GREENE COUNTY SOIL AND WATER

Greene Lines

WHAT'S NEW WITH YOU?

FY 2026 Comes to a Close

The Greene County Soil and Water Conservation District had a successful year of cost-share! This year, we paid roughly $57,400.00 to landowners in Greene county participating in our programs.

Here is a brief breakdown of the funds paid out:

Grazing Management.....$15,903.38
Sensitive Areas.....$25,120.21
Sheet & Rill / Gully Erosion.....$6,692.02
Woodland Erosion.....$9,685.66

Please contact our district if you are intersted in cost-share for FY 2027!

DISTRICT ANNOUNCEMENTS

The Greene County SWCD would like to introdce our new NRCS Area 4 Engineer, **Allie Cumnock-Brown!** Welcome to our office, Allie!

Reminder: Grazing Schools are still being held until October of this year, make sure to sign up for one ASAP!

IN THIS EDITION

New Area 4 NRCS Engineer

GREENE COUNTY SOIL AND WATER CONSERVATION DISTRICT

The Greene County Soil and Water Conservation District is proud to welcome our new Area 4 NRCS Engineer, **Allie Cumnock-Brown!** Allie has already been an essential addition to our team, and we couldn't be more pleased to have her with us in the office.

Here is a small introduction from Allie:

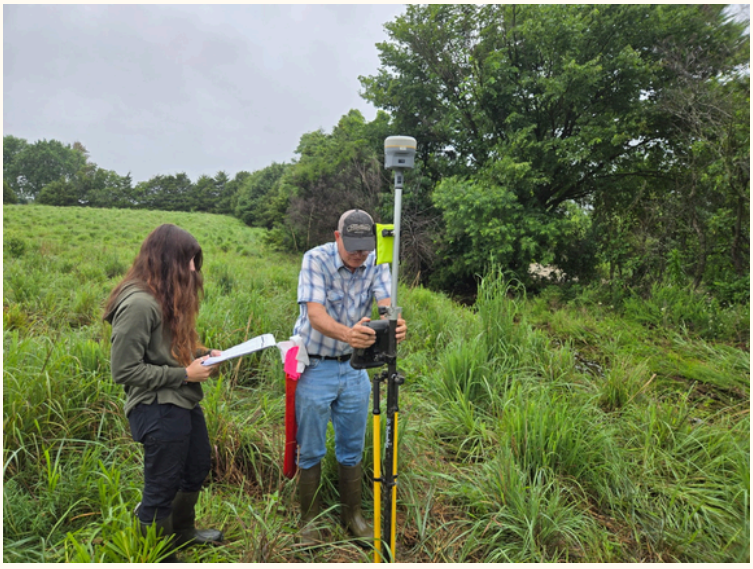
Hi! My name is Allie Cumnock-Brown, and I am an Engineer in the Springfield NRCS Area office. In May 2018, I graduated from Arkansas Tech University (my home state) with a Bachelor of Arts in Cultural and Geospatial Studies and a Bachelor of Science in Environmental Geology.

After working for the State of Arkansas for a few years, I started working for NRCS Arkansas as a Civil Engineering Technician in January 2021. In November 2022, I transferred to NRCS Rhode Island to cover New England as a Geologist and then transferred to the NRCS Missouri in January 2025 to work as a Soil Conservationist.

I was able to graduate with a Master of Science in Geological Engineering from Missouri University of Science and Technology in May 2025, so I started working as an Engineer here in December 2025. I'm excited to help all of southwest Missouri in this role and look forward to working with you!

Please make sure to give Allie a warm welcome next time you come in and visit us. Once again, welcome to our office, Allie!

Allie Cumnock-Brown (NRCS Area 4 Engineer)



In Photo: Allie Cumnock-Brown and Derik Ball (Area 4 Soil Conservation Technician)

Ozark Sinkholes in Karst Tophography

ALLIE CUMNOCK-BROWN, AREA 4 ENGINEER

Karst topography forms in carbonate bedrock, such as limestone or dolomite, that can form dissolution channels - basically, groundwater can dissolve the bedrock, and form sinks and sinkholes, along with caves, springs, and losing streams.

A sinkhole is the dissolution of this bedrock or the collapse of an underlying cave. As rock is dissolved or removed, soil takes its place, and over time, sinkholes can form at the surface. Sinkholes can pose a threat to the environment because they can act as a direct conduit for contamination of the aquifer. Please do not throw waste into a sinkhole!

To repair sinkholes, you must prevent soil from entering the bedrock fissure, while also allowing for drainage without the diversion of water into another unprotected fissure. Adding coarse rock with filters and reinforced soil above can be effective to mitigate a sinkhole; however, uncontrolled filling will lead to renewed failure of the hole. It is best to fence out sinkholes and let them naturally develop before trying to fill or stabilize the hole.

A professional engineer or registered geologist with the Missouri Geological Survey can help with mitigation and stabilization. If you have questions or concerns regarding a sinkhole, please feel free to contact our office.

Picture 1: Sinkhole with vegetation growing within it. Located at our local field office.

