Missouri Department of Natural Resources

AGENDA
Missouri Soil and Water Districts Commission
Missouri State Fairgrounds
Lowell Mohler Assembly Hall/National Guard Armory
Room 129
2001 Clarendon Road
Sedalia, Missouri
August 17, 2016
9:00 a.m.

A. CALL TO ORDER

B. MINUTES OF THE LAST MEETING

C. DEPARTMENT OF NATURAL RESOURCES

D. SOIL AND WATER CONSERVATION PROGRAM DIRECTOR'S COMMENTS

1. Fiscal Year 2016 Financial Information
2. Fiscal Year 2016 and Fiscal Year 2017Cost-Share/SALT Fund Status
3. Soil Health Assessment Center Update
4. Tabled: State Water Plan Research Funding – Action Item
5. Tabled: U.S. Geological Survey Monitoring Network – Action Item
6. Fiscal Year 2017 State Average Cost on Roofing Component- Action Item
7. Missouri Prairie Foundation
8. Meramec and Grand River Watershed Plans
9. Staff Update

E. REQUEST

(If a supervisor request is received in advance of this meeting, it may be presented to the commission.)

1. **Supervisor Requests**
   a. Callaway
   b. Miller
   c. Reynolds
2. Lawrence SWCD – Landowner Maintenance Violation on Grazing System Practice DSP 3.1 Water Development, DSP 3.2 Water Distribution, and DSP 3.3 Fence

F. APPEALS

1. Clay SWCD Landowner Appeal of Board Denying Payment on a Cover Crop Practice Contract Due to Tilling

G. NEW BUSINESS

H. REPORTS

1. **Department of Agriculture**
2. **NRCS**

3. **University of Missouri**
4. **Department of Conservation**
5. **MASWCD**

I. PUBLIC COMMENTS

J. SUGGESTED DATE(S) OF NEXT MEETINGS

October 12, 2016, Jefferson City

K. ADJOURNMENT

Those wishing to address the commission on any of the above issues need to contact a program staff member, Theresa Mueller or sign up on the comment card at the commission meeting.

If you have any questions regarding this meeting, special accommodation needs, or would like a copy of any material provided at the commission meeting, please contact Theresa Mueller at 573-526-4662.

The Soil and Water Districts Commission may go into closed session at this meeting if such action is approved by a majority vote of the commission members who constitute a quorum to discuss legal, confidential, or privileged matters under § 610.021(1), RSMo 2000; personnel actions under §610.021(3); personnel records or applications under §610.021(13), records under § 610.021(14), or audit issues under § 610.021(17), which are otherwise protected from disclosure by law.

Missouri Department of Natural Resources

MINUTES
MISSOURI SOIL AND WATER DISTRICTS COMMISSION
Missouri Department of Conservation
Regional Office
3500 Gans Road
Columbia, MO
June 8, 2016

COMMISSION MEMBERS PRESENT: Glen Cope, H. Ralph Gaw, Jeff Lance, Tim Martin and Gary Vandiver

EX-OFFICIO MEMBERS: **RICHARD FORDYCE, DEPT. OF AGRICULTURE:** Judy Grundler; **BOB ZIEHMER, DEPT. OF CONSERVATION:** Lisa Potter; **SARA PARKER PAULEY, DEPT. OF NATURAL RESOURCES:** Todd Sampsell; **DEAN THOMAS PAYNE, UNIV. OF MISSOURI:** Robert Kallenbach

ADVISORY MEMBERS PRESENT: **SOIL AND WATER CONSERVATION PROGRAM:** Colleen Meredith; **NATURAL RESOURCES CONSERVATION SERVICE (NRCS):** J.R. Flores; **MISSOURI ASSOCIATION OF SOIL AND WATER CONSERVATION DISITRICTS (MASWCD):** Kenny Lovelace; **ATTORNEY GENERAL'S OFFICE:** Shawna Bligh

STAFF MEMBERS PRESENT: Van Beydler, Jim Boschert, Allan Clarke, Theresa Mueller, Jim Plassmeyer, Steve Walker, Colette Weckenborg, Bill Wilson, Jake Wilson

OTHERS PRESENT: **CARTER:** Mike Kelley; **CASS:** Tom Lampe; **HOWARD**: Beverly Dometrorch; **MONTGOMERY:** Robert Ridgley; **MISSOURI DEPARTMENT OF NATURAL RESOURCES:** Andrea Balkenbush, Kurt Boeckmann, Joe Engeln, Jennifer Hoggatt; **MISSOURI FARM BUREAU:** Leslie Holloway; **MISSOURI SOIL AND WATER CONSERVATION DISTRICT EMPLOYEES ASSOCIATION (MSWCDEA):** Matt Blansett; **MISSOURI RURAL WATER ASSOCIATION:** Eric Fuchs; **NATURAL RESOURCES CONSERVATION SERVICE:** Dick Purcell; **UNIVERSITY OF MISSOURI:** Dr. Randy Miles; **USGS MISSOURI WATER SCIENCE CENTER:** Amy Beussink, Shane Barks

DRAFT

A. CALL TO ORDER

The meeting was called to order at the Missouri Department of Conservation Regional Office, in Columbia, MO, at 1:34 p.m.

Gary Vandiver welcomed Tim Martin back to the Commission and asked Glen Cope, the newest member to the Commission, to introduce himself. Mr. Cope stated he is from Aurora in Barry County. He is a 4th generation cow/calf producer, also involved with other commodity organizations, and has a lot of respect for what the Commission does and what the tax dollars do for the state.

B. MINUTES OF THE LAST MEETING

H. Ralph Gaw made a motion to approve the minutes for the April 13, 2016, meeting. Jeff Lance seconded the motion. When asked by the Chair, Glen Cope, H. Ralph Gaw, Jeff Lance, Tim Martin and Gary Vandiver voted in favor of the motion and the motion carried unanimously.

C. DEPARTMENT OF NATURAL RESOURCES

1. Todd Sampsell, Department Deputy Director, informed the Commission that Joe Engeln is retiring and that he would be taking his place on the Commission. Mr. Sampsell reported that he had been to the Citizen's Committee Meeting for the Parks, Soils and Water Sales Tax renewal effort and it went well. He updated the Commission on HB1414 that focused on agriculture privacy issues and HB1713 and Senate Amendment 1 that impacts the Clean Water Commission's makeup.

2. **Nutrient Trading**

   Joe Engeln presented an update on the Nutrient Trading. Water quality trading was one of the recommendations that came from the Nutrient Loss Reduction Strategy that the department completed in 2014. There were a number of people interested in this, but there was no policy to support it. Approximately a year ago, a workgroup was started that included farmers, other members of the agriculture community and municipal interests to develop a strategy to be considered for adoption as policy from the Clean Water Commission. He pointed out that trading would be voluntary; it will only be used if a community or company thinks they can do better in terms of using trading to meet water quality standards. Trading could take place between two point sources or between a point source and a nonpoint source. The workgroup views this as an opportunity to build upon the conservation efforts of the Soil and Water Districts Commission and the Soil and Water Conservation Program. The Nutrient Tracking Tool can demonstrate how effective the soil and water practices are in nutrient reduction. The department has proposed creating a clearinghouse for nonpoint source trades using the Missouri Soil and Water Information Management System (MoSWIMS). Another important thing is the stable funding through the Soil and Water Conservation

Program. It helps provide a constant source of new practices that will be put on the ground for nonpoint source nutrient and sediment reduction. The policy has to be implemented through the Clean Water Commission because it is under the state and federal clean water laws and they hope to present the draft policy to that Commission at their July meeting. Mr. Engeln said they have worked hard to make the program work well for farmers. The only change that any farmer would have, if they were to participate in the program, is their approval to allow the state portion of the cost-share funding to be used for water quality trading. He pointed out that if they participate, it does not mean they would have extra inspections. They have made the program as easy as possible for the farmer and it is completely voluntary.

D. SOIL AND WATER CONSERVATION PROGRAM DIRECTOR'S COMMENTS

1. FY16 Cost-Share Fund Status/FY17 Allocations

Bill Wilson presented the Fiscal Year (FY) 2016 Regular Cost-Share and Agricultural Nonpoint Source (AgNPS) Special Area Land Treatment (SALT) Fund Status report. As of June 6, 2016, approximately $50.6 million has been allocated and of that amount, $35 million has been obligated. The total amount paid was approximately $27.8 million. As of June 6, 2016, $170,988 of the SALT Cost-Share had been allocated and of that amount, $105,103 had been obligated. The total amount paid was $75,998. He pointed out this is the last year for the AgNPS SALT Program.

Next, Mr. Wilson covered the FY17 cost-share allocation timeline: December 1, 2015, the FY17 allocation was approved by the Commission, including the supplemental process; January 5, 2016, Advanced Allocations were provided to the districts, which included 100 percent of Animal Waste and Nutrient & Pest Management allocations and $2.6 million for the other five resource concern areas. On May 26, 2016, the budget was signed and the FY17 funds were made available to the districts. On August 4, 2016, the supplemental allocations will start. It will be a rolling allocation process and evaluated monthly. The threshold is 90 percent obligated of the total allocation in each Resource Concern and the Supplemental Allocation for qualifying resource concerns will be raised to $60,000. The Master Fund Status Report from MoSWIMS will be pulled at the end of the day on August 4. September 1, October 6, November 3, December 8, January 5, February 2 and March 2. At 4:00 p.m. on each of these days, MoSWIMS will be locked until allocations are loaded. An email will be sent to the districts receiving the additional funds, and all districts will be notified by email when MoSWIMS is unlocked. There is a $500,000 limit for Total Supplemental Allocation per district. He pointed out that the supplemental status reports will be presented to the Commission regularly.

2. **Soil Health Assessment Center Update**

Dr. Randy Miles presented an update on the Soil Health Assessment Center. Their goal is to have high quality, as well as relevance, for analyses. As of June 8, 2016, they have 1,732 samples analyzed out of the 1,900 contracted samples. They are working on developing a database. The database will be on a regional basis, as well as statewide by major land resources areas. They are going to include the use of the soil survey information. Dr. Miles updated the Commission on some of the assessments.

Dr. Miles stated that three of the four phases of the lab renovation have been completed and are about two-thirds of the way toward completion of the training center. They have been in the process of collecting data and formatting it. The emphasis is to look at the current status of soil health and how they compare, as well as developing general recommendations. They will have components of the soil health report and a summarization of the database online so individuals will have access to the information. Dr. Miles covered some of the components of the Soil Health Report. He reemphasized they are developing baseline data for comparative aspects. They have received assistance from NRCS and the Soil Survey group. The Reference "baseline" will be the conceptual "healthiest" soil, and most reference baselines will come from natural areas or those with little disturbance.

The Soil Health Assessment Center has two permanent employees and several student workers that have a wide variety of majors. In May they were involved with NRCS on development of the Missouri Baseline reference samples and the soil profile sampling blitz. The center has been recognized at the national level with NRCS National Soil Health Center where they are doing their Phospholipid Fatty Acids assessment on a series of long term sites. They are also working on developing educational programs.

In summary, Dr. Miles said they are directly assessing soil health parameters, developing a baseline, and want to provide Missouri citizens with the greatest bang for the buck through the "Missouri Way."

It was pointed out that the Cover Crop policy requires an initial soil sample and if cover crops were grown consecutively on the same field for 3-4 years, then a follow-up sample could be taken for comparison. In regards to tillage on cover corps, Commission policy states no tillage allowed; the practice is set up that cover crops have to be no-tilled or broadcast and the production crop after the cover crop has to be no-tilled as well.

Gary Vandiver introduced Shawna Bligh as the new Attorney General Representative on the Commission. Ms. Bligh stated she is an Assistant Attorney General, in the Agriculture and Environmental Division. She has been practicing law for approximately 13 years, mainly in Environmental Law.

3. **Envirothon Update**
Bill Wilson presented an update on the State Envirothon that was held on April 28, 2016, at Lincoln University's Carver Farm in Jefferson City. There were 18 teams that competed and the winner was Pembroke Hill High School from Kansas City. They took the high score in four of the five resource stations. Since they were the overall winners, they will represent the state at the National Envirothon to be held in Canada in late July.

4. **State Water Plan Research Funding**
Andrea Collier presented an update on the State Water Plan Research Funding project. The department is responsible to develop, maintain and periodically update a state water plan. This is not a new effort to the state of Missouri. They have been doing state water planning since the 1930's. The first state water plan was finalized in 1938 and the most recent update was 2003. The goal is to update the plan every 10 years. The plan that is being worked on is intended to be comprehensive and to consider all future water needs for the state. The Water Resources Center is using a planning horizon of 2060, which will include looking at water demands, supplies and availability by projecting out the next 45 years to determine what the needs will look like under different conditions. The plan looks at the demands and availability to see what the gap could be. They have finalized a cost-share agreement with the U.S. Army Corp of Engineers (USACE) through their planning assistance to states program, which is a 50/10 cost-share agreement. Contractor DCM-Smith will be doing a large portion of the initial analysis and stakeholder engagement work; the second scope of work is being proposed with University of Missouri's-College of Agriculture, Food and Natural Resources (MU-CAFNR) for the Ag Water Demands. Ms. Collier presented information for Missouri's annual average precipitation for years 1895-2014. The amounts ranged from 24 to 57 inches per year. Water planning is important because not all water supplies and water infrastructure in Missouri can sustain or tolerate drought conditions, and from previous water planning that has been, the water demands in certain areas cannot be met long term under drought conditions. By planning, it better prepares the state to understand what water needs are in water use sectors under water–stressed conditions. Water planning helps in understanding areas where developing new and more sustainable water sources, better infrastructure and more integrated water supplies can help to sustain water delivery in a dynamic climate.

Ms. Collier presented examples of water planning in the state of Arkansas and one in southwest Missouri. Both of these examples showed the need to understand

water demands and the sustainability of groundwater use. Continued water planning is important in order to have the most updated information available to project water needs and gaps. The studies completed to date are not comprehensive so doing a new Missouri State Water Plan effort is critical to have a full understanding of the statewide needs. Ms. Collier presented information on the funding needs for the Missouri State Water Plan. The estimated cost of the project is $3 million over two years. In fiscal year (FY) 2016 there is a 50/50 cost-share agreement with the USACE for a total of $647,600. The Water Resources Center in FY16 provided $273,000 in funding and $100,000 is "work-in-kind." For FY17 they have $1.2 million in appropriation that was approved in the FY17 budget signed by the Governor, $300,000 from Water Resources Center's water planning funds, and possibly another $300,000 of USACE funding through planning assistance to states. That brings the total to just over $2.5 million of the total $3 million needed to complete the project. She pointed out that they expect to complete this project in FY18 but additional funds will need to be pursued to complete the project.

Next, Ms. Collier presented the benefits of a MU-CAFNR partnership for agricultural water demands. The goal of the project is to quantify agricultural water demands statewide on a basin scale and then to understand what sources of water are being used for irrigation and livestock watering, as well as projecting forward under different water uses what the demands will be. This project should be approximately $300,000 total.

Dr. Kallenbach stated the university wants to develop reliable estimates of water demands for agriculture. One way they look at water in agriculture is often in water cycles, such as inputs to the system through the entire hydrologic system. From rainfall to crop, groundwater back to surface water and back into the atmosphere through evaporation. One thing that is not completely understood about agricultural use of water is the use of water to create wealth, such as economic development in communities and also to create healthy food. They want to bring that aspect into the state water plan. They are also interested in updating the demands for water in regards to new hybrids that are more water efficient and irrigation potential. As far as livestock watering demand, they would like to estimate it as accurately as possible. The outcomes that they want from this project are water demand use plans (HUC 8 levels) and economic estimates of value that agriculture adds to water.

After extensive discussion, the Commission asked that the following information be provided to them before the next meeting: a copy of the last state water plan, how the new one will look, the differences and how will they get the information for the plan.

