CONSERVATION Connections

A quarterly publication of the Dickinson County Conservation District

CONSERVATION Connections

A quarterly publication of the Dickinson County Conservation District



USDA Service Center 328 NE 14th Street Abilene, KS 67410

(785) 263-1351 (FSA) (785) 263-2787 (Conservation District/NRCS)

### 2017 Board of Supervisors

Dennis Marston	Chairman
Darren Haney	Vice Chairman
Raymond Bielefeld	Treasurer
Francis Anderson	Member
Dennis Chartier	Member

### Conservation District Staff

Cindy Dooley	District Manager
Brian Lang	Drill Manager

### NRCS Staff

Kenny Bowell.....Supervisory District Conservationist Danny Carroll.....Soil Conservation Technician

### Farm Service (FSA)

Braden Stueve	County Executive Director
Ellen Alvarez	Program Technician
Tonya Askew	Program Technician
Sandy Johnson	Program Technician
Deb Marston	Program Technician
Michele Snowball	Program Technician

**Conservation Connections** 

### CALENDAR OF EVENTS

Tuesday, July 4—OFFICE CLOSED—Independence Day Holiday Monday, July 10—Regular Board of Supervisor's Meeting July 15—Deadline to certify spring crops with FSA Monday, August 14—Regular Board of Supervisor's Meeting

Monday, September 11—Regular Board of Supervisor's Meeting

### **Seeding Dates**

Cool Season Grasses (brome, fescue) August 1 to October 1 December 1 to April 15

Warm Season Grasses (native mix) December 1 to May 15

### **Prescribed Burn Dates**

CRP: Feb. 1 - April 15 Depending on soils, July 16 - Aug. 31 (contact FSA/ NRCS for more information)

Rangeland: April 1 - May 5







## CONSERVATION Connections

Looking for a contractor? Contact us for a list of contractors that will help achieve all your conservation goals: earthwork, brush cleaning, prescribed burning, welldrilling, fence building, and more!



	I I HIS ISSUE
4	NACD Message on CTA
6	
7	11th Annual Waterfest
10	Improving Soil Health to Extend the Ogallala Aquifer
11	Create an edible aquifer
12	Conservation Word Search
15	Conservation District Sponsors
	Concernation District Convision





Do you recognize the photo on the front cover? This issue of Conservation Connections features a photo taken in Dickinson County. Be the first to contact us with the correct approximate location (nearest crossroads or legal description) of the photo and win a CoCo-RaHS official rain gauge. (Gauges available in mid July to early August. See page 6.)

NACD Message on CTA

### Contact your Legislators

Senators: Jerry Moran (202) 224-6521 (785) 628-6401

Pat Roberts (202) 224-4774 (620) 227-2244

Representatives: Tim Huelskamp, 1st District (202) 225-2715 (785) 309-0572

Lynn Jenkins, 2nd District (202) 225-6601 (785) 234-5966

Kevin Yoder, 3rd District (202) 225-2865 (913) 621-0832 The USDA Conservation Technical Assistance (CTA) program is the lifeblood of conservation in the United States. Through NRCS and its local, state, and national partners, CTA helps landowners become better stewards of their natural resources by assisting them with resource assessment, practical design, planning, and monitoring of conservation practices.

CTA makes conservation planning possible For any landowner to participate in a farm bill or other federal voluntary conservation program, they must first have a conservation plan developed by a certified conservation planner. The majority of NRCS conservation plans are paid for with CTA funding.

Conservation plans are living documents developed confidentially and one-on-one between a local conservation technician and a landowner. These plans include recommendations for sitespecific conservation practices and are tailormade to meet a landowner's specific conservation needs and stewardship goals.

With conservation plans, farmers and ranchers can weave the right conservation practices into a system capable of achieving greater outcomes than any single practice could accomplish on its own.

Together the right conservation practices produce on-farm results – like higher yields and more efficient use of inputs – and off-farm public benefits – such as clean water, safe air, and healthy plant and animal populations.