Picture 2: Sinkhole located in Polk County, Missouri.

Considerations for Virtual Fence

ASHLEY NEILL, NRCS SOIL CONSERVATIONIST

Thinking about virtual fence? While virtual fencing is a great tool for managed grazing, there are some considerations to be made before implementing it on your farm. First and foremost, you should have a solid perimeter fence around your property. While virtual fence is an effective way to control the movement of cattle, it is not a replacement for a containment fence.

Are your livestock handing facilities adequate? Without a chute and a safe way to catch and work with cattle, you are setting yourself up for failure. While these collars require minimal maintenance, getting them on and off safely should be your first priority.

Virtual fencing is not a replacement for checking on cattle on a consistent basis. Nothing replaces having boots on the farm monitoring cattle health, behavior, and condition. While some companies allow fences to be set up on a timer and rotations to be made automatically, there are many factors that can affect when cattle should be moved the next paddock.

If you are interested in implementing virtual fencing on your farm, please contact the Greene County NRCS Field Office at 417-831-5246, ext. 3.

Picture 1: Monil Cattle Collar © 2026 Monil

Picture 2: Gallagher eShepherd collar © Gallagher Group Limited

This information is provided as a public service and constitutes no endorsement by The United States Department of Agriculture - Natural Resource Conservation Service or the Greene County Soil and Water Conservation District of any services, supplies, or equipment listed.

Assessing Soil Compaction in Your Field

LINDSEY ANDERSEN, NRCS AREA RESOURCE SOIL SCIENTIST

The only equipment you need to assess soil compaction is a shovel! Dig a small hole (no need to dig deeper than 4-6 inches unless you're evaluating compaction at deeper depths) and take a shovel slice out. You will then evaluate the soil and root structure, as described below.

Photo 1. An uncompacted soil (left) compared to a compacted soil (right). These shovel slices were taken from the same field at different locations. You can see the left soil slice is well structured, darker in color, and allows water to move easily into the soil. The right soil slice is poorly structured, lighter in color, and does not allow easy water movement into the soil. Photos are from the author unless otherwise mentioned.

Good Soil Structure: Granular or Blocky

A soil that has never been farmed or has been in native grasses for decades will have a granular structure (Photo 2). Granular structure is not common in agricultural fields. Typically, the structure you are looking for is a blocky structure (Photo 3). Blocky structure looks like what it sounds like- chunks or blocks of soil of many sizes. Granular and blocky structure allow water to easily pass into and through the soil (Figure 1).

Photo 2 (Left): Granular Structure (great structure)

Photo 3 (Right): Blocky structure (good structure)

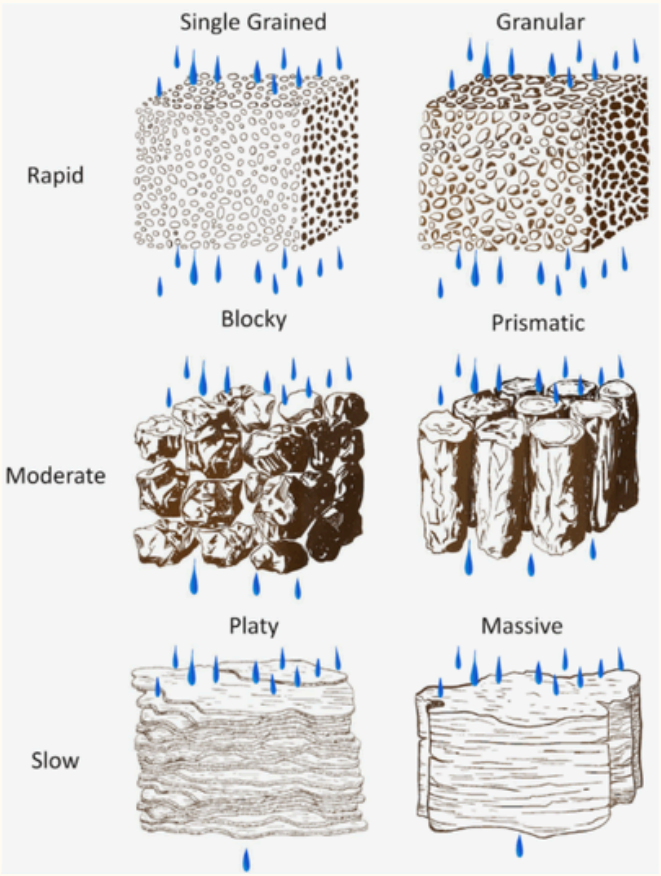


Figure 1. Soil water movement through different soil structures (Source: USDA 1991. Modified by Lewis Fausak)

Poor Soil Structure: Platy

A compacted soil will have what we call platy structure. Platy structure looks like stacks of plates or bread slices stacked on top of each other. Platy structure can have thin plates (Photo 4) or thick plates (Photo 5). Platy structure does not allow water to infiltrate or pass through the soil easily (Figure 1). Platy structure forms when the soil is broken up and then compressed back together from tillage or overgrazing. Field roads or other heavily used areas are also common places to see platy structure from repeated traffic.