5. **U.S. Geological Survey Monitoring Network**
Amy Buessink, Director of the USGS Missouri Water Science Center, stated they are part of the Department of Interior, which is a federal agency. They do not regulate, own or manage any land and focus on water science.

Shane Barks, Deputy Director for USGS Missouri Water Science Center, presented information on the Ambient Water Quality Monitoring Network Phase II Data Analysis. They have collected data from 195 lake sites, 408 spring sites, 1,815 stream sites; the data from the sites is stored in a database. The types of data are time series, current conditions, historical observation, and daily discrete data: field measurements and field/lab samples. The time series data is continually collected and they are looking at gage height, stage, water-surface elevation; streamflow or discharge; suspended sediment concentration and load; and water quality parameters. Historically they have operated stream gages in 400-500 locations in the state, but currently they are operating 250 gages in the state and they have continuous data from as far back as 1861 on the Mississippi River. They have 26 water quality monitoring sites in the state; on continuous basis they collect water temperature, dissolved oxygen, specific conductance, pH, turbidity, nitrate and nitrite. With the discrete data they collect discharge measurements in 647 locations and over 130,000 measurements are stored in the database. They also collect discrete water quality data, such as physical properties, nutrients, fecal bacteria indicators, major ions, trace elements, suspended sediments and solids, and pesticides. They have collected water quality samples from 1,703 locations; 132,414 samples are stored in the database. They have been collecting samples on the Missouri River at Hermann since 1948. The ambient water quality monitoring network is done in cooperation with the Department of Natural Resources and began in 1964 at 18 sites; currently there are 73 sites. Most of the sites are selected by the department. The data is used for the following: definition of existing surface water quality conditions; detection and definition of trends in concentrations and loads; detection of emerging problems; regulatory needs including the Clean Water Act,; evaluation of management strategies and program effectiveness; and design of abatement, control and management strategies. Phase I of the Water Quality Data Analysis was started in 2008 with six sites looking at physical properties, nutrients, fecal bacteria indicators, total suspended solids and select trace elements. The results of the study are: geometric mean of E. coli exceeded state standards at the Grand River site; the total suspended concentrations were greater at the northern sites; total phosphorous strong downward trend at the Wilson Creek site; and nitrate and nitrite had an upward trend at Elk River. In Phase II the objectives are to analyze all sites, evaluate baseline water quality conditions across the state, compare selected constituent concentrations and loads, analyze long-term trends and evaluate the current monitoring network to determine if it meets the current needs. He pointed out this would be a 2½ year project. The results would be presented in a USGS Scientific Investigation Report and Fact Sheet. The total cost would be $363,000 with

USGS providing $50,000, leaving a balance of $313,000 that is needed from other partners.

6. **Handbook Updates**
Bill Wilson presented updates on the FY17 Cost-Share Handbook and District Operations Manual. Program staff received suggestions from the districts for updates to the Cost-Share Handbook. Some of the updates are clarification of the conservation mapping process, clarification of reseeding components for critical areas, update of the Design and Certification section to remove the references of District Tech II to be consistent with new District Specialist classification, development of a policy regarding retention of ACH/EFT forms, update of policy for WQ10 acres excluded, and formatting updates. The District Operations Manual will be updated to include any necessary changes to reflect the implementation of the progression line that was effective January 1, 2016.

7. **FY17 Budget Update**
Colette Weckenborg presented an update on the FY17 Budget. The FY17 budget has been agreed upon and passed by the Governor. The FY17 budget authority totals $61,417,053. Out of that amount, $40 million is appropriated for Cost-Share, $15.3 million for District Operations, $3.3 million for Program Administration, $634,990 for Other, $1 million for Federal Demo and Technical, $650,000 for Conservation Monitoring and $400,000 for Research.

E. REQUEST

1. **Carroll SWCD – N340 Cover Crop Practice Started Prior to Board Approval of Contract**
Jim Plassmeyer presented a request from Carroll County Soil and Water Conservation District (SWCD). The issue is: should the Commission support the Carroll SWCD's request to develop an N340 Cover Crop contract on 100 acres for a cost-share amount of $3,067.50 that was planted prior to board approval of a contract. He pointed out that according to the rules established by the Commission, the board shall not approve any application for cost-share assistance on which the construction or implementation of projects or practices has begun. Commission policy states the board responsibilities for approval of cost-share: the district board of supervisors approves cost-share assistance for a cooperator by signing and dating the cost-share contract. A district can never use any type of provisional approval, such as pre-approval or tentative approval. Commission policy on starting a practice states "Cost-share assistance is not authorized for practices installed or started prior to board approval of the contract."

On October 27, 2016, the landowner was in the district office to sign up for the N340 Cover Crop Practice: district staff worked with the landowner to develop the NRCS Agron 340 design sheet along with other necessary paperwork for cost-

share. The only option the landowner had at this time of the year was winter wheat. The deadline for planting was November 1 and the landowner was told to proceed. . On April 19, 2016, the landowner brought documentation into the district office supporting completion of the practice along with photos of no-tilling corn into the cover crop. On April 22, 2016, the district determined that the cost-share contract had been misplaced and was not completed or approved in October.

State statute gives the Commission the ability to grant individual variance to any rule.

Jeff Lance made a motion to approve the board's request to develop an N340 Cover Crop contract on 100 acres that was planted prior to board approval of a contract in the amount of $3,067.50. Tim Martin seconded the motion. When polled, Glen Cope, H. Ralph Gaw, Jeff Lance, Tim Martin and Gary Vandiver voted in favor of the motion and the motion carried unanimously.

2. **Montgomery SWCD – DSL-44 Terrace System Started Prior to Board Approval of Contract**

Jim Boschert presented a request from Montgomery County SWCD on a DSL-44 Terrace System that was started prior to board approval of the contract. The issue is: should the Commission support the Montgomery SWCD's request to approve two contracts for DSL-44 Terrace Systems with Tile that were built prior to board approval of the contracts. On February 29, 2016, the landowner and NRCS technical staff signed the contracts and the landowner was given the designs for the terrace systems; after the contracts were signed they were set aside for a board member signature. On April 11, 2016, the checkout notes were turned in verifying the practice was completed. It was noticed on April 15, 2016, that the contracts were not board approved when the technician was reviewing contracts in MoSWIMS. The total for the two contracts is $16,451.19.

Robert Ridgley, Montgomery SWCD Technician, stated the contracts not being signed was an oversight in the district, not the landowner's fault.

H. Ralph Gaw made a motion to approve the board's request to provide payment for contracts SGE 030-16-0123 and SGE 030-16-124 for DSL-44 Terrace Systems with Tile that were built prior to the board approving the contracts. Glen Cope seconded the motion. When polled, Glen Cope, H. Ralph Gaw, Jeff Lance, Tim Martin and Gary Vandiver voted in favor of the motion and the motion carried unanimously.

DRAFT

3. **Shannon and Wayne SWCDs - N312 Animal Waste Systems for Small Ruminants**

Jim Plassmeyer presented a request from Shannon and Wayne SWCDs for an N312 Animal Waste System for small ruminants. The issue, should the Commission approve allowing the N312 Beef Waste Management practice to be used for small ruminant animals. Mr. Plassmeyer pointed out that the Commission has authority to establish general programs for the saving of Missouri soil and water by the soil and water conservation districts. This would be an addendum to a practice already established. He reiterated that request is to provide cost-share assistance on an animal waste management system for sheep and goats. The current animal waste practices are species specific so the program can track the number of facilities per species. The Commission Policy for the N312 practice states the purpose is for farms to manage waste from agriculture production in a manner that prevents or minimizes degradation of soil and water resources. The cost-share policies state the practice names are species specific; four species have the same basic policies of 75 percent on manure storage area and 50 percent on waste collection in feeding and travel areas. Some differences between the practices are flush tanks, loading ramps and conveyance system. On all of the practices cost-share is not authorized for bedding and bunk feeding areas, nor the development or implementation of a Comprehensive Nutrient Management Plan (CNMP). He pointed out that the planning for these facilities must be based on the current animal units. He reviewed example information regarding design requirements for beef and sheep, manure volume and cost estimates for a beef barn and a sheep barn provided to the Plan for the Future Current Practices Subcommittee discussed thi at their February 2016 meeting and they recommended that cost-share assistance be provided on animal waste storage facilities for sheep and goats.

H. Ralph Gaw made a motion to approve the request to allow cost-share assistance on an animal waste management for small ruminants and change the name of the N312 Beef Waste Management to N312 Beef and Small Ruminant Waste Management. Tim Martin seconded the motion. When polled, Glen Cope, H. Ralph Gaw, Jeff Lance, Tim Martin and Gary Vandiver voted in favor of the motion and the motion carried unanimously.

F. REPORTS

1. **Department of Conservation**

Lisa Potter reported that effective July 15, 2016, Robert Ziehmer will resign as Director of the Department of Conservation. He has been the director for six of the 25 years that he was with the Missouri Department of Conservation.

2. **Department of Agriculture**
Judy Grundler reported that the State Fair is scheduled for August 11-21, 2016, and the Director's Reception is scheduled for August 17. The Governor's Conference will be held December 14-16, 2016.

She reported an Agri- Business Academy was started this week with 30 high school students; they attend various tours and will finish back in Jefferson City at the State Capitol on Friday.

In September they will have the Farm Scape at the Ball Park Village in St. Louis. This is a huge educational event for the people in the city to experience agriculture.

3. **Natural Resources Conservation Service**
4. J. R. Flores reported the State Technical Committee Meeting was held this morning and they received a lot of great comments and input. He reported that Missouri Local Workgroup Meetings are held in each county. They provide recommendations to J.R and the State Technical Committee on natural resource priorities and criteria for their area. Job approval authority requirement also applies to vegetative practices so district employees will need to be certified. The Emergency Watershed Protection Program received approximately $8 million for Missouri. NRCS received 56 requests covering 76 projects; total requests exceeded $30 million.

5. **University of Missouri**
Dr. Kallenbach reported they had their first Animal Science Leadership Academy with 30 high schools students attending from across the state. They are also hosting a Lender School and it is going well. He reported that Dean Payne will be retiring at the end of the year. Marshall Stewart, the new Director for Extension, will start in the middle of August; he is from North Carolina.

6. **Missouri Association of Soil and Water Conservation Districts**
Kenny Lovelace reported they have been working on the Training Conference workshops and other issues associated with it.

G. PUBLIC COMMENTS

Beverly Dometrorch inquired about the supplemental money from May 15 to June 15 and if the districts would be penalized for not getting that money spent. Colleen Meredith responded that they would not be penalized.

DRAFT

H. ADJOURNMENT

H. Ralph Gaw made a motion to adjourn the meeting. Tim Martin seconded the motion. When asked by the chair, Glen Cope, H. Ralph Gaw, Jeff Lance, Tim Martin and Gary Vandiver voted in favor of the motion and the motion carried unanimously. The meeting was adjourned at 4:50 p.m.

Respectfully submitted,

Colleen Meredith, Director
Soil and Water Conservation Program

Approved by:

Gary Vandiver, Chairman
Missouri Soil and Water Districts Commission

/tm

DRAFT

Soil and Water Conservation Program
FY16 Cost-Share Fund Status (Final)

Resource Concern	Allocated	Obligated	Percent Obligated	Number of Contracts	Paid	% Paid
Animal Waste Management	$2,351,610	$1,127,576	48	49	$1,127,576	48
Grazing Management	$7,280,394	$4,075,091	56	1,145	$4,075,091	56
Irrigation Management	$2,247,802	$1,362,954	61	235	$1,362,954	61
Nutrient & Pest Management	$1,124,745	$548,508	49	656	$548,508	49
Sensitive Areas	$4,501,561	$1,729,819	38	348	$1,729,819	38
Sheet and Rill/Gully	$30,415,749	$23,682,297	78	4,514	$23,682,297	78
Woodland Erosion	$2,647,523	$819,723	31	275	$819,723	31
TOTAL	$50,569,384	$33,345,968	66%	7,222	$33,345,968	66%

Soil and Water Conservation Program
FY16 AgNPS SALT Cost-Share (Final)

Resource Concern	Allocated	Obligated	Percent Obligated	# of Contracts	Paid	Percent Paid
TOTAL	$110,396	$53,766	49%	19	$53,766	49%

Soil and Water Conservation Program
FY17 Cost-Share Fund Status as of August 10, 2016

Resource Concern	Allocated	Obligated	Percent Obligated	Number of Contracts	Paid	% Paid
Animal Waste Management	$3,123,750	$734,199	24	33	$49,224	2
Grazing Management	$4,680,737	$1,235,414	26	469	$52,554	1
Irrigation Management	$1,180,251	$404,147	34	73	$95,450	8
Nutrient & Pest Management	$1,227,021	$675,854	55	800	$0	0
Sensitive Areas	$2,694,301	$475,844	18	123	$28,155	1
Sheet and Rill/Gully	$19,415,833	$5,375,282	28	1379	$232,474	1
Woodland Erosion	$1,785,883	$252,925	14	114	$36,654	2
TOTAL	$34,107,776	$9,153,665	27%	2991	$494,511	1%

Plassmeyer, Jim

From: Soil & Water Conservation Program
Sent: Friday, August 05, 2016 12:18 PM
To: DNR.Soil and Water Conservation Districts staff
Cc: DNR.SWC Staff
Subject: SHAC and Cover Crop Practice Updates
Attachments: 2016_Cover Crop Cost Share Soil Health Information.pdf; 2016-2017 Soil Sampling Soil Health Package for Cover Crops.pdf

SHAC has completed the analysis of all soil samples taken for the FY16 cover crop contracts. Since this is a new endeavor for Missouri and there is not a reference database, all of the samples had to be analyzed first to develop a statewide database prior to providing reports to landowners. The statewide database provides information for SHAC to compare the individual samples against to generate a report for a landowner. SHAC started distributing reports to landowners on Monday, August 1, 2016, focusing on the northwest area of the state first.

Dr. Miles will be attending some of the MU research center field days to talk about the reports. Training will be provided to district, NRCS and extension staff on the information in the reports and how to help landowners read the reports. Dr. Miles is working with NRCS to do some training in NRCS Area 1 later this month. Dr. Miles is looking to schedule training in other parts of the state. There is also a possibility of doing a webinar for training on the report. SHAC is planning to distribute an example of the report to district offices.

As far as soil samples for FY17 contracts, SHAC has added a couple of items to the information form that has to be submitted with the samples. First, they would like to have the farmer's name for the field, if there is one, which will help the staff at SHAC make sure they are looking at the correct information if landowners call about samples. Secondly, SHAC would like to know if manure has been applied. Based on some research projects at MU, SHAC staff is seeing some impacts to soil health and to some of the analysis when manure has been added. Attached is the updated information form to provide to the landowners. Please provide this updated form to landowners that have already received a form.

Last year several of the forms were missing information such as the soil mapping unit which was needed for the analysis. SHAC staff were able to determine the information based on the county but it slowed the process down. To insure that all the information is on the form, the district may want to fill out as much of the form as possible with the landowner when they are signing up for the cover crop practice. At the very least, please make sure the soil information for the field is on the form this year.

SHAC staff has provided some clarification in the Sampling Technique document which is also attached. Both of the documents are available on the SHAC website (https://cafnr.missouri.edu/soil-health/). The program office still have a few of the sampling rings available. Please let your coordinator know if you need more. If the district would like to order some rings, they are available at https://www.humboldtmfg.com/ and the item number is H-4203DT.3.

Below is a link to a CAFNR news article that gives an overview of what has happened at SHAC over the last year. http://cafnrnews.com/2016/07/a-larger-sample-size/.

A soil sample is required on fields receiving cost-share assistance for the first time even if they are being included on contracts with fields that were sampled previously. For multiple fields that are planted to the same production crop, have the same soil type and managed the same, only one soil sample is required for all the fields. Otherwise, there needs to be a sample on each field. Consideration should be given though to take a sample on each field so the landowner gets a better representation of what is occurring with their soil health.