CTA infuses critical resources into the voluntary conservation delivery system

CTA provided resources to train and employ more than 10,000 NRCS technicians and specialists, plus upwards of 50,000 more conservation-related jobs at the state and local level in 2016. Unlike many other federal agencies, NRCS does not have a "salaries and expenses" account, so it funds a large portion of its staff through the CTA program.

CTA allows NRCS to procure field office space, vehicles, computers, and equipment to strengthen delivery of onthe-ground conservation across the country.

The CTA program also makes contribution and cooperative agreements between NRCS and conservation districts and state associations possible. These agreements with NRCS help conservation districts deliver practical, site-specific solutions based on sound science and proven research directly to landowners.

Robust funding for CTA ensures that America's landowners have the technical assistance they need to keep our nation's soils healthy, our water clean, and our wildlife abundant. If funding for CTA were eliminated or severely reduced, it would drastically hinder the ability of conservation districts and our partners to deliver conservation assistance in communities nationwide.

Δ

NACD Message on CTA

What can I do to prevent cuts to CTA?

Because Congress holds the purse strings, it is critical that you and your conservation district articulate the value of CTA to your elected representatives over the phone, in letters, and face-to-face.

In the past, Congress has shown its support of voluntary conservation by maintaining or increasing funding for

USDA's Conservation Operations account (which houses CTA) through the annual appropriations process, but **we can't stand by idly.** There's too much at stake.

Use the fast facts below to communicate to your friends, neighbors, co-workers, and of course your elected representatives, the many benefits CTA helps provide the American taxpayer. NACD has requested that Congress fund the Conservation Operations account at \$865 million in Fiscal Year (FY) 2018.

The primary conservation benefits of CTA are:

- Reduced soil loss from erosion
- Improved water quality, water conservation, air quality, and agricultural waste management
- Reduced potential damage caused by excess water and sedimentation or drought
- Enhanced quality of fish and wildlife habitat
- Improved long-term sustainability of all lands, including cropland, forestland, grazing lands, coastal lands, and developed and/or developing lands



These benefits are possible because CTA supports conservation planning, which increases the voluntary adoption of the:

• Right conservation systems

5

- Right system integration and implementation into the landscape
- Right amount/extent of inputs and practices

Information provided by NACD • 509 Capitol Ct NE • Washington, DC 20002 • (202) 547-6332 • www.nacdnet.norg

What is CoCoRaHS?

Precipitation is always a topic of conversation and concern in agricultural communities and rightly so. Did you get any rain at your place? How much? Too much! How much? Not enough. How much? 60 hundredths. How much? A trace. If you don't get a chance to confer with your neighbors on yesterday's rainfall, check the CoCoRaHS website for accurate, timely measurements from all around the county, state, and country. Even the Bahamas are now part of the CoCoRaHS network!

CoCoRaHS is an acronym for the Community Collaborative Rain, Hail, and Snow Network, which

originated with the Colorado Climate Center at Colorado State University in 1998, in part due to the flooding in Fort Collins that year. Kansas was the 3rd state to join the network, which now boasts thousands of volunteers nationwide.

CoCoRaHS is a community project, open to all ages. It requires only enthusiasm for watching and reporting weather and a desire to learn more about how weather affects **our lives. And a specific rain gauge, but we'll** get back to that later!

Each time a rain, hail, or snow storm occurs, CoCoRaHS volunteers take measurements of precipitation from locations across the United States. The precipitation reports are recorded on the CoCoRaHS website (www.cocorahs.com). That data can then be

accessed by thousands of users: National Weather Service, meteorologists, hydrologists, emergency managers, public utilities, insurance adjusters, the USDA, engineers, mosquito control, farmers and ranchers, and neighbors, just like you, wondering "How much?"





Interested in volunteering? Check out the CoCoRaHS website for details and required equipment. The Dickinson County Conservation District will be selling CoCoRaHS approved rain gauges for \$32 beginning in early August.

11th Annual Water Fest

Each year, the Lower Lower Smoky WRAPS (Watershed Restoration and Protection Strategy) group hosts a Water Fest for Dickinson County 4th graders. The Dickinson County Conservation District is committed to educating the youth in our communities on the importance of water and soil conservation. We help sponsor the event each year and participate in the activities.