Photo 4 (Left): Thin platy structure (poor structure)

Photo 5 (Right): Thick platy structure (poor structure)

Root Structure

A compacted soil will have less roots and might have roots that grow sideways and not down (Photo 6). Of course in the Ozarks, this root structure could also be due to many rocks inhibiting root growth. With a shovel, take a big surface soil chunk out of the ground and examine the roots. Are there any roots that are growing sideways or are the majority of roots growing down? Are there fewer roots here than in an area with no compaction?

Photo 6: Root growing sideways and reduced root presence in a compacted, platy structured soil (Source: University of Minnesota Extension)

How Many Holes to Dig and Where?

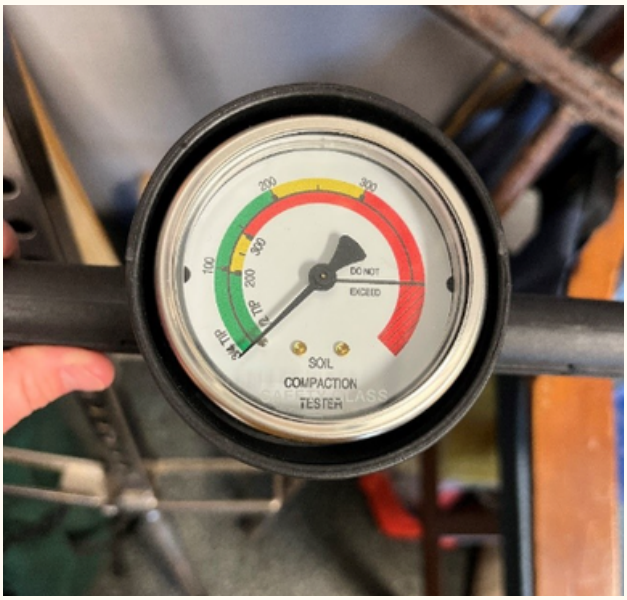
Assess soil compaction in multiple places in a field, or specifically in areas where you have noticed poor forage or crop production. You can also compare areas you know might be compacted, like around water tanks, to other areas in the field, like a fence row. An old fence row is a great place to get a “reference” soil slice, meaning the edges of a field receive less intensive management and are more of an indicator of native soil conditions.

Technical Measurements of Soil Compaction

On the next page, there are two technical measurements of soil compaction. If you are interested in these methods of soil compaction evaluation, please reach out to me at the listed contact information.

1. Penetrometer

A penetrometer is a device that you press into the soil, which measures resistance. It simulates root growth in the soil. The best time to use a penetrometer is after a rainfall, as dry soil will make the penetrometer harder to press into the soil and can lead to inaccurate compaction readings.



A soil penetrometer being pressed into the soil (left) and a look at the resistance readings (right).

2. Bulk Density

Soil bulk density is measured by pressing a metal ring into the ground, so this method is not effective in very rocky soils. The density of soil is then calculated using the mass of dry soil in the ring over the volume of the ring.

Pressing a bulk density ring into the ground (left) and a collected ring (right)

Addressing Soil Compaction

Addressing soil compaction in your field depends on your land use, goals, and extent of compaction. In an annual cropping system, reduced tillage or no till is a great place to start. Tillage destroys the soil's natural structure and the more passes you make with equipment increases soil compaction. In perennial grass systems, be sure to use property grazing rate and density and try not to put heavy use areas in spaces that collect water or have poorly drained soils. A wet soil is easily compacted. For more information on addressing compaction, please reach out to your Greene County USDA Service Center at 417-831-5246 ext. 3.

Contact Information

Lindsey Anderson
Area Resource Soil Scientist

Natural Resources Conservation Service
688 S State Highway B, Springfield, MO 65802
Office: (417) 831-5246 ext. 7391
Cell: (573) 507-0927

SWCD Rental Equipment

The Greene County Soil and Water District has No-Till Drills, a broadcast seeder, and several other pieces of equipment available to rent! Please contact us to schedule a drill in advance - the drills rent out very quickly during planting season. Here are some quick FAQs about our equipment rentals:

Who can rent equipment from Greene SWCD?
- We only rent to Greene County residents, as per board policy.

How much does it cost to rent the No-Till Drills?
- All of our drills are $12/acre and have a $250 minimum that is due upfront. The district can only take check or exact cash - we cannot make change.

How do I reserve the drill? What do I need to bring with me?
- Please call our office to reserve the drills, and remember to bring your driver's license and proof of insurance, as well as the required minimum when picking them up.

What kind of hitch do the drills take?
- The drills take a pintle hitch (provided by the district) with a 2" receiver hitch. A 3/4 ton truck is required to pull the drills.

Contact us today!

HAVE ANY QUESTIONS FOR THE DISTRICT?

Our office is open from 8:00am-4:30pm, Monday - Friday, located in the Springfield USDA Service Center.

417-831-5246 EXT. 3

Check out our website, and follow us on Facebook for district updates!

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