In FY16 for the cover crop practice, there was $2.9 million paid on 1,310 contracts and includes 83,863 acres planted. Thank you to everyone for your hard work to get through this first year of this practice and getting the ground work in place for soil health analysis in Missouri.

Thank you.

Soil and Water Conservation Program

Promoting, Protecting and Enjoying our Natural Resources. Learn more at dnr.mo.gov.

Soil Health Assessment Center
University of Missouri

Soil Health Assessment Results Report

N340 Cover Crops

Thank you!

Analyses for:
Unidentified Farms and Services
6547 SE Lane
Somewhere, MO 6XXXX

The data provided by your submitted samples will provide baseline data for the newer soil health analyses in Missouri.

This report provides you with :

- Data helpful in determining the relative strengths and weaknesses of your soils' health and function, plus lists of benefits to you as you maximize aspects of your soils' health.
- General recommendations and management options to consider in optimizing long-term soil health.
- One report (in most cases) for all related farms samples. Graphs show individual field results for easy comparison among fields for all properties measured.
- State and county averages for each analysis to help put your results into perspective. After further analysis, regional averages will be provided at https://cafnr.missouri.edu/soil-health/.

This report will not directly provide:

Fertilizer or liming recommendations because samples were not taken to the standard 6-inch depth and taken at multiple locations in the field. Results can indicate possible nutrient deficiencies or surpluses. For fertilizer recommendations submit samples to an independent soil fertility laboratory according to recommended protocol. Analytical methods used are described at https://cafnr.missouri.edu/soil-health/.

Table of Contents

Sample Results Summary....2
Total Organic Carbon....3
Active Carbon....4
Potentially Mineralizable Nitrogen....5
Bray 1 Phosphorus....6
pH....7
Cation Exchange Capacity....8
Exchangeable Cations....9
Calcium....10
Magnesium....10
Potassium....11
Sodium....11
Exchangeable Acidity....12
Aluminum....12
Hydrogen....12
Base Saturation....12
Soil Texture....13
Bulk Density....14
Water Stable Aggregates....15

Sample Results Summary

The tables below summarize the soil health test results. Pages following this summary provide information about the analyses and their importance, management considerations, and graphs comparing results. You may want to look over the summary, read the rest of the document, and then return to the summary. The Table of Contents on page 1 can direct you to specific analyses.

Sample Field	% Total Organic Carbon	* % Soil Organic Matter	Active Carbon (mg/Kg)	**PMN (ppm)	pH (Salt)	pH (Water)	Bray 1 Phosphorus (ppm)	Bray 1 Phosphorus ***(lbs/acre)	Bulk Density (g/cm3)	% Water Stable Aggregates
Field 1	3.2	5.5	725.0	92.0	6.5	7.1	18.6	37	0.89	66
Field 2	1.1	1.9	318.0	24.0	6.7	7.2	12.6	25	1.19	29
Field 3	3.0	5.2	752.0	107.5	6.4	6.9	14.5	29	0.88	67
Field 4	2.4	4.1	578.0	82.0	7.1	7.6	17.3	35	0.76	35
Field 5	2.4	4.1	565.0	70.0	6.3	6.8	27.7	55	1.00	29
Field 6	1.0	1.7	191.0	8.0	5.7	6.3	8.8	18	1.05	36
County Average	2.2	3.8	521.5	63.9	6.5	7.0	16.6	33	1.00	44
State Average	1.8	3.1	522.6	71.6	6.7	7.1	48.3	97	1.10	32

Sample Field	Calcium	Magnesium	Sodium	Potassium	Aluminum	****CEC	% Base Saturation	% Clay	% Silt	% Sand	Soil Textural Class
	(Milliequivalents per 100 g soil)										
Field 1	24.6	2.6	0.0	0.8	0.0	25.8	>100	28.1	58.6	13.3	Silty Clay Loam
Field 2	16.9	2.8	0.0	0.4	0.0	18.9	>100	28.2	59.1	12.7	Silty Clay Loam
Field 3	21.8	2.4	0.0	0.7	0.0	26.0	96	27.5	59.9	12.6	Silty Clay Loam
Field 4	26.7	1.4	0.0	0.9	0.0	22.8	>100	27.9	68.5	3.6	Silty Clay Loam
Field 5	18.4	2.4	0.0	1.7	0.0	22.4	100	28.1	68.3	3.6	Silty Clay Loam
Field 6	15.9	4.5	0.1	0.3	0.0	21.9	95	33.3	63.6	3.1	Silty Clay Loam
County Average	20.7	2.7	0.0	0.8	0.0	23.0	>100				
State Average	16.3	2.6	0.0	0.6	0.0	18.7	>100				

* Estimated by multiplying Total Organic Carbon values by 1.72
** Potentially Mineralizable Nitrogen
*** Estimated by multiplying Bray P1 values by 2
**** Cation Exchange Capacity

Soil test ratings and interpretations within this document were made according to:
Buchholz, D. D., Brown, J. R., Garret, J. D., Hanson, R. G., & Wheaton, H. N. (2004). *Soil test interpretations and recommendations handbook*. University of Missouri-College of Agriculture, Division of Plant Sciences.

Total Organic Carbon (TOC)

What is it? Why is it Important?

Soil TOC levels are highly correlated with soil nutrient cycling, pore space, water holding capacity, soil microbial activity, and nearly all aspects of soil health and soil functions.

Percent Total Organic Carbon Versus Percent Soil Organic Matter

Measurements of TOC may be roughly compared to measurements of soil organic matter (SOM) by multiplying TOC by 1.72.

Soil organic matter includes elements such as hydrogen, nitrogen, and oxygen in addition to carbon and is found in various forms in the soil. Soil organic matter is usually determined using (soil weight) loss on ignitions methods. Some weight loss is due to loss of water associated with clays. Different laboratories use different drying and ignition temperatures producing varied results.

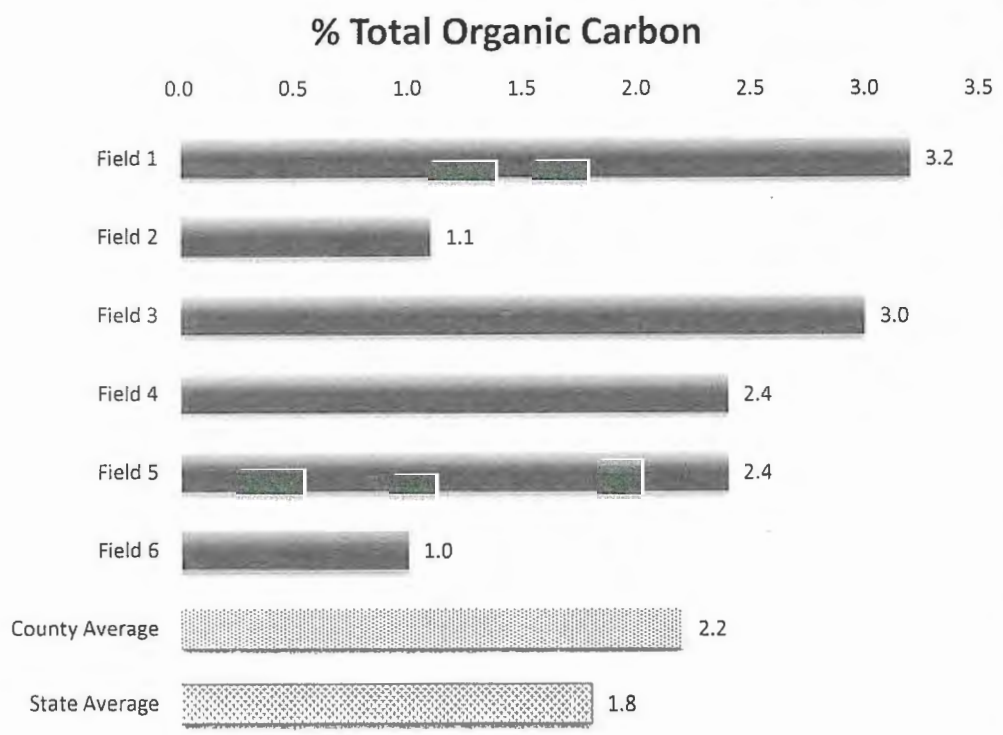
Soil TOC can be measured more accurately and precisely than can soil organic matter.

What are the benefits to having a large amount of soil total organic carbon?

Soil TOC affects biological, chemical, and physical soil properties. Larger amounts of TOC cycle more nutrients, hold more water, and house more microbial biomass than lesser amounts. The TOC and the microbes help the soil filter, buffer, and transform inputs such as herbicides.

Management options to increase soil **Total Organic Carbon**:

- Decrease tillage/disturbance
- Add manure, compost, or mulch
- Keep vegetation growing year-round
- Use double cropping
- Plant cover crops
- Plant high biomass crops
- Add perennial crops or grasses to the rotation
- Avoid burning or otherwise removing crop residues
- Keep soil covered year-round
- Reduce soil erosion



Active Carbon (AC)

What is it? Why is it important?

Easily oxidized carbon, or active carbon compounds are likely to be mineralized, or decomposed, by soil microbes over the next growing season. Changes or differences in AC are easier to measure than small, but important, differences or changes in TOC due to differing management. Active carbon is an indicator and integrator of microbial biomass, activity, and respiration.

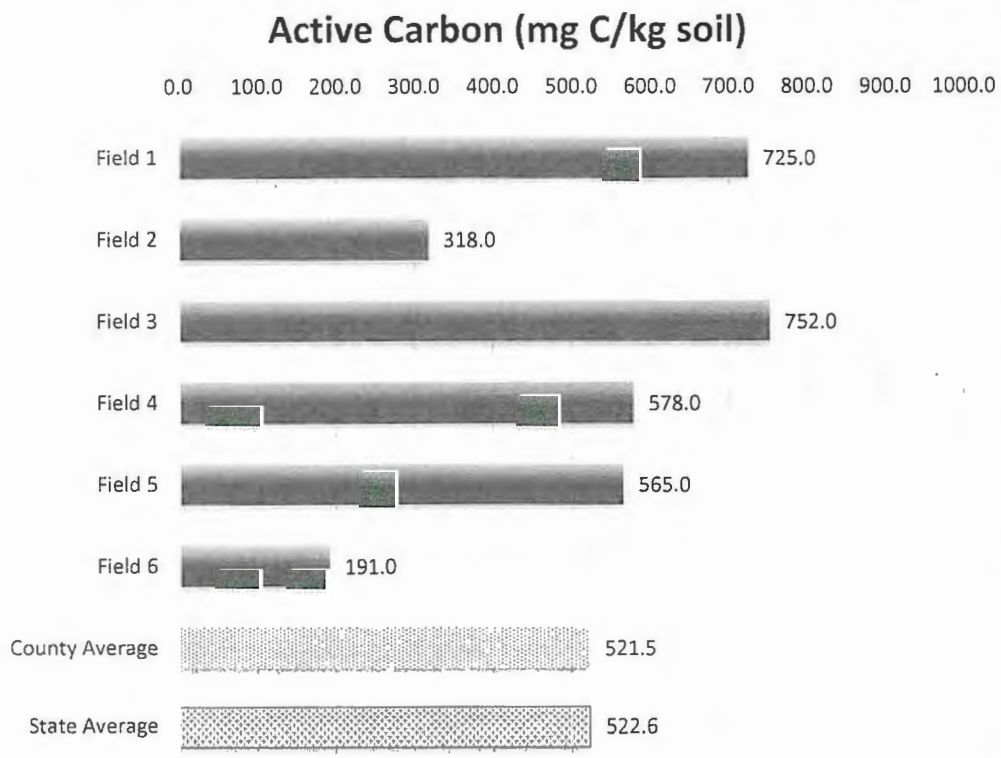
The greater the proportion of active carbon in soil TOC the more resilient the soil will be in reacting to harsh changes in climatic conditions. This is a relatively new analysis, so regional research is needed to calibrate expectations for Missouri.

What are the benefits to having high levels of soil active carbon?

- Potential for large amounts of microbial biomass and activity
- Improved capacity for transforming inputs such as herbicides
- Potential for large amounts of soil respiration producing carbon dioxide needed for photosynthesis and optimal plant growth
- Potential for large amounts of nutrient cycling producing readily available nutrients for plant uptake.

Management options to increase soil **Active Carbon**:

- Add fresh biomass frequently (such as lush, tender cover crops)
- Decrease tillage/disturbance
- Add manure, compost, or mulch
- Keep vegetation growing year-round
- Use double cropping
- Plant cover crops
- Plant high biomass crops
- Add perennial crops or grasses to your rotation



Potentially Mineralizable Nitrogen (PMN)

What is it? Why is it important?

The PMN is a measure of soil N that will likely be available to plants over the next growing season through the breakdown of soil organic matter and crop residue. It is also a measure of soil biological activity and efficiency.

The analysis used measures the N available at the time of sampling plus the amount of nitrogen that may be mineralized through the growing season.

What are the benefits of large amounts of PMN?

- Larger amounts of PMN provide more N, produced gradually, for plant growth.
- PMN provides N for microbes and helps them breakdown crop residue.

Is more always better?

Large amounts of available soil N can build up and contaminate ground water, be lost to the atmosphere, or be lost through surface runoff to pollute surface waters. The gradual mineralization of PMN is preferred for plant performance and environmental concerns.

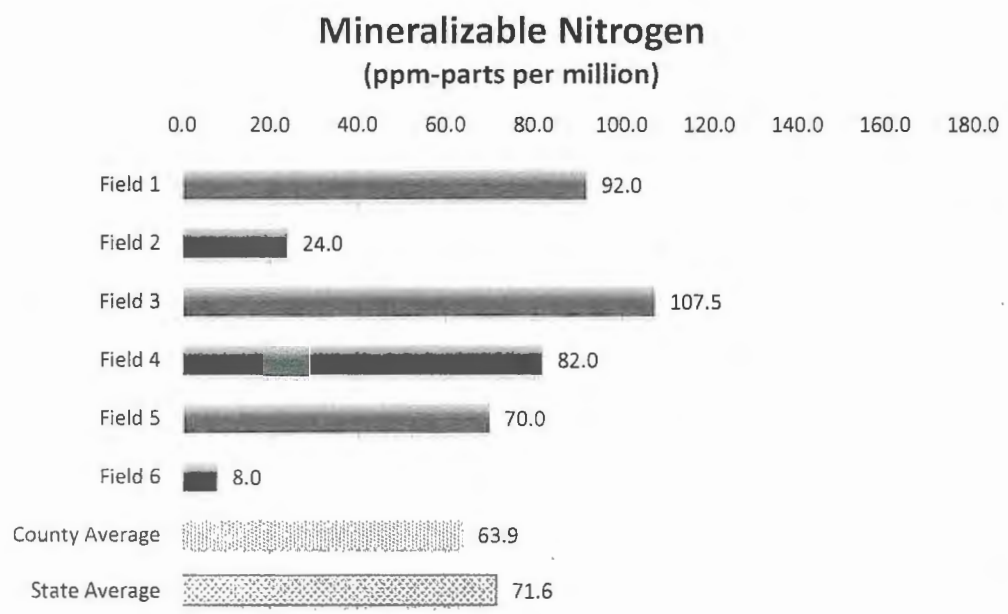
This is a relatively new analysis. Regional research is needed to calibrate PMN measurements for Missouri and for possible fertilizer N reductions.

Management options to increase soil **Potentially Mineralizable Nitrogen:**

- Plant leguminous crops and cover crops
- Use appropriate inoculum for leguminous crops and cover crops
- Apply manure or other organic materials
- Consider management options listed to increase Total Organic Carbon

Management options to reduce N loss to atmosphere, and surface or ground water:

- Plant cover crops that scavenge nitrogen
- Keep vegetative cover growing year-round
- Add N fertilizer at recommended concentrations, times, and placements
- Take credit for all N sources (organic matter mineralization, legumes, manure)
- Plant filter strips to filter nitrogen-laden sediments from field run-off
- Avoid compaction and erosion
- Consider management options listed to increase TOC
- Consider management options listed in this report to increase water stable aggregates



Bray 1 Phosphorus (B1P)

What is it? Why is it important?