The 11th Annual Water Fest was held at Brown's Park near Abilene. Over 80 volunteers hosted more than 265 Dickinson County students in multiple conservation-related activities, including Environmental CSI, creating an Edible Aquifer, building a landfill, and constructing a watershed.

The event concluded with lunch at Bob (Muddy) Water's Campfire Ring and a wildlife presentation from the Milford Nature Center. (Turn the page for photos of the event.)



11th Annual Water Jest



See a student you recognize? Head on over to our Facebook page to see more pictures.

dkcoconservation

11th Annual Water Jest













Our thanks to Janet Meyer, WRAPS Coordinator, for all she does for the youth of Dickinson County!

Improving Soil Health to Extend the Ogallala Aquifer



**Dale Younker, Soil Health Specialist** 

There has been a lot of talk recently about the use of the Ogallala Aquifer in western Kansas and how long the water will last. Since large scale irrigation development over 50 years ago, more water has been taken out of the aquifer than has been replaced by recharge. This "mining" of the water has resulted in significant declines in the water table over most of the region where the aquifer lies under it. Many irrigation wells, that were once high producing wells, have been shut down and plugged because the water is no longer there to pump.

The economy in this region depends of the water that is pumped from the Ogallala Aquifer. Currently, irrigated crops provide the majority of the grain and forage for ethanol plants and livestock operations including feedlots, dairies, and hog operations. These businesses must have a close, reliable grain and forage source. These businesses, including the industries closely tied to them like meat packing and dairy processing plants, provide a good majority of the jobs in the area.

So the question is how to continue to grow the crops needed to support the region's economy with less, or in some cases, no irrigation water. Recently there has been a we talk about the sustainability of our vital water resource real push by local, state, and federal governments to encourage producers to adopt new irrigation technologies such as subsurface drip irrigation that significantly reduces the amount of irrigation water to grow the crop. Researchers are exploring new crop rotations where less water use crops, like grain sorghum, are part of the rotation. But one thing not being talked about is how improving soil

health could help us grow crops with significantly less water.

If the ground is kept covered with residue and crop canopy, the energy from a drop of water, either from rain or irrigation, will be dispersed and not displace soil particles that would seal the soil surface. This allows more water to infiltrate down the soil profile. Heavy residue canopy cover also helps to reduce soil evaporation rates allowing more efficient water storage in the soil. Keeping the soil covered has the added benefit of weed suppression that would otherwise use water needed by crops. Reducing soil disturbance will keep more cover on the surface and won't disrupt the soil aggregates that are vital to the free movement of water and air through the soil profile. Keeping a living root in the soil as much as possible will help feed the living creatures in the soil which in turn will help improve soil aggregate stability and help provide macro pores that will allow water to more easily enter the soil. Adding diversity to the system, either with cash or cover crops, will more diversify the soil biology, which in turn will improve the soil nutrient and water cycles.

In the Ogallala Aquifer region everything revolves around water. New irrigation technologies will help save water, but unless we get our soils in condition to capture and store rain and irrigation water more efficiently, it will not be enough to stabilize or increase the water tables. Improving soil health needs to be on the top of the list when and the region's economy.

For more information, visit the Kansas NRCS Web site www.ks.nrcs.usda.gov/programs or your local U.S. Department of Agriculture (USDA) Service Center. To find a service center near you, check on the Internet at offices.usda.gov. Follow us on Twitter @NRCS Kansas. USDA is an equal opportunity provider, employer, and lender.

Create An Edible Aquifer



water, and through which significant quantities of water move. The water contained in these underground spaces is called ground water. Ground water is withdrawn from wells to provide water for everything from drinking water for the home and business, to water to irrigate crops, to industrial processing water. Examples of aquifers include: sand and gravel layers; fracture systems in brittle rocks; and fracture systems or solution cavities in easily dissolved rocks, such as limestone. Aquifers have connected pores or open fractures through which fluid may flow. More than 1.8 million people rely on the Ogallala Aquifer in Kansas for their drinking water. The Ogallala Aquifer also supplies nearly 1/3 of America's agricultural groundwater.

