **Riparian Buffer**, where tree plantings are required, there is a one-time incentive of \$1200/ ac. Cost share aids with developing other water sources or providing limited access as previously mentioned, and your fencing components.

Same with a **Woodland Exclusion**, cost share pays for 2-wire electric fence & energizer (or barb). 75% cost share on the state average cost of components: For a 1-5 joule energizer the avg. cost is \$155 & \$276 for energizer installation; Solar energizer (1-5J) at \$321& \$276 for installation. Total exclusion fence for electric is \$.91 per foot and for barbed wire \$2.01 per foot at the state average cost. For more details, please call our office at 723-8389. These funds are available now, just in time for spring. Begin your planning now. Next fiscal year will begin in July.

There are other practices for which we have funds available for example if you qualify based on soil loss, assistance to re-establish or improve pastures to include nutrients, well decommissions, grazing systems, nutrient & pest management programs. If any questions on any of the above, please call 723-8389 or stop by 108-B Cortney Lane, Crane.

Funding Available For Many Various Conservation Practices.



Soil and Water Conservation in Historical Times



Some ancient farming civilizations recognized soil erosion as a problem and developed effective methods for runoff and erosion control. Ancient terracing practices are apparent in various parts of the world, notably in the Andean region of South America and in South-east Asia.

Other cultures effectively controlled erosion using mulching and intercropping that protected the soil surface. Some ancient desert civilizations, such as the Anasazi in the southwestern U.S. (A.D. 600 to 1200), held back and distributed runoff water with check dams to grow crops in downhill depressions (see the picture of a now forested site). Their methods, however, were specific to very dry conditions. For most agricultural areas of the world today, erosion still causes extensive damage (including the spread of deserts) and remains the greatest threat to agricultural sustainability and water quality.



Ag-Ceptional

P/T On-Call Office Help

The Soil and Water District Office is recruiting for a part time on-call office assistant. Very flexible. Duties will vary from computer work, web-site updates, mailings, general office to field days, outreach, record keeping , etc. Applications are at the office, please bring a resume to 108-B Cortney Lane, Crane, MO. Stone Co. SWCD & USDA are equal opportunity employers and providers.



SHOW ME AGRICULTURE

LANDOWNER SPOTLIGHT

In the last six months we have had the pleasure to work with a young construction contractor / farmer by the name of **Jeremiah Doak**. When I first visited his property he had already proved himself to me to be extremely qualified to build fence. Jeremiah's dual-species, cows and goats, grazing required that he install woven wire perimeter fence to hold the goat herd. He did not just use the usual but installed 48 inch High-tinsel woven wire with a 1 wire high-tinsel electric wire on top. Corner and gate posts are all steel pipe set in concrete and H braced. This guy does not cut corners; an amazing job for sure!

Over a period of a few months we worked with Jeremiah to divide approximately 155 acres into grazing system paddocks or fields ranging from 7 to 21 acres in size. The paddocks included a mix of open grass and wooded areas for the cow-goat herds. The interior cross-fence included some high-tinsel woven wire and some 3 strand electric to separate the paddocks. A water source was needed so our district was able to cost-share on a 550 ft. deep water well. From the well, there was just over 4600 ft. of buried pipeline and 6 permanent tire tanks installed to provide livestock water. In addition, there was over 4700 ft. of cross-fence under cost-share contracts.

As we met and began the project, one of Jeremiah's first comments was his acknowledgement of time well spent attending grazing school at Southwest Center in Mt. Vernon in 2014. The grazing school curriculum and teaching is aimed at addressing the "science" that is at work in a rotational grazing system when applied; the management of the system as well as practical experience-proven tips. Also there is discussion of program policy and standards. If interested please see the 2015 grazing school schedule in this newsletter.

We appreciate the opportunity to work with Jeremiah Doak and all the landowners that are interested in soil and water quality projects and willing to apply conservation to help protect the future for our children and grandchildren.



Quote Worth Re-Quoting – *Progress is impossible without change, and those who cannot change their minds cannot change anything.* ~George Bernard Shaw

STONE COUNTY SOIL & WATER CONSERVATION DISTRICT

108—B CORTNEY LANE
 CRANE, MISSOURI 65633
 PHONE: 417-723-8389

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SW– MO. Regional Grazing Schools Gearing Up



LOCATION:	DATES:	CONTACTS:
Halfway	April 21,24,28, May 1, (evening) Apr.25 Sat.-Day	Dallas Co. SWCD 345-2312
Mt. Vernon	Apr. 28,29, 30th (Day)	Law. Co. Ext. at 466-3102
Neosho	June 9,10,11 (Day)	Nathan Witt 451-1007
Greenfield	April 19, 2015, Sat (Day) Sept.15,17,22,24 -(Evening)	Cedar Co. SWCD 276-3388 ext. 3
Crane	Sept. 16,17,18, (Day)	Stone Co. SWCD 723-8389
Marshfield	Sept. 22,23,24, 2015 (Day)	Webster Co. SWCD 468-4176, ext. 3
Bois D'Arc	Oct. 20,21,22, 2015 (Day)	Greene Co. SWCD 831-5246 ext. 3

Managed Grazing Systems—A win - win situation, increasing productivity and profits for the operator while improving water quality and soil health. A producer can match grazing to plant growth, it gives a period of rest & re-growth, thus increasing both forage & animal production; fields can be set aside for haying and/or stockpiling. Cost share programs can help defray some upfront costs of fencing & water supplies. Another win - win reason.