Phosphorus (P) is a major plant nutrient. Much of the total P in the soil is unavailable for plant uptake. The B1P test results are an estimate of available P levels for plants. The B1P test does not include much P that becomes available through organic matter mineralization.

Is more always better?

Too little P can limit plant growth and yield. Too much P can cause plant nutrient imbalances and can cause surface water pollution through erosion.

Estimates of pounds per acre can be found by multiplying parts per million (ppm) values by 2.

Very Low to Low--Levels may be limiting crop growth. Suggest soil fertility test with an approved, independent laboratory. Consider manure application.

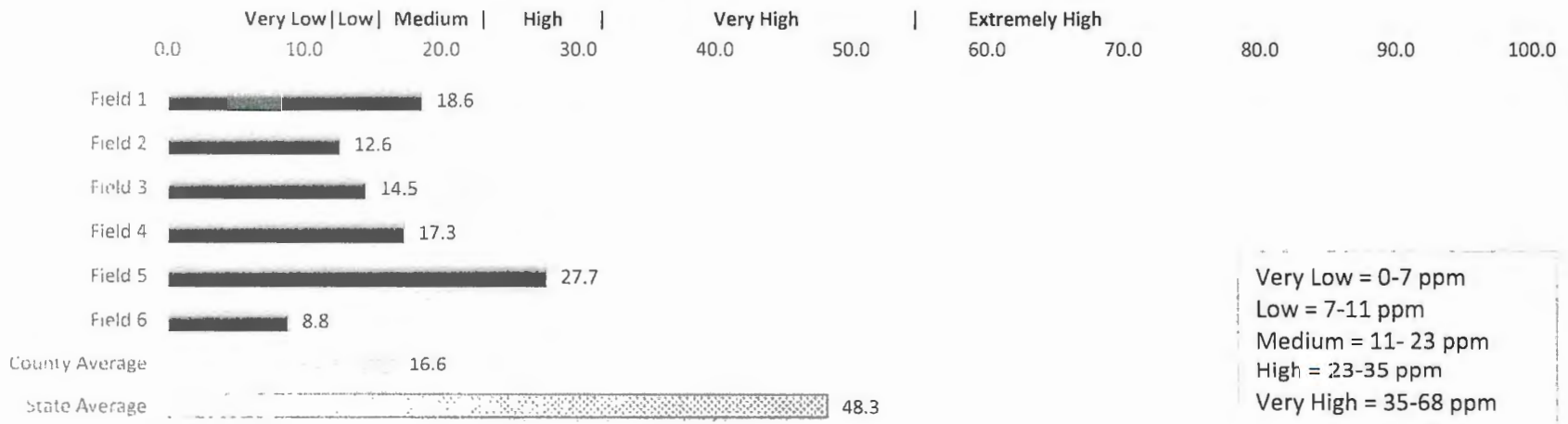
Very High--Avoid phosphorus inputs until soil fertility tests recommend additions. Suggest monitoring every 3-4 years. Take care to avoid erosion into surface waters. Consider planting filter strips to catch soil leaving the field. Avoid manure application.

Extremely High --Potential for nutrient imbalance. Plant tissue analysis may be helpful. Avoid phosphorus inputs until soil fertility tests recommend additions. Avoid erosion into surface waters. Consider planting filter strips to filter sediment from field runoff. Avoid manure application.

Caution

Phosphorus and other nutrients may be banded with depth in row crops depending on how nutrients are applied and upon the type and presence or absence of tillage. Therefore, different concentrations could exists at different soil depths. This sample was to a depth of 3 inches.

Bray 1 P (ppm-parts per million)



Very Low = 0-7 ppm
Low = 7-11 ppm
Medium = 11- 23 ppm
High = 23-35 ppm
Very High = 35-68 ppm

Soil pH in Water and Salt (pHw, pHs)

What is it? Why is it important?

Soil pH measures the concentration of hydrogen ions in soil solution. Values below 7 are acid, 7 is neutral, and values above 7 are basic. Most plants prefer a pHw between 6.0 and 7.0. Soil pH affects the solubility of plant nutrients and the nutrient holding capacity or cation exchange capacity (CEC) of the soil. Managing soil pH can maximize the efficiency of fertilizers and other soil amendments. Different pH conditions favor different types of soil microbes. Extreme acidic or basic (alkaline) soil conditions can slow organic matter mineralization. Herbicide and insecticide carry over is affected by pH, and some plant pathogens prefer certain soil pH conditions. Soil pH indirectly affects other soil properties.

Why measure salt and water pH?

Seasonal and climatic conditions can affect pHw measurement due to changing soil salt concentrations with soil moisture fluctuations and fertilizer inputs. Adding a dilute salt solution to the soil minimizes these effects and produces more stable pH measurements. This stability helps to determine appropriate lime requirements for acidic soils. Typically, pHs measurements are about 0.6 smaller than pHw measurements.

When unspecified, most pH references and recommendations refer to water pH.

	pHs (salt pH)
Very low	<4.5
Low	4.5-5.3
Medium	5.3-6.0
High	6.0-7.5
Very high	>7.5

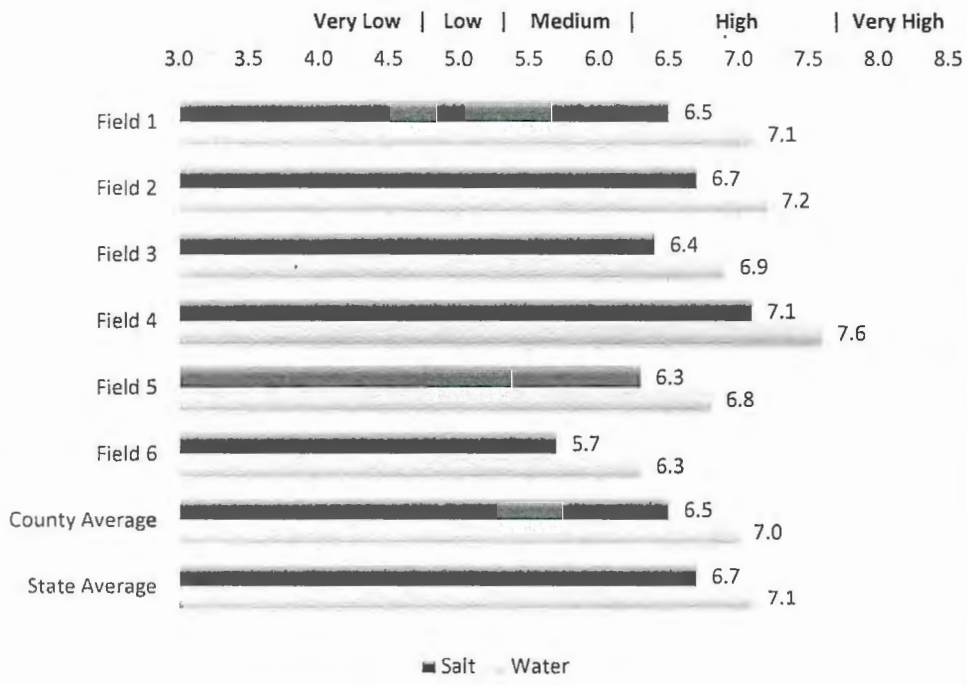
Very low or low--Plant crops that prefer a low pH or test soil fertility at an independent laboratory to acquire appropriate lime requirement. An acidic pH may result in toxic levels of soil aluminum. Soil phosphorus may become unavailable to plants. Minimize use of acidifying fertilizers.

Very high --Soil phosphorus and some micronutrients may become "tied up" and unavailable. Do not add liming materials until need is indicated by soil test.

Caution

Soil pH may be banded with depth depending on how nutrients, especially nitrogen, are applied and upon the type and presence or absence of tillage. Follow sampling instructions from soil fertility laboratory.

pH (salt and water)



Cation Exchange Capacity (CEC)

What is it? Why is it important?

Soil components such as clays and organic matter hold charges. Their predominate charge is negative, so they attract and hold positively charged ions (cations) such as potassium (K^+), ammonium (NH_4^+), hydrogen (H^+), and calcium (Ca^{2+}). The negatively charged components are referred to as the soil's cation exchange complex and their potential for holding cations is the cation exchange capacity (CEC).

Soil with higher CECs can hold more plant-available cation nutrients. They are also buffered against sudden changes in pH. Soils with large CECs also generally have large water holding capacities. Some soil amendment recommendations are dependent upon a soil's CEC.

What factors affect CEC?

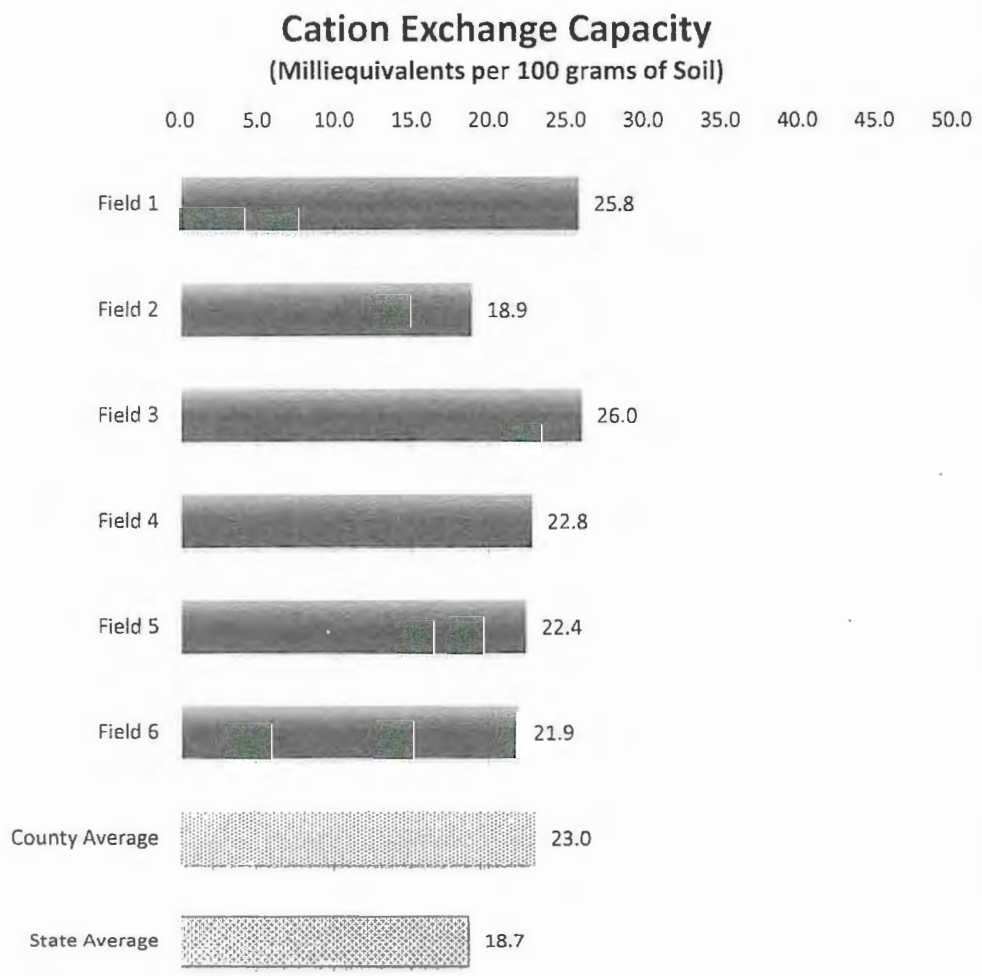
A soil's CEC is inherent to a large extent in that it depends largely on the type and amount of clay within the soil.

Soil organic matter has large CEC values, so increasing soil organic matter will increase a soil's CEC. This is especially important in sandy soils.

Soil pH affects the CEC of some soil components including clays and soil organic matter. Increasing soil pH will increase the CEC of these soil components. Some laboratories measure CEC with solutions buffered to pH 7. This determination was made with solutions that do not alter pH, so the soil's CEC is measured at its current pH.

Management options to increase soil **Cation Exchange Capacity**:

- Consider management options listed to increase total organic carbon
- Maintain soil pH at optimal levels for crop growth



Exchangeable Cations

What are they? Why are they important?

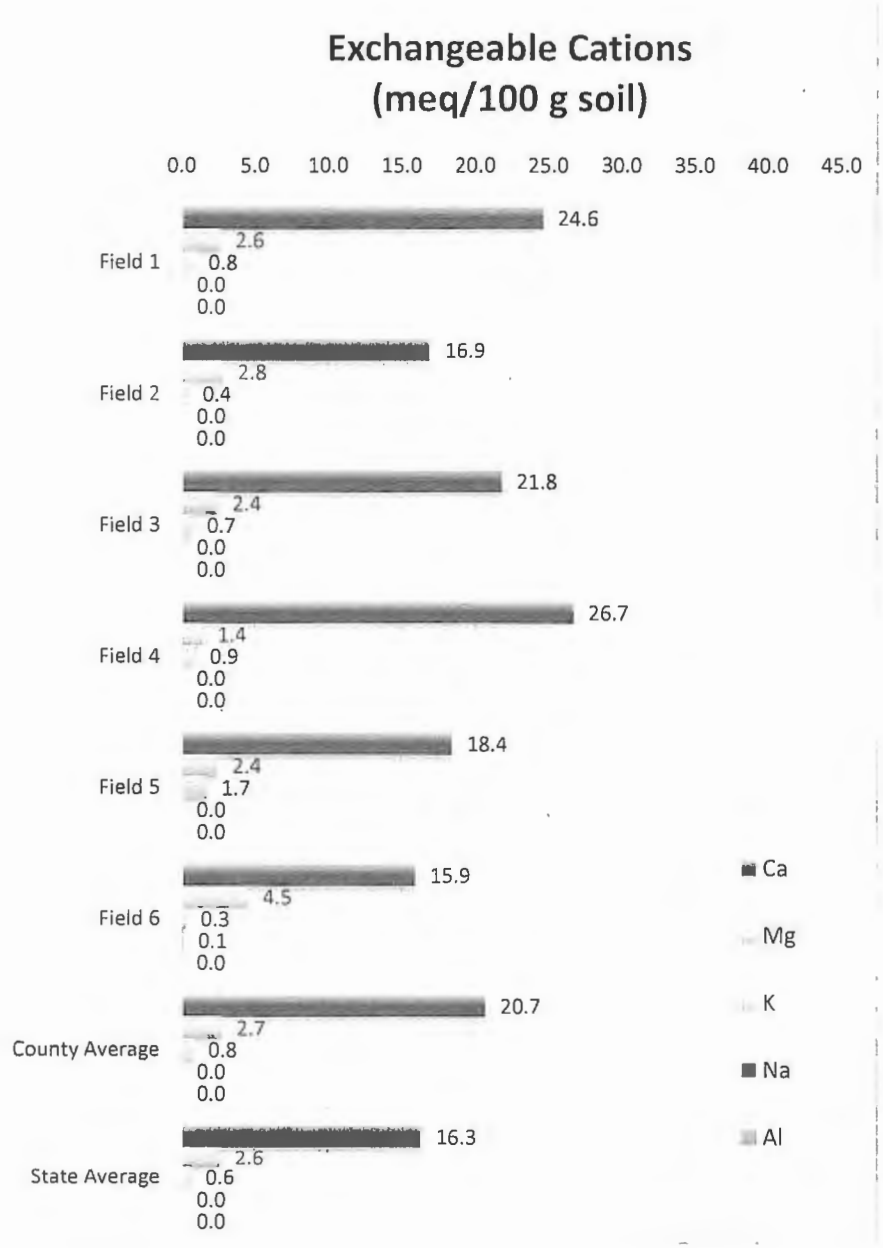
A soil's cation exchange capacity determines the amount of cations (or positive charges) the soil can hold per unit mass. Four predominant exchangeable cations, calcium (Ca^{+2}), magnesium (Mg^{+2}), potassium (K^{+}), and sodium (Na^{+}) all are important plant nutrients except for sodium. These cations are referred to as the **exchangeable bases**. Hydrogen (H^{+}) and aluminum (Al^{3+}) cations are referred to as **exchangeable acidity**. Other cations such as ammonium (NH^{4+}), iron (Fe^{3+}) and manganese (Mn^{2+}) are held by the soil exchange complex but are generally of lesser dominance.