Pollu

lution

An aquifer is any rock or sediment with spaces that hold

- High hydraulic-conductivity aquifer
- Low hydraulic-conductivity confining unit
- Very low hydraulic-conductivity bedrock
- ▶ Direction of ground-water flow

Supplies:

11

Clear drinking cup (12 oz. or larger) Chocolate chips Clear soda (Sprite or club soda) Vanilla ice cream Multicolor sprinkles or small candies Chocolate Syrup Drinking straw Chocolate sprinkles

- 1. Place a layer (about 1/3 of the cup) of chocolate chips in the bottom of the cup to represent rocks underground in the aquifer.
- 2. Pour soda into the cup until the 'rocks' are just covered. This represents ground water.
- 3. Add a layer of ice cream to represent the confining layer that helps restrict contamination of the aquifer. Pack it down, edge to edge but not so much the 'water' rises.

Rainy Day

Activity

- 4. Add chocolate sprinkles to the top to represent soil.
- 5. Drill a well with the straw into the center of the 'aquifer.' Sip the liquid to simulate a well by using the straw to 'pump' water from the aquifer.
- 6. Add chocolate syrup and multicolor sprinkles or candy to represent contaminants like oil, gasoline, household chemicals, and pesticides.
- 7. Pour soda at the top to **represent rain that flows through the soil and 'recharges' the aquifer.** What happens to the 'contaminants?' What can you do to prevent contamination of our water supply?

Aquifer Word Search

E FEMSOIPOEUCEGDYW D F X B RN J Y B S S 7 F B U Τ. N B Τ. S B Π J N v R T 7 E 0 C G U 5 т S G T. T. A L C 0 F т F л T J R Τ S S R Τ N Y х B Т т F т G C C R F Y Δ Τ. F Τ. B F т т U H Τ. N M Τ. E T H P F R M F Δ B т Τ. Т T Y KE Α D E P B H W L U S Z Т J л D R F म Т. R Δ т Δ A R Y G R E H D R 0 L 0 T C C Y C L E Т E F R 0 D F Ŧ L Δ Т B S P В C E G A S G B B т P х Т R H P R 0 т E C Т R Τ. E Τ. E A D т т Ι Ι Ε Α Α J E Ι S Y N E Z H D F P M 0 N 0 RMM Т U 0 Τ. J Y J F D F N H B K B R 0 Y G х R B B т E N Т A Ι Y т т N G N 7. E F D F S т N Π E T K T. т Y Π U G H TT TT 0 N Δ N Z F P v т 0 T E 0 0 0 7 J N J E B 0 0 S т S P R X H YOR 0 E M Α D C N W F 0 R O N N Т S 5 E N 0 C T F N D т N E R G P Α 0 0 E F 0 N M D D т т S T OM Α т E E E т Α N H L Y R 0 Т D т A S В N D L C L R K R E Т 0 A Δ J т D A T A s Ι Т YW I S E I C E т R K 0 v W R R U S C F D S E F U S E F K C F D U X т E H T. NMNT E NARC т S Y P D R R D Δ Y 0 0 0 BDACAGONRBW UHOA Y B JH 0 E M G D W T. Α W JM PWYOOA ы M Z V K V L U G Z VYC OOP F SJG U Z PF SSTQGFRSF N B X V K X J U R GI 0 B JH S T E C M A SILOHGNNO E R P U M K S F F M A W G LCYL R V XI JX R UANPEA KIDW v Z S 0 G C R A I Q G G K E VKX R Q H M K I Y S H E F R N Q R E T U U F N F R F T C Q V T N

# Protect Our Aquifers

WORD LIST Aeration Zone Aquifer Cone of Depression Confined Aquifer Confining Layer Depletion Discharge Discharge Zone Drawdown Flowrate Groundwater Hydrologic Cycle Impermeable Layer Infiltration Infiltration Rate Monitoring Well Overwithdrawal Permeability Permeable Permeable Layer Plume Pores Pore Space Porosity Recharge Recharge Zone Recharge Zone of Area Remediation Residence Time Safe Yield Saltwater Intrusion Saturation Zone Subsidence Surface Water **Unconfined Layer** Water Table Well Well Closure Wellhead Protection Area Well sitting

We all use chemicals in our homes. Some chemicals can be safely disposed of during use down the household drains. Other chemicals, such as paints, solvents, or surplus pesticides, should be disposed of carefully and with great consideration for the environment. Doing otherwise may lead to those chemicals passing through the soil or water drains and contaminating our precious water.