Some groups believe that the cations are most conducive to plant growth when they are in specific ratios to one another. Other groups believe that the ratios between the individual cation concentrations are less important than if each individual cation concentration is sufficient for the crops' needs.

The predominance of the cations does affect soil physical properties. Calcium and magnesium promote flocculation and aggregation of soil particles supporting soil structure. Sodium promotes dispersion of soil particles and subsequent structural degradation.

The ratio of exchangeable bases to exchangeable acidity affects soil pH and percent base saturation.

Successive pages will discuss the importance of individual cations.



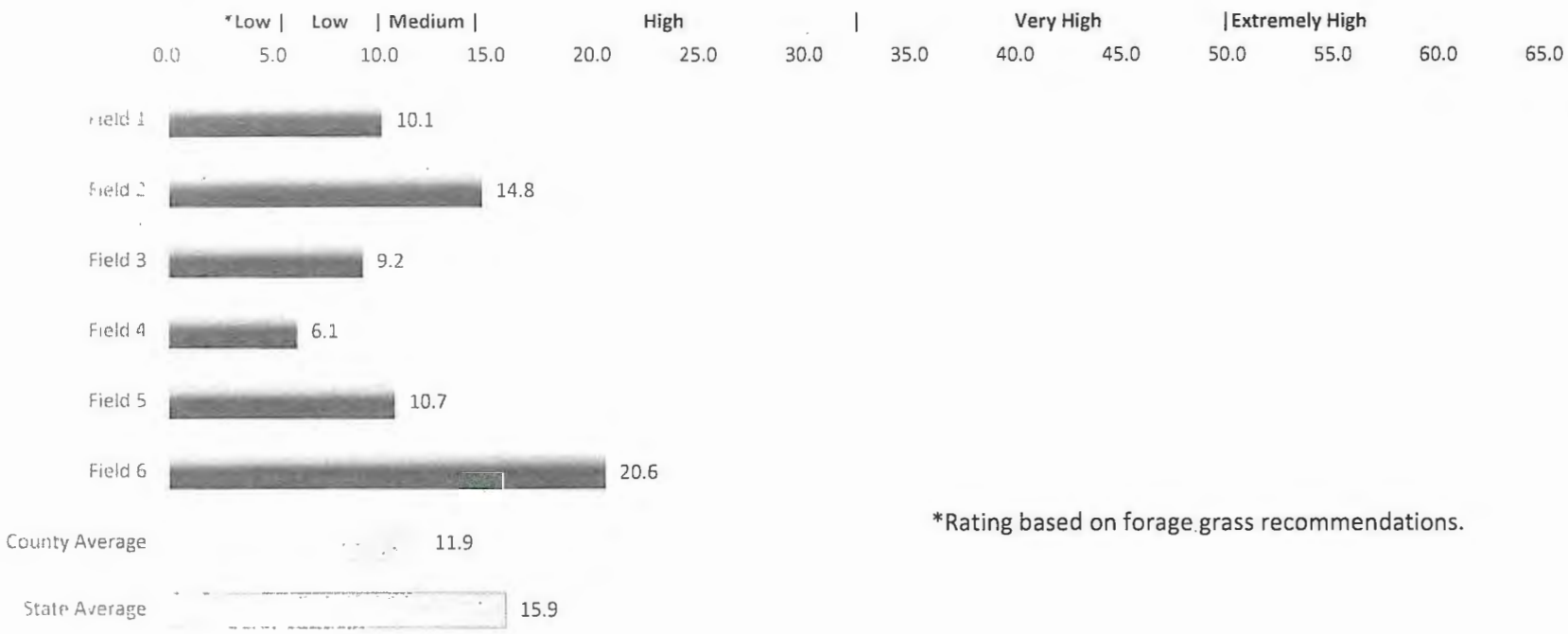
Exchangeable Calcium (Ca^{2+})

- See "Exchangeable Cations" graph on previous page
- Secondary crop nutrient; very important in some crops
- Usually the most abundant cation in many Missouri soils
- Usually not deficient in Missouri soils
- Helps flocculate and aggregate soil particles promoting good soil structure
- Added to the soil in the form of calcitic and dolomitic limestone to adjust soil pH and as gypsum to add calcium without adjusting pH

Exchangeable Magnesium (Mg^{2+})

- Shown in "Exchangeable Cations" graph on previous page as meq/100g soil and below as percent saturation of the soils' CEC.
- Deficiency can contribute to Grass Tetany in grazing cattle
- Magnesium additions are suggested when the saturation falls below 5% of the total CEC
- Important for the development of soil structure
- Added to the soil in the form of dolomitic limestone
- Retest soil magnesium 4 years after additions to reevaluate

% Mg Saturation of CEC



*Rating based on forage grass recommendations.

Exchangeable Potassium (K+)

What is it? Why is it important?

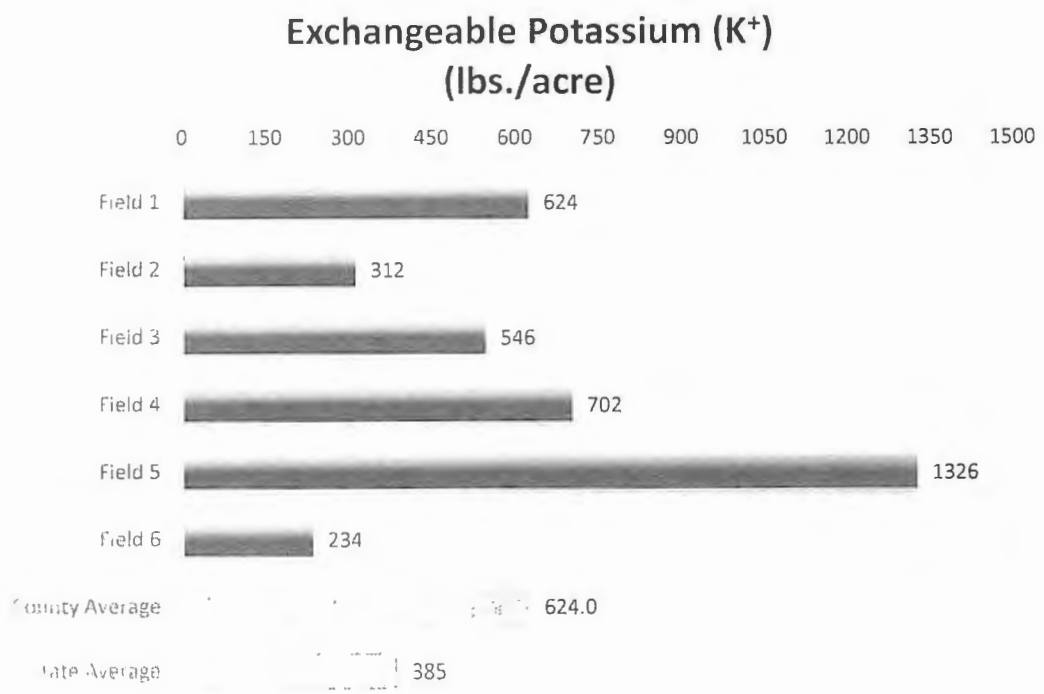
Potassium is a major plant nutrient that helps plants to take up and hold water. It helps plants develop large, strong root systems and increases their drought tolerance. These benefits, plus others, allow crops to produce larger and improved quality yields when compared to crops with insufficient potassium.

Plants that grow well and have extensive root systems provide more organic carbon to the soil than more poorly growing plants.

The rating of soil potassium levels (low, medium, high) depends upon the soil CEC and the crop(s) to be grown. A desired soil test level is determined based on these factors. If the desired soil test level is above the actual soil test level, maintenance and build up values are determined based on the crop(s) to be grown and the producers' yield goals.

Build-up fertilizer requirements are based on building up soil potassium to a desired level through time, typically over 8 years.

Maintenance fertilizer requirements are based on the selected crop and target yield to provide the needed potassium for that growing season.



Exchangeable Sodium (Na+)

What is it? Why is it important?

Sodium is an exchangeable base that is not a plant essential nutrient. High Na concentrations in the soil causes numerous problems. Soil particles are dispersed, so soil crusting can occur. Soil pH increases above optimum levels, so phosphorus and micronutrients deficiencies are likely. High salt levels in soil make it more difficult for plant roots to take up soil water.

Usually, Na is found in only low concentrations in Missouri soils. Maintain these low levels by monitoring the quality and sodium content of irrigation waters and any soil amendments used. Arid regions and coastal regions are often challenged by their soils' Na content.

Exchangeable Acidity

Exchangeable Acidity consists of the hydrogen and aluminum cations found on the soil exchange complex (clays and organic matter).

Aluminum (Al^{3+})

What is it? Why is it important?

Exchangeable Aluminum can usually be found in soils with a water pH of 5.5 or less. Aluminum is not a plant essential nutrient, and in great enough concentration it can be toxic to plants. It inhibits rooting. Large concentrations of Al in surface soil can indicate even greater concentrations in the related subsoil.

Results

No aluminum cations were found in these submitted samples.

Management Considerations

Maintain soil pH at optimal levels for plant growth, and avoid using acidifying fertilizers.

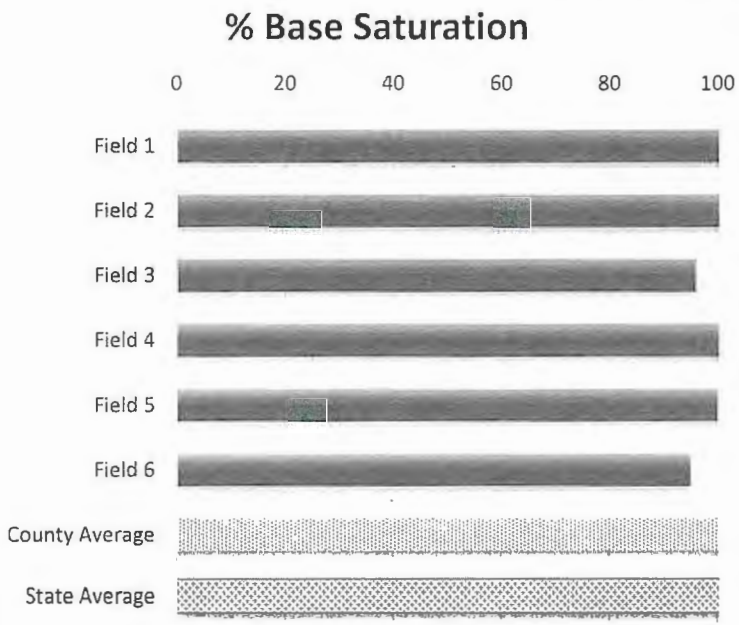
Hydrogen (H^+)

The soil hydrogen ion concentration is reflected in the soil pH. (The pH is the negative log of the hydrogen ion concentration).

Percent Base Saturation

Percent Base Saturation is the percent of a soils' cation exchange sites occupied by basic cations (calcium, magnesium, potassium, and sodium). If a soil with a CEC of 10 meq per 100 g of soil had a base saturation of 70%, 7 meq would be occupied by exchangeable bases and 3 meq would be occupied by exchangeable acids (H or Al).

Base saturations can be determined to be greater than 100% due to the extraction of "free" lime in the soil in addition to the calcium found on the exchange sites. This occurs in Missouri soils with a pH of 7.0 or higher. Recent liming or dust from nearby limestone gravel roads can cause base saturations over 100%.



Soil Texture

Soil texture should not change with time unless a drastic event occurs or if topsoil erodes away to expose subsoil or new soil material is deposited. Most Missouri surface soils are classified as silt loam or silty clay loams.

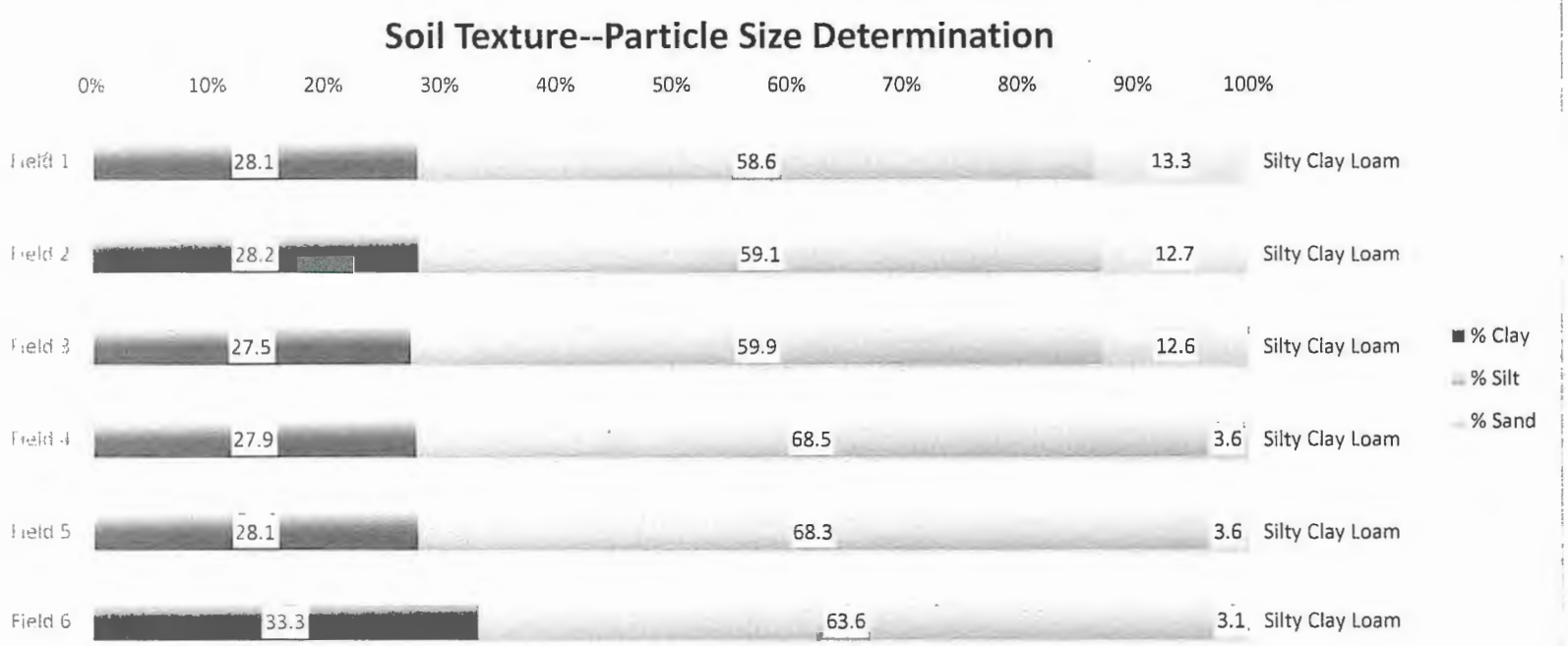
Soil texture cannot easily be changed. It affects many other soil properties such as cation exchange capacity and aggregate stability.

All soil textures have their advantages and disadvantages.

Clayey soils can be hard when dry and sticky when wet, but they can hold abundant nutrients. They improve in structure and aggregation with organic matter additions.

Silty soils are intermediate between clayey and sandy soils, so their properties are more moderate and adaptable. They can be susceptible to compaction and erosion.

Sandy soils do not hold moisture or nutrients as well as more finely textured soils, but they warm up early in the spring and can be planted before other soils.



Bulk Density

What is it? Why is it important?

Bulk density (BD) is an indicator of soil compaction and the soil functions of regulating water, producing biomass, and providing support for plants and structures. Large soil bulk density values may impede root growth, water and air infiltration, and reduce water holding capacity.

What are the advantages to having soil with a low bulk density?

Soil with smaller bulk density values allow:

- plants roots to grow through the soil more easily
- for more pore space and better soil aeration
- for more water holding capacity

than do soils with greater bulk density values.

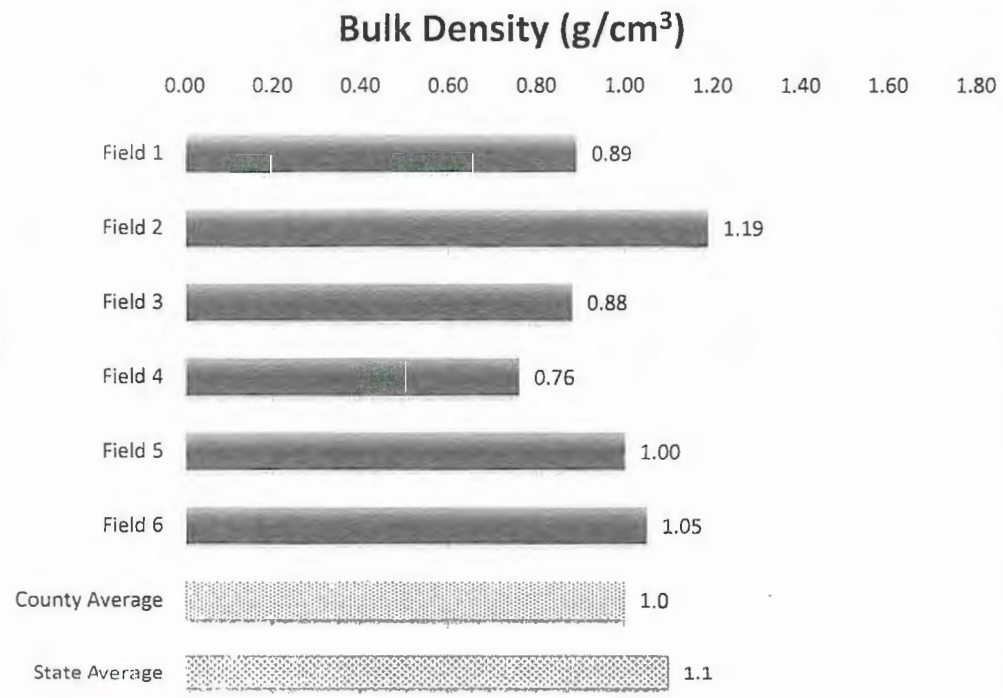
Only samples taken out of the ground as intact cores completely filling, but not over-filling, bulk density sampling rings will have valid measurements.

Soil Texture	Ideal BDs	Root Restricting BDs
Sandy	< 1.60	> 1.80
Silty	<1.40	>1.65
Clayey	<1.10	>1.47

Adapted from: USDA-NRCS Soil Quality Indicators. Bulk Density.

Management options to consider to decrease **Bulk Density**:

- Plant densely rooted cover crops
- Plant cover crops with large taproots
- Incorporated crops and cover crops with differing root types and depths
- Avoid traffic on moist or wet soil
- Reduce tillage
- Keep wheel traffic confined to designated areas
- Use wider tires or tracks to lessen the pounds per square inch exerted by equipment
- Management options to increase organic matter/carbon
- Management options to increase aggregate stability



Percent Water Stable Aggregates (% WSA)

What is it? Why is it Important?

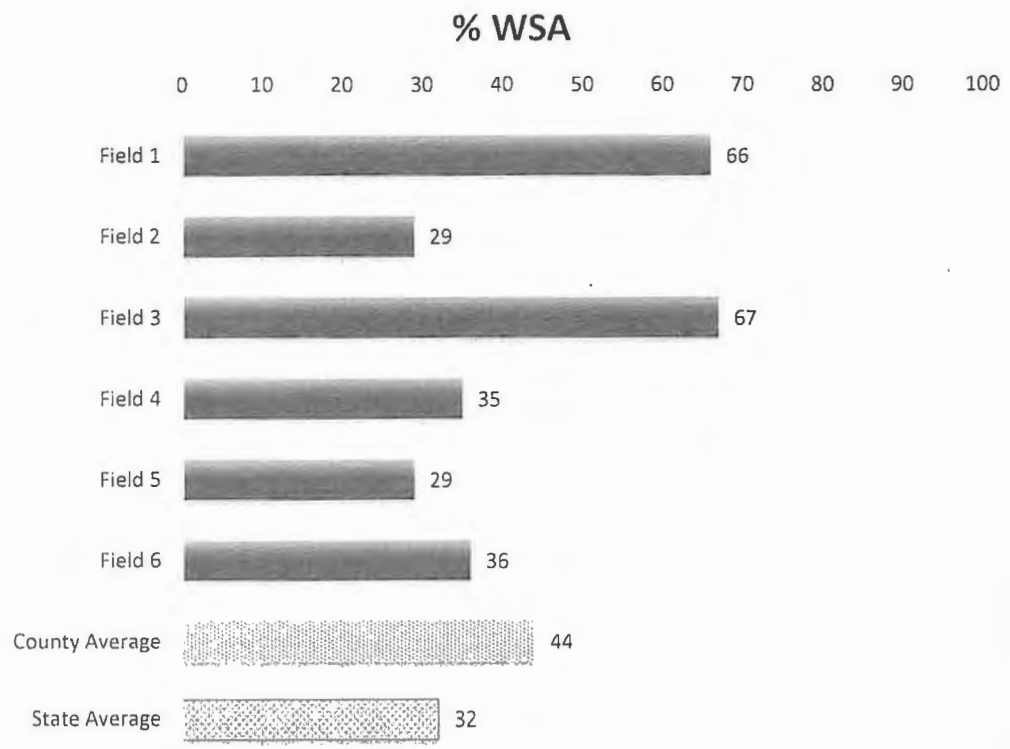
Water stable aggregates are soil particles bound together that resist breaking apart even during wet soil conditions. The percent water stable aggregates indicates the proportion of a soil's aggregates that are stable. Increased aggregate stability indicates reduced erosion, decreased surface crusting and sealing, and increased soil biological activity, infiltration, soil porosity and water holding capacity. Soil aggregation has been measured in many ways, having samples across the state analyzed with a consistent method will be helpful.

What are the benefits to having well aggregated soil?

- Reduced erosion 1) because soil particles are less likely to be detached and 2) because water is more likely to infiltrate the soil
- Less crusting to restrict seedling emergence and movement of air and water into soil
- Increased water holding capacity and soil porosity to buffer against wet and dry conditions
- Improved trafficability during wet seasons
- Provides the seed-soil conducive to germination and seedling emergence.

Management options to increase **Water Stable Aggregates**:

- Decrease tillage/soil disturbance
- Plant cover crops with shallow, dense, fibrous root systems such as grasses
- Add wheat or other small grain to rotation
- Add manure, compost, or mulch
- Plant cover crops friendly to mycorrhizae
- Avoid adding sodium to soil; it disperses soil particles
- Consider liming soil if indicated by pH levels; calcium aggregates soil particles.
- Reduce bare areas within the field
- Incorporate practices that increase soil organic matter/carbon levels



Callaway Soil and Water Conservation District
4549 State Road H, Fulton, MO 65251
(573) 592 – 1400

July 25, 2016

Commissioners:

In light of a board member's recent resignation, we would ask that you would appoint a new board member for Callaway County.

Mr. Carson Humphreys has taken a position as the agriculture instructor for Fulton High School, and as such, has advised us he will not be able to fulfill his duties as elected board member from Area III of the Callaway Soil and Water Conservation District. His resignation is effective August 1st, 2016.

The board has consulted with the runner-up in Mr. Humphreys' election, Mr. Noland Bartley. A long-time resident of Callaway County, a cattle farmer, and a land-owner from Area III, Noland has indicated he would accept the position, should the Commission grant it.

If you would, the board asks that you appoint Mr. Noland L. Bartley as a board member of the Callaway Soil and Water Conservation District, to serve out the term of the recently resigned Mr. Carson Humphreys.

We appreciate your time and consideration of this matter.

Mark Smart

Mark Smart

Callaway SWCD Board Chairman

mb

July 18, 2016

Dear, Soil & Water Conservation District board members:

I am resigning my position on the Callaway County Soil and Water Conservation District board effective August 1. I recently accepted the ag teacher position at Fulton High School, which prevents me from attending the monthly meetings during the school year. I apologize for any inconveniences this might cause and appreciate your understanding.

Sincerely,

Carson Humphreys

VERIFICATION OF SUPERVISOR ELIGIBILITY

To qualify for office, according to Missouri's Code of State Regulations, 10 CSR 70-2.020, Conduct of Supervisor Elections, a candidate shall:

1) Be a land representative as defined by "The owner, or representative authorized by power of attorney, of any farm lying within the soil and water conservation district (SWCD); provided, however, that any land representative must be a taxpayer of the county within which the SWCD is located," and

2) Be a resident taxpaying citizen within that SWCD for two (2) years preceding the appointment to the District Board of Supervisors by the Commission, and

3) Be a cooperator of the SWCD defined as "A person who is actively involved in farming and practices conservation activities related to agriculture," and

4) Reside in or own a farm lying in the same territory where the board position is vacant.

The undersigned certify that the candidate meets all of the above stated eligibility requirements to serve as a supervisor for the Callaway County Soil and Water Conservation District.

Chairperson (or acting) Signature: Mark Smout Date: 8-4-16

Candidate Signature: Roland L. Bailey Date: Aug 4, 2016

Miller County Soil and Water Conservation District

101 Industrial Park Rdwy Eldon, Missouri 65026 Phone 573-392-5667, Ext. 3

July 12, 2016

Department of Natural Resources
Soil & Water Commission
PO Box 176
Jefferson City, MO

Dear Commission Members:

The Miller County SWCD Board of Supervisors asks that you would appoint Phil Thompson to the board to replace the unexpired term of Elias Otto, who has recently resigned his position on the board.

We have attached the required Verification of Supervisor Eligibility form for Mr. Thompson along with the resignation letter from Mr. Otto.

Thank you

Miller County Board of Supervisors
Jim Schulte, Chairman

VERIFICATION OF SUPERVISOR ELIGIBILITY

To qualify for office, according to Missouri's Code of State Regulations, 10 CSR 70-2.020, Conduct of Supervisor Elections, a candidate shall:

1) Be a land representative as defined by "The owner, or representative authorized by power of attorney, of any farm lying within the soil and water conservation district (SWCD); provided, however, that any land representative must be a taxpayer of the county within which the SWCD is located," and

2) Be a resident taxpaying citizen within that SWCD for two (2) years preceding the appointment to the District Board of Supervisors by the Commission, and

3) Be a cooperator of the SWCD defined as "A person who is actively involved in farming and practices conservation activities related to agriculture," and

4) Reside in or own a farm lying in the same territory where the board position is vacant.

The undersigned certify that the candidate meets all of the above stated eligibility requirements to serve as a supervisor for the Miller County Soil and Water Conservation District.

Chairperson (or acting) Signature: _____ Date: 7-12-16

Candidate Signature: _____ Date: 10/15/16

July 12, 2016

Dear Board Members:

As you know I have sold my farm and moved to town. I am no longer a resident in Miller County. I would like to resign my position on the soil & water district board.

Thank you

Elias Otto

Elias Otto

Reynolds County Soil & Water Conservation District
P.O. Box 506
Ellington, MO 63638
573-663-2262

Darlene,

I am writing in regards to the absence of a Supervisor on our board. Mr. Bob Roney has resigned as of June 21, 2016. He has recently sold his property in Reynolds County and moved to Iron County so he no longer meets the requirements as a supervisor.

We are requesting permission to add Doug Fitzgerald, a landowner from the same area as Bob, to the agenda at the next commissioners meeting to be considered as a replacement for the duration of Bob Roney's term.

Thank you,
Reynolds County Soil & Water Conservation District

Wesley Roberts

VERIFICATION OF SUPERVISOR ELIGIBILITY

To qualify for office, according to Missouri's Code of State Regulations, 10 CSR 70-2.020, Conduct of Supervisor Elections, a candidate shall:

1) Be a land representative as defined by "The owner, or representative authorized by power of attorney, of any farm lying within the soil and water conservation district (SWCD); provided, however, that any land representative must be a taxpayer of the county within which the SWCD is located," and

2) Be a resident taxpaying citizen within that SWCD for two (2) years preceding the appointment to the District Board of Supervisors by the Commission, and

3) Be a cooperator of the SWCD defined as "A person who is actively involved in farming and practices conservation activities related to agriculture," and

4) Reside in or own a farm lying in the same territory where the board position is vacant.

The undersigned certify that the candidate meets all of the above stated eligibility requirements to serve as a supervisor for the Reynolds County Soil and Water Conservation District.

Chairperson (or acting) Signature: Wesley Pelmo Date: 8-1-16

Candidate Signature: Doug Fitzgerald Date: 8/1/16

STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

July 1, 2016

CERTIFIED MAIL #7012 2920 0002 0661 0051
RETURN RECEIPT REQUESTED

Mr. John Calhoun
2733 E. Battlefield Street
Springfield, MO 65712

Dear Mr. Calhoun:

The Soil and Water Conservation Program has received a letter from the Lawrence County Soil and Water Conservation District (SWCD) requesting assistance in pursuing repayment of cost-share funds for a DSP-3 Grazing System practice on contract numbers GM 051-10-0006, GM 051-10-0007 and GM 051-10-0008.

You were informed of the maintenance violation on the contracts in the letter from the Lawrence SWCD dated April 25, 2016, which was certified received by you on April 27, 2016. To correct the violation of the maintenance agreement, you were given the opportunity to repair the system by bringing the contracts back into compliance or repay a prorated amount of the cost-share funds received. You were given 30 days within receipt of the letter to repair the system, pay back the prorated amount or to appeal to the Soil and Water Districts Commission.

To date, the payment has not been received nor has the district heard from you that the repairs have been completed.

In accordance with the Missouri Code of State Regulations 10 CSR 70-5.060 (5), repayment is once again being requested within 30 days of receipt of this letter in the amount of $8,427.10. The check or money order should be made payable to the DNR/Soil and Water Conservation Program which can be delivered to the Lawrence SWCD office or mailed to:

Missouri Department of Natural Resources
Soil and Water Conservation Program
P.O. Box 176
Jefferson City, MO 65102-0176

Recycled Paper

If you feel that a review of this demand for repayment needs to be completed by the Soil and Water Districts Commission, your appeal must be received in writing to the address above within 30 days of receipt of this letter. If you fail to make repayment, the issue will be brought to the Soil and Water Districts Commission at their next meeting scheduled for August 17, 2016, where the Commission may request the Missouri Attorney General's Office to assistant in recovery of the funds.

Should you have any questions, please contact Mr. Josh Poynor of my staff by phone at (417) 891-4379 or by mail at the address above. Thank you.

Sincerely

SOIL AND WATER CONSERVATION PROGRAM

Colleen Meredith

Colleen Meredith
Director

CM:jpd

c: Lawrence County SWCD

7012 2920 0002 0661 0051

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)

For delivery information visit our website at www.usps.com®

RECEIVED

Postage	$ 1.80
Certified Fee	
Return Receipt Fee (Endorsement Required)	
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$

Postmark Here

Sent To
Street, Apt. No.; or PO Box No.
City, State, ZIP+4

MR JOHN CALHOUN
2733 E BATTLEFIELD ST
SPRINGFIELD MO 65712

PS Form 3800, August 2006 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

MR JOHN CALHOUN
2733 E BATTLEFIELD ST
SPRINGFIELD MO 65712

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Calhoun ☐ Agent ☐ Addressee

B. Received by (Printed Name) Calhoun
C. Date of Delivery 7-5-16

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail® ☐ Priority Mail Express™
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ Collect on Delivery

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7012 2920 0002 0661 0051

PS Form 3811, July 2013.