Our aquatic environments include rivers, streams, lakes, underground aquifers, and oceans. These bodies of water receive runoff from urban areas, farmland, and industrial areas. Household chemicals that are improperly disposed of could affect our drinking water, wildlife, food supply and recreational bodies of water, such as swimming pools and lakes.



## What can you do?

- Take all unused paints, solvents, and pesticides to a household chemical disposal site. If you don't know the closest disposal site is located, contact the Dickinson County Environmental Services for information at (785) 263-4780.
- Don't litter and never dump household chemicals in your drains or yard.
- Check your house, garage, or shop for paints, solvents, and pesticides that may have leaking or damaged containers and dispose of properly.
- Switch to environmentally friendly household products, such as vinegar instead of bleach, all-natural toiletries, or biodegradable soap.

Local NRCS Studies Show Good Moisture Retention with Cover Crops

### Bill Schroter, Civil Engineer Technician

It is always interesting to listen to farmers and their individual perspective on cover crops and why they do or don't have a place in their rotation. The one biggest factor that farmers cannot control is rainfall. So controlling moisture becomes even a bigger concern on whether the cover crop will use all the available moisture that is being stored for the cash crop. The Natural Resources Conservation Service (NRCS) has been doing moisture studies 2014 and was terminated on June 18, 2014. Wheat was then throughout the area where there is cover planted in a field with a strip in the middle not planted to cover to see the difference in available moisture. One study in Trego County over a 3 year peri- was planted in June of 2016 and harvested in October. As you od shows how cover crops don't impact soil moisture.

Below are the results from one such study. The columns labeled 'non' are check strips where no cover crop was planted. Readings are taken once a month at one foot intervals from 0.5' to 4.5' in depth. The readings that are being given are expressed in per-For more information, visit the Kansas NRCS Web site the soil but the plant is not capable of extracting this moisture. you, check on the Internet at offices.usda.gov. Follow us on Twit-This would be considered the permanent wilting point of the ter @NRCS\_Kansas. USDA is an equal opportunity provider, emplant. A reading of over 100 percent can also be given which ployer, and lender.

would indicate the soil is fully saturated and cannot absorb any more moisture. According to a 2009 article written for the Central Plains Irrigation Conference, plants will start to show stress with 50 percent available moisture.

The tables below represent the study completed in southern Trego County in the years 2014, 2015, and 2016. The soil on the study was Carlson Silt Loam. A cover was planted in the spring of planted into the cover in the fall of 2014. After wheat harvest in 2015 the wheat stubble was sprayed and kept clean and milo can see, it appears there was adequate moisture at both sites. If you would like to have one of these studies take place on your farm and see the results first hand, please contact your local NRCS office.

centage of plant available water in the soil. A reading of below www.ks.nrcs.usda.gov/programs or your local U.S. Department of zero can be given which would indicate that there is moisture in Agriculture (USDA) Service Center. To find a service center near

	/ 1/4 east	Plant Available Moisture % (using silt loam) Trego Co. R Rd. & 300th / 1/4 east								Plant Available Moisture % (using silt loam)						
	nple Depth	Sample [	4.5'		3.5'		2.5'		.5'	1.	0.5'					
		on	Non	Cover	Non	Cover	Non	Cover	Non	Cover	Non-east	Cover				
3/25/2014	ith	South			83.8	3.1	16.7	0.0	6.0	8.1	82.7	75.4				
4/25/2014					65.1	16.4	41.5	8.6	38.6	12.9	87.6	65.8				
5/29/2014		68.7	68.7	29.2	67.2	24.6	47.6	18.2	52.3	45.2	101.2	77.2				
7/9/2014		70.0	3 70.0	31.8	77.1	72.7	98.7	84.3	103.1	83.5	108.8	101.9				
8/6/2014		75.8	5 75.8	52.6	83.3	68.1	95.8	75.5	96.3	77.1	94.5	89.1				
9/9/2014		80.5	80.5	66.0	86.2	74.9	97.0	81.0	102.4	82.1	106.5	99.0				