Plassmeyer, Jim

From: Poynor, Josh
Sent: Thursday, August 04, 2016 4:09 PM
To: Plassmeyer, Jim; Boschert, Jim
Subject: FW: contract amounts

FYI, I received this today.

From: MARIANNE VALENCIA [mailto:teocalli@live.com]
Sent: Thursday, August 04, 2016 3:49 PM
To: Poynor, Josh; John Calhoun
Subject: Re: contract amounts

Thank you for hearing us out over the phone regarding this matter. As you mentioned, it is imperative that we request in writing our intention to appeal this matter of compliance to the Appeals Board or Committee at the State Fair in Sedalia on August 17, 2016.

We have notified the Youngs, the current owners of the property, of our intention to resolve this matter expeditiously, by installing high tinsel electric fence wiring as per the approved fencing which was in compliance with our original agreement. Most of it has already been completed.

The current owners have decided that they are accepting only a 4 tiered barbed wire fencing and will not allow anything or anyone in their property to be working on fencing other than what they have specified.
The estimated cost of $7800
to have the barbed wire fencing is beyond our financial
ability to pay for right now, even if they shared half the cost. They have expressed not really needing any fencing - so we are left in a quagmire. Left with over $8000 fee to settle this situation, we wish to appeal this case in finding a resolution to this matter. Thank you for your kind consideration.

Respectfully yours,
John A. Calhoun

Sent from my iPhone

On Jul 26, 2016, at 11:00 AM, Poynor, Josh riginal <josh.poynor@dnr.mo.gov> wrote:

> Mary Ann,
>
> The attachment will show the amounts paid on each contract.
>
> As we discussed if Mr. Calhoun wishes to appeal this to the Soil and Water Conservation Districts Commission you can either respond to my email or to the address in the letter you received from Jefferson City.
>
> Let me know if you have any questions.
>
> Josh Poynor
> District Coordinator

DNR/ Soil and Water Conservation Progam
417-891-4379

<20160726103340347.pdf>

Lawrence County
Soil and Water Conservation
District

10763G Highway 39
Mt. Vernon, MO 65712
Phone: 417-466-7682

June 23, 2016

Soil and Water Districts Commission
Soil and Water Program
P.O. Box 176
Jefferson City, MO 65702

RECEIVED
JUN 27 2016

Commissioners:

On February 4, 2016 it came to our attention during a field inspection that the DNR Soil and Water Conservation Program cost-share practices, put in place in 2009 and 2010 for John Calhoun, applications #051-10-0006, 0007 and 0008, are in violation of the original 10 year maintenance agreement. (Please refer to all documents attached.) It was also discovered that Mr. Calhoun no longer owned the property. No maintenance agreement had been filed by the District for this practice.

On April 27, 2016 Mr. Calhoun's representative, C. Wilson, signed for a certified letter stating Mr. Calhoun's options to bring the practices back into maintenance or repay the appropriate cost-share funds paid as follows:

Option 1:
Correct the practice by rebuilding the components which were originally paid for under the contracts within 30 days of receipt of this letter. The components must be restored, with the concurrence of the current landowner, and meet the Natural Resource Conservation Service standards and specification and the Soil and Water Conservation Commission policies. A detailed map of those components is attached. Once rebuilt, please contact Paula Champion at the number above so that they can be inspected.

Option 2:
You may buy-out of the contracts which were paid for the grazing systems. The amounts below are calculated on the remaining months of the 10 year maintenance agreements, which you signed at the time of application, and must be repaid within 30 days of this letter.

Well (10 year maintenance life) – application #051-10-0006, approved for payment on 09/28/2009 in the amount of $5,620.76. The amount due on 43 remaining months of the contract = **$2,014.11**

Water Distribution System (10 year maintenance life) – Application #051-10-0007, approved for payment 12/22/2009 in the amount of $6,747.84. Amount due on 46 remaining months of the contract = **$3,736.67**

Fence (10 year maintenance life) – Application #051-10-0008, approved for payment 05/26/2010 in

the amount of $6,299.57. The amount due on 51 remaining months on the contract = **$2,677.32**

The total buy-out option is **$8,427.10.**

The only communication regarding this matter the local SWCD office has had was with the current landowners, who said they had received a certified letter from Mr, Calhoun stating they must restore the grazing system to it's original condition or they would be at risk of being sued. Office staff explained the policy regarding maintenance agreements on cost-share practices as follows: If a practice is removed, altered, or modified as to lessen its effectiveness without consent of the Soil and Water Conservation District Board of Supervisors for a period of 10 years after the date of receiving payment, the original cost-share recipient shall refund to the Missouri Soil and Water District Commission the state cost-share funds used for the practice. The cooperator(s) that received the cost-share payment remains responsible for the maintenance of the practice upon change of ownership unless the responsibility is transferred with the deed for the property. To our knowledge the maintenance responsibility of the practice was not transferred via deed to the new landowners.

To date we have heard nothing further from Mr. Calhoun or the current landowners.

As we, the SWCD Board, have met our responsibility outlined in the cost-share manual; we are now turning this matter over to you, the Commission.

Sincerely,
Lawrence County Soil and Water Conservation District

Harold Lampe. Vice-chair

CC: John Calhoun
2733 E Battlefield Street
Springfield, MO 65804

Lawrence County
Soil and Water Conservation
District

10763G Highway 39
Mt. Vernon, MO 65712
Phone: 417-466-7682, Ext 3

April 25, 2016

John Calhoun
2733 E. Battlefield Street
Springfield, MO 65712

RE: Cost-Share Practices Maintenance Violation

Mr. Calhoun:

On February 4, 2016 it came to our attention during a field inspection that the DNR Soil and Water Conservation Program cost-share practices, put in place in 2009 and 2010, are outside of the original maintenance agreement. The practices financially aided you to construct a livestock grazing system and had a 10 year maintenance life.

It is our responsibility to provide you with options to correct this maintenance violation.

Option 1:
Correct the practice by rebuilding the components which were originally paid for under the contracts within 30 days of receipt of this letter. The components must be restored, with the concurrence of the current landowner, and meet the Natural Resource Conservation Service standards and specification and the Soil and Water Conservation Commission policies. A detailed map of those components is attached. Once rebuilt, please contact Paula Champion at the number above so that they can be inspected.

Option 2:
You may buy-out of the contracts which were paid for the grazing systems. The amounts below are calculated on the remaining months of the 10 year maintenance agreements, which you signed at the time of application, and must be repaid within 30 days of this letter.

Well (10 year maintenance life) – application #051-10-0006, approved for payment on 09/28/2009 in the amount of $5,620.76. The amount due on 43 remaining months of the contract = **$2,014.11**

Water Distribution System (10 year maintenance life) – Application #051-10-0007, approved for payment 12/22/2009 in the amount of $6,747.84. Amount due on 46 remaining months of the contract = **$3,736.67**

Fence (10 year maintenance life) – Application #051-10-0008, approved for payment 05/26/2010 in the amount of $6,299.57. The amount due on 51 remaining months on the contract = **$2,677.32**

The total buy-out option is **$8,427.10.**

Repayment must be made to: State of Missouri
Department of Natural Resources
Soil and Water Conservation Program
PO Box 176.
Jefferson City, MO 65102-0176

You also have 30 days to appeal the Lawrence County Soil and Water Conservation District board of supervisors' demand for repayment to the cost-share program's governing body. The appeal will be reviewed at a regularly-scheduled meeting allowing you an opportunity to present arguments in support of your request.

This appeal must be in writing and made to: Soil and Water Districts Commission
Soil and Water Conservation Program
PO Box 176
Jefferson City, MO 65102-0176

Please direct any questions regarding this letter to Paula Champion at the number above.

Respectfully,

Harold Lampe, Vice-chair
Lawrence Co. Soil & Water Conservation District

c\c: Soil & Water Conservation Districts Commission
Department of Natural Resources
Soil & Water Conservation Program
P.O. Box 176
Jefferson City, MO 65102

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

John Calhoun
2733 E Battlefield St.
Springfield, MO 65712

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Wilson ☐ Agent ☐ Addressee

B. Received by (Printed Name) Wilson
C. Date of Delivery 4-27

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☒ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? (Extra Fee) ☐ Yes

2. Article Number (Transfer from service label) 7011 2970 0001 6103 0075

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-1540

DSP-3.1, 2, & 3 As Built per Diana Sherican, NRCS

LAWRENCE COUNTY SOIL & WATER CONSERVATION DISTRICT

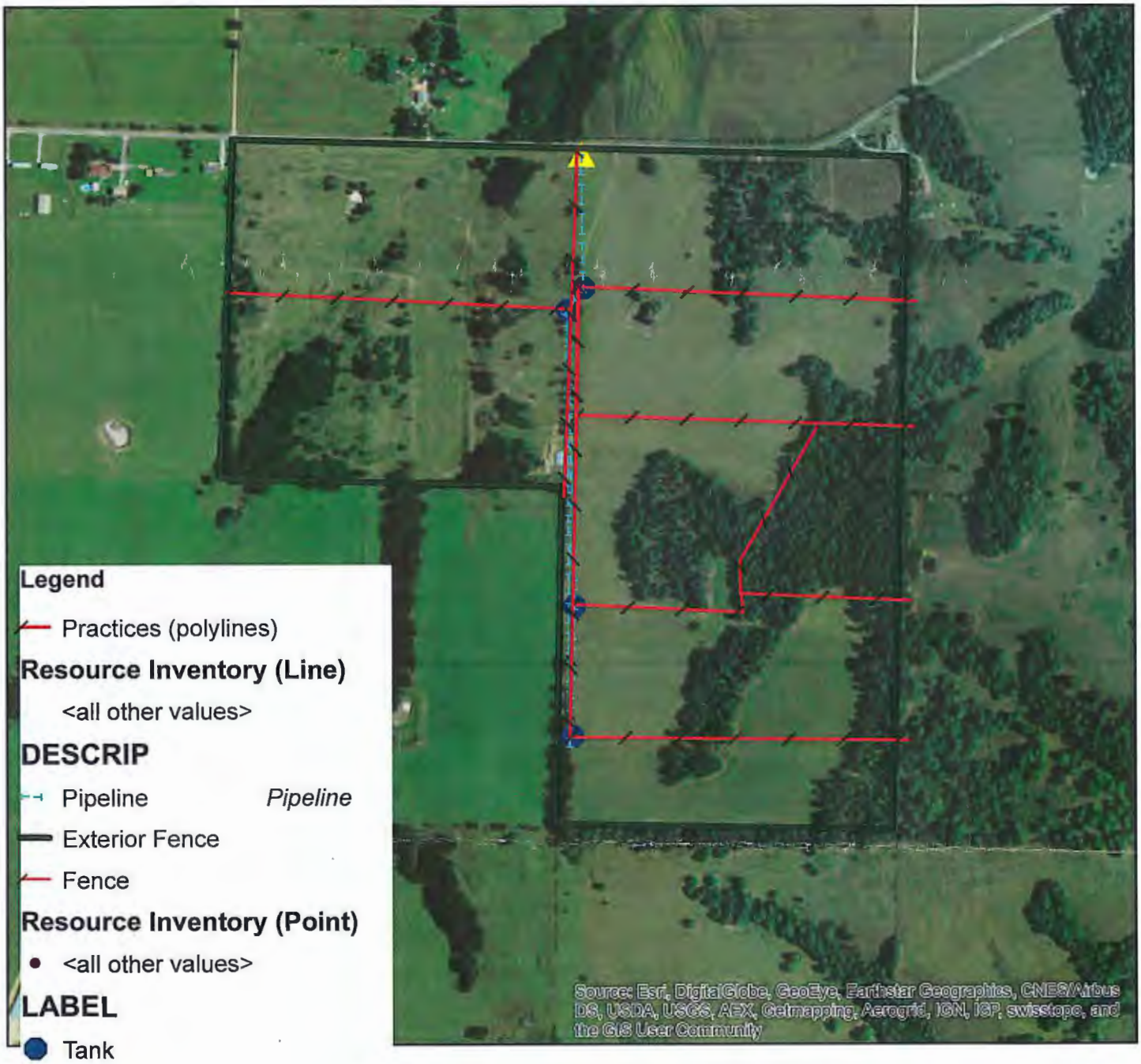
Field Office: MOUNT VERNON SERVICE CENTER

Customer(s): JOHN A CALHOUN

Approximate Acres: 109 grazable

Assisted By: Paula Champion

Legal Description: Farm # 7484, Tract 7333
Section 18, Township 26N, Range 26W



Legend

Practices (polylines)

Resource Inventory (Line)

<all other values>

DESCRIP

Pipeline *Pipeline*

Exterior Fence

Fence

Resource Inventory (Point)

<all other values>

LABEL

Tank

Well

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

Resolution 30cm Imagery

ons

340 0 340 680 1,020 1,360 Feet

N

DSP-3
Fence To Be Rebuilt

Customer(s): JOHN A CALHOUN

Agency: SWCD
Field Office: MOUNT VERNON SERVICE CENTER

Legend

Resource Inventory (Line)

— <all other values>

DESCRIP

Exterior Fence

Fence

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

1 inch = 450 feet

260 0 260 520 780 1,040 Feet

N

MISSOURI DE 'TMENT OF NATURAL RESOURCES
SOIL AND WATER DISTRICTS COMMISSION
COST-SHARE ASSISTANCE CONTRACT

10763 HWY 34 #G
MT VERNON, MO 65712
(417)466-7682

JOHN, CALHOUN
3900 E VILLAWAY
SPRINGFIELD, MO 65809

Contract Number
GM 051-10-0006

Landowner TIN.
XXX-XX-1763

Legal Owner: JOHN, CALHOUN

PRACTICE: DSP 3.1 - GRAZING SYSTEM WATER DEVELOPMENT

ALLOCATION GROUP: GRAZING MANAGEMENT 2010 **MAXIMUMS:** Acre:95.00

REASON:

LIFE SPAN	TERM DATE	FARM #	TRACT #	CONS PLAN LOC	FIELD NUMBERS	CLASS/SUBCLASS	"T" ON FIELD
10	06/01/2010	7484	7533	S-18 T-26 R-26	1,8,10,11,12,13	2 / E	4

PRE-INSTALL (SR)	POST-INSTALL (SR)	PRE-INSTALL (G)	POST-INSTALL (G)	ACRES SERVED	HUC CODE	PWSS-P
				109.00	11070207-040003	

COMPONENT	COST / UNIT	EXT APRVD	EST $	CS %	APRVD AMOUNT
PRESSURE TANK	$559.5700 / EA	1.00	$559.57	75%	$419.67
SUBMERSIBLEPUMP	$1,797.5400 / EA	1.00	$1,797.54	75%	$1,348.15
WATER WELL CASING	$12.0000 / FT	100.00	$1,200.00	75%	$900.00
WATER WELL DRILLING	$6.6300 / FT	500.00	$3,315.00	75%	$2,486.25
WATER WELL MISC	$558.0400 / EA	1.00	$558.04	75%	$418.53
WELL HOUSE	$627.7800 / EA	1.00	$627.78	75%	$470.83
SUBTOTAL			**$8,057.93**		**$6,043.43**

Other Funds	**MAX COST-SHARE**	**$6,043.43**

TOTAL DISTRICT COST-SHARE OBLIGATION MINUS ANY OTHER FUNDS **$6,043.43**

PRACTICE AND QUANTITIES REQUESTED ARE NEEDED, PRACTICAL, AND MINIMUM NECESSARY.