2014

	PI	ant Availat	ole Moistu	ire % (using	g silt loam	)	-				
0.	0.5'		1.5'		2.5'		3.5'		1	Sample Depth	
Cover	Non-east	Cover	Non	Cover	Non	Cover	Non	Cover	Non		
78.5	78.6	73.8	76.2	68.7	64.4	60.4	59.4	53.8	52.2	South	3/10/2015
63.2	74.4	72.9	70.4	65.7	58.5	61.2	59.7	53.8	54.1		4/10/2015
73.6	66.3	53.7	47.0	52.9	39.1	49.8	42.8	52.4	40.3		5/15/2015
82.0	79.0	77.7	59.3	60.4	41.0	52.7	38.5	51.9	35.5		6/5/2015
58.7	61.1	58.7	44.6	48.5	25.5	43.6	27.1	45.5	27.4		7/7/2015
92.9	97.8	71.9	72.9	52.8	40.3	46.2	32.4	48.5	32.1		7/31/2015
81.3	90.1	74.9	73.3	68.2	55.6	58.4	36.6	47.0	31.4		9/4/2015
77.5	80.3	73.0	74.8	66.4	54.8	59.3	41.4	48.9	32.4		10/6/2015

#### 2015

				Plant Available Moisture % (using silt loam)								
	nple Depth	4.5'		3.5'		2.5'			1.5	5'	0.5'	
		Non	Cover	Non	Cover	Non	Cover	Non	Cover	Non-east	Cover	
2/29/201	uth	57.2	66.3	73.2	78.5	73.1	83.5	81.5	85.6	89.5	94.8	
4/5/201		51.3	63.0	58.7	66.9	58.1	70.3	70.1	74.1	68.5	77.0	
6/9/201		75.9	58.3	78.6	70.8	87.3	82.6	95.4	87.7	93.8	88.6	
7/7/201		72.9	54.4	80.7	68.6	77.8	79.9	87.9	84.8	87.0	87.7	
8/10/201		55.2	39.4	50.6	49.4	52.3	48.1	61.6	49.6	94.3	91.6	
9/20/201		37.4	22.9	27.2	23.4	24.6	28.9	43.0	40.4	62.8	54.6	
10/11/201		34.6	11.4	23.9	17.4	24.3	24.5	38.1	37.2	41.9	43.5	

2016



(785) 263-1920

(800) 249-1920

Fax (785) 263-7933

Cell (785) 479-6196

DOUG SMART





SHARP BROTHERS SEED COMPANY 1005 SOUTH SYCAMORE STREET HEALY, KANSAS 67850

(800)462-8483

Trusted Choice







(785) 263-3037



**Conservation Connections** 

## Conservation District Services

### Equipment Rental and Sales

The Dickinson County Conservation District provides conservation equipment rental service to area landowners. Contact Cindy Dooley at 785-263-2787 extension 332 to schedule your rental.

Great Plains No Till Drill Delivered: \$50 Delivery Fee + \$15/Acre First 1/2 Acre Free Customer Pickup: \$15/Acre \$80 Minimum

Truax Grass Seed Drill Delivered: \$40 Delivery Fee + \$11/Acre First 1 Acre Free Customer Pickup: \$11/Acre \$40 Minimum Drip Torch \$100 Deposit \$5/Day 1st 3 Days \$25/Day After 3 Days

**NEW!** CoCoRaHS Rain Gauge—\$32

**30" Wire Stem Marking Flags**—Fluorescent Pink 100 for \$10.00 or 1000 for \$100.00 (\$10 minimum)

### NOTARY PUBLIC SERVICE AVAILABLE

Funding to produce this newsletter is provided in part by the Division of Conservation through appropriation from the Kansas Water Plan.

The Dickinson County Conservation District prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status.

Dickinson County Conservation District 328 NE 14th Street Abilene, KS 67410