Kevin Cliffe
TECHNICIAN'S SIGNATURE — DATE 7/17/09

Rogers Baldwin
CONTRACT APPROVED BY (Board Member) — DATE 7/17/09

MISSOURI DEPARTMENT OF NATURAL RESOURCES
SOIL AND WATER DISTRICTS COMMISSION
COST-SHARE ASSISTANCE CONTRACT

[illegible]
1656 HWY 60 [illegible]
MOUNTAIN GROVE, MO 65711
417-926-7[illegible]

Contract Number
GM051-10-0006

JOHN, CALHOUN
3990 E VILLAWAY
SPRINGFIELD, MO 65809

Landowner EIN:
XXX-XX-1763

Legal Owner: JOHN, CALHOUN

PRACTICE: DSP3.1 GRAZING SYSTEM WATER DEVELOPMENT

ALLOCATION GROUP: GRAZING MANAGEMENT 2010

I (we), the undersigned, do hereby request cost-share assistance to help defray the cost of installing the GRAZING SYSTEM WATER DEVELOPMENT as listed above. It is understood and agreed that:

1. The GRAZING SYSTEM WATER DEVELOPMENT installed with cost-share assistance shall be properly maintained.

2. The cooperator acknowledges that to receive payment a Vendor Input Form and Vendor ACH/EFT Application are required and that a 1099-G will be issued at the end of the calendar year. The cooperator also acknowledges that payment will be received in the form of a direct deposit.

3. Condition of Payment of State Cost-Share Funds: If a practice is removed, altered, or modified so as to lessen its effectiveness without consent of the Soil and Water Conservation District Board of Supervisors for a period of 10 years after the date of receiving payment, JOHN, CALHOUN shall refund to the Missouri Soil and Water Districts Commission the state cost-share funds used for the practice. The cooperator(s) that received the cost-share payment remains responsible for the maintenance of the practice upon change of ownership unless the responsibility is transferred with the deed for the property.

4. Right of ingress and egress for the purpose of inspecting construction and maintenance of a practice cost-shared with state funds is hereby granted by the cooperator(s).

5. The cooperator(s) will be notified of any maintenance violation and the board will give a reasonable and fair estimate of time to correct the problem(s). If the violation is not corrected within the specified time, the matter will be referred to the Soil and Water Districts Commission for further action.

6.Should this contract be approved by LAWRENCE SWCD, the Cooperator(s) will be notified by the district. If the cooperator(s) accepts cost-share assistance, the cooperator(s) will not start the practice prior to board approval of this contract.

7. Providing false information on documents in an effort to receive state cost-share funds is a criminal offense, punishable by fines and/or jail sentences. Discovery of such an offense is prosecutable by the Missouri Attorney General's Office or the local county prosecutor.

COOPERATOR'S SIGNATURE - If someone is authorized to sign for the cooperator(s), the signature entered must include the name of the person signing the form and state that he/she is signing FOR the cooperator(s) e.g. Dan's Operator for Dan, Jane Doe

J D Calhoun — CALHOUN JOHN

7/17/09 — DATE

MISSOURI DEP[illegible]MENT OF NATURAL RESOURCES
SOIL AND WATER DISTRICTS COMMISSION
COST-SHARE ASSISTANCE CONTRACT

[illegible]
10763 HWY [illegible]
MT VERNON, MO [illegible]
(417)466-7682

JOHN, CALHOUN
3900 E VILLAWAY
SPRINGFIELD, MO 65809

Contract Number
GM 051-10-0007

Landowner TIN:
XXX-XX-1763

Legal Owner: JOHN, CALHOUN

PRACTICE: DSP 3.2 - GRAZING SYSTEM WATER DISTRIBUTION

ALLOCATION GROUP: GRAZING MANAGEMENT 2010 **MAXIMUMS:** Acre:85.00

REASON:

LIFE SPAN	TERM DATE	FARM #	TRACT #	CONS PLAN LOC	FIELD NUMBERS	CLASS/SUBCLASS	"T" ON FIELD
10	06/01/2010	7484	7333	S- 18 T-26 R-26	1,8,10,11,12,13	2 / W	4

PRE-INSTALL (SR)	POST-INSTALL (SR)	PRE-INSTALL (G)	POST-INSTALL (G)	ACRES SERVED	HUC CODE	PWSS-P
				109.00	11070207-040003	

COMPONENT	COST / UNIT	EXT APRVD	EST $	CS %	APRVD AMOUNT
CONCRETE (FLAT)	$193.6100 / CU YD	6.00	$1,161.66	75%	$871.24
PVC 1 1/2IN	$1.0400 / FT	2,579.00	$2,682.16	75%	$2,011.62
TANK-FREEZEPF 2HOLE	$628.4600 / EA	4.00	$2,513.84	75%	$1,885.38
TRENCH/BKFILL < 12IN	$1.3000 / FT	2,579.00	$3,352.70	75%	$2,514.52
SUBTOTAL			**$9,710.36**		**$7,282.76**

Other Funds	MAX COST-SHARE	$7,282.76
TOTAL DISTRICT COST-SHARE OBLIGATION MINUS ANY OTHER FUNDS		$7,282.76

PRACTICE AND QUANTITIES REQUESTED ARE NEEDED, PRACTICAL, AND MINIMUM NECESSARY.

Kevin Cliff
TECHNICIAN'S SIGNATURE — DATE 7/17/09

Roger Ballenger
CONTRACT APPROVED BY (Board Member) — DATE [redacted] 7/17/09

MISSOURI DEPARTMENT OF NATURAL RESOURCES
SOIL AND WATER DISTRICTS COMMISSION
COST-SHARE ASSISTANCE CONTRACT

[illegible]
10763 HWY 30 [illegible]
MEADEROSA, MO 65742
(417) [illegible]

Contract Number
GM 051-10-0007

JOHN, CALHOUN
3900 T VILLA WAY
SPRINGFIELD, MO 65809

Landowner TIN:
XXX-XX-1763

Legal Owner: JOHN, CALHOUN

PRACTICE: DSP 3.2 GRAZING SYSTEM WATER DISTRIBUTION

ALLOCATION GROUP: GRAZING MANAGEMENT 2010

I (we), the undersigned, do hereby request cost-share assistance to help defray the cost of installing the GRAZING SYSTEM WATER DISTRIBUTION as listed above. It is understood and agreed that:

1. The GRAZING SYSTEM WATER DISTRIBUTION installed with cost-share assistance shall be properly maintained.

2. The cooperator acknowledges that to receive payment a Vendor Input Form and Vendor ACH/EFT Application are required and that a 1099-G will be issued at the end of the calendar year. The cooperator also acknowledges that payment will be received in the form of a direct deposit.

3. Condition of Payment of State Cost-Share Funds: If a practice is removed, altered, or modified so as to lessen its effectiveness without consent of the Soil and Water Conservation District Board of Supervisors for a period of 10 years after the date of receiving payment, JOHN, CALHOUN shall refund to the Missouri Soil and Water Districts Commission the state cost-share funds used for the practice. The cooperator(s) that received the cost-share payment remains responsible for the maintenance of the practice upon change of ownership unless the responsibility is transferred with the deed for the property.

4. Right of ingress and egress for the purpose of inspecting construction and maintenance of a practice cost-shared with state funds is hereby granted by the cooperator(s).

5. The cooperator(s) will be notified of any maintenance violation and the board will give a reasonable and fair estimate of time to correct the problem(s). If the violation is not corrected within the specified time, the matter will be referred to the Soil and Water Districts Commission for further action.

6.Should this contract be approved by LAWRENCE SWCD, the Cooperator(s) will be notified by the district. If the cooperator(s) accepts cost-share assistance, the cooperator(s) will not start the practice prior to board approval of this contract.

7. Providing false information on documents in an effort to receive state cost-share funds is a criminal offense, punishable by fines and/or jail sentences. Discovery of such an offense is prosecutable by the Missouri Attorney General's Office or the local county prosecutor.

COOPERATOR'S SIGNATURE - If someone is authorized to sign for the cooperator(s) the signature entered must include the name of the person signing the loan and state that he/she is signing FOR the cooperator(s) (e.g. "Jane Operator for John Doe")

J Q Calhoun
CALHOUN JOHN

7/17/09
DATE

MISSOURI DEPARTMENT OF NATURAL RESOURCES
SOIL AND WATER DISTRICTS COMMISSION
COST-SHARE ASSISTANCE CONTRACT

[illegible]
[illegible]
MOUNTAIN GROVE, MO 65711
(417) 926-7182

Contract Number
GM 051-10-0008

JOHN, CALHOUN
3960 E VILLAWAY
SPRINGFIELD, MO 65809

Landowner I.D.
XXX-XX-1763

Legal Owner: JOHN, CALHOUN

PRACTICE: DSP 3.3 GRAZING SYSTEM FENCE

ALLOCATION GROUP: GRAZING MANAGEMENT 2010

I (we), the undersigned, do hereby request cost-share assistance to help defray the cost of installing the GRAZING SYSTEM FENCE as listed above. It is understood and agreed that:

1. The GRAZING SYSTEM FENCE installed with cost-share assistance shall be properly maintained.

2. The cooperator acknowledges that to receive payment a Vendor Input Form and Vendor ACH/EFT Application are required and that a 1099-G will be issued at the end of the calendar year. The cooperator also acknowledges that payment will be received in the form of a direct deposit.

3. Condition of Payment of State Cost-Share Funds: If a practice is removed, altered, or modified so as to lessen its effectiveness without consent of the Soil and Water Conservation District Board of Supervisors for a period of 10 years after the date of receiving payment, JOHN, CALHOUN shall refund to the Missouri Soil and Water Districts Commission the state cost-share funds used for the practice. The cooperator(s) that received the cost-share payment remains responsible for the maintenance of the practice upon change of ownership unless the responsibility is transferred with the deed for the property.

4. Right of ingress and egress for the purpose of inspecting construction and maintenance of a practice cost-shared with state funds is hereby granted by the cooperator(s).

5. The cooperator(s) will be notified of any maintenance violation and the board will give a reasonable and fair estimate of time to correct the problem(s). If the violation is not corrected within the specified time, the matter will be referred to the Soil and Water Districts Commission for further action.

6.Should this contract be approved by LAWRENCE SWCD, the Cooperator(s) will be notified by the district. If the cooperator(s) accepts cost-share assistance, the cooperator(s) will not start the practice prior to board approval of this contract.

7. Providing false information on documents in an effort to receive state cost-share funds is a criminal offense, punishable by fines and/or jail sentences. Discovery of such an offense is prosecutable by the Missouri Attorney General's Office or the local county prosecutor.

COOPERATOR'S SIGNATURE - If someone is authorized to sign for the cooperator(s), the signature entered must include the name of the person signing the form and state that he/she is signing FOR the cooperator(s) (i.e. Frank Operator for Farms, Inc.)

J L Calhoun — 7/17/09

CALHOUN JOHN — DATE

MISSOURI DEPARTMENT OF NATURAL RESOURCES
SOIL AND WATER DISTRICTS COMMISSION
COST-SHARE ASSISTANCE CONTRACT

[illegible]
[illegible]
MEXICO, MO 65265
[illegible]

Contract Number
GM051-10-0008

JOHN, CALHOUN
3900 E VILLAWAY
SPRINGFIELD, MO 65809

Landowner HN:
XXX-XX-1763

Legal Owner: JOHN, CALHOUN

PRACTICE: DSP 3.3 - GRAZING SYSTEM FENCE

ALLOCATION GROUP: GRAZING MANAGEMENT 2010 MAXIMUM: Acres60.00

REASON:

LIFE SPAN	TERM DATE	FARM #	TRACT #	CONS PLAN LOC	FIELD NUMBERS	CLASS/SUBCLASS	"T" ON FIELD
10	06/01/2010	7484	7333	S-18 T-26 R-26	1,8,10,11,12,13	2 - W	4

PRE-INSTALL (SR)	POST-INSTALL (SR)	PRE-INSTALL (G)	POST-INSTALL (G)	ACRES SERVED	HUC CODE	PWSS-P
				109.00	11070207-040093	

COMPONENT	COST / UNIT	EXT APRVD	EST $	CS %	APRVD AMOUNT
1-WIRE HI-TENSILE	$0.7300 / FT	10,821.00	$7,899.33	75%	$5,924.49
EACH ADDITIONAL WIRE OR ELECTRIC OFFSET	$0.3200 / FT	5,361.00	$1,715.52	75%	$1,286.64
ELECFENCEENERG6 - 10J	$300.0000 / EA	1.00	$300.00	75%	$225.00
ENERGIZER INST AC	$307.9900 / EA	1.00	$307.99	75%	$230.99
SUBTOTAL			**$10,222.84**		**$7,667.12**

Other Funds	MAX COST-SHARE	$6,540.00

TOTAL DISTRICT COST-SHARE OBLIGATION MINUS ANY OTHER FUNDS	$6,540.00

PRACTICE AND QUANTITIES REQUESTED ARE NEEDED, PRACTICAL AND MINIMUM NECESSARY.

Kaden Cliff
TECHNICIAN'S SIGNATURE — DATE 7/17/09

Roger Baldwin
CONTRACT APPROVED BY (Board Member) — DATE 7/17/09

From: Linda Schmidt [mailto:barlinfarm@aol.com]
Sent: Wednesday, July 13, 2016 10:26 AM
To: Krenkel, Sandee
Cc: Barlinfarm@aol.com; Barry.Schmidt@outlook.com
Subject: Fwd: Letter for Cover Crop Appeal

-----Original Message-----
From: Barry Schmidt <barry.schmidt@outlook.com>
To: Linda Schmidt <barlinfarm@aol.com>
Cc: Barry Schmidt <barry.schmidt@outlook.com>; Linda Schmidt <barlinfarm@aol.com>; rikuhinta <rikuhinta@gmail.com>
Sent: Tue, Jul 12, 2016 11:04 pm
Subject: Letter for Cover Crop Appeal

Dear Department of Natural Resources or to whomever this may concern,

This letter is in regards to appealing for the decision to not approve the payment of 2016 for 3 Cover Crop contracts, covering 217 acres for $8,882.50. After the anhydrous was applied to the fields, the ruts were so bad that I was forced to pull a pasture harrow over part of the acres to reduce planter row unit bounce for a more uniform stand. I knew that the crop planted following the Cover Crops needed to be no-tilled, but I was completely unaware that a pasture harrow was considered a tillage implement.

The Cover Crop was sprayed two times in late March and early April to kill turnips which did not winter kill and the short rye which sprouted in late winter. Pasture harrow also helped the turnips roll over to die and decompose. I believe the Cover Crop residue cover measurements were not inspected for several weeks after it was decomposed resulting in less measurable cover. In the attachments below I have provided some pictures to help prove my case. The Billy Woods's farm was not pasture harrowed and did not receive payment either. A hard rain came right after planting Cover Crops: about one-inch mid day for about fifteen minutes which floated some seed from the bottoms resulting in poor stand in low areas as well.

Sincerely,
Barry Schmidt

Nov 25th

April 17th

April 17th

May 6th

May 6th

CLAY COUNTY SOIL AND WATER CONSERVATION DISTRICT
1 VICTORY DRIVE SUITE 100 – LIBERTY, MO 64068
PHONE: (816) 781-5580 Ext. 3

Date: July 21, 2016

To: Soil and Water Commission

Re: Cover Crop Contracts on Barry Schmidt

Dear Commissioners,

I'm writing this letter on behalf of the Clay SWCD.

We have worked with the Schmidt family over the last couple of decades – they have always been conscientious and above board in any dealings we've had with them. As a matter of fact, Barry and his wife Linda were Conservationists of the Year in 2006. When Barry said he didn't know a pasture harrow was a tillage implement, we believe he is telling the truth.

The Liberty NRCS/Clay SWCD was responsible for giving Barry the necessary information regarding the rules and regulations pertaining to the Cover Crop practice. No one gave him that information.

We hope after meeting Barry, you will sense the good faith in him, and will allow these contracts to be claimed.

Sincerely,

Sandee Krenkel

Sandee Krenkel, Program Specialist
Clay County SWCD

Nora Reinhardt

Nora Reinhardt, Treasurer
Clay County Soil and Water
Conservation District