

TWIN CREEKS SPOTLIGHT

K-STATE | Twin Creeks
Research and Extension | District

NOVEMBER & DECEMBER 2021



"Food Safety Tips for Holidays"

The holidays are almost here! Start planning now for menus, number of guests, and other details.

Keep food safety in mind to keep the uninvited guest of foodborne illness from ruining a great meal. Follow these simple tips to help prevent food poisoning, or foodborne illness, during the holidays.

Cook food thoroughly Meat, chicken, turkey, seafood, and eggs can carry germs that cause food poisoning. Use a food thermometer to ensure these foods have been cooked to a safe internal temperature. Roasts, chops, steaks, and fresh ham should rest for 3 minutes after you remove them from the oven or grill.

- [Keep food out of the "danger zone."](#) Bacteria can grow rapidly in the danger zone between 40°F and 140°F. After food is cooked, keep hot food hot and cold food cold. Refrigerate or freeze any perishable food within 2 hours. . The temperature in your refrigerator should be set at or below 40°F and the freezer at or below 0°F.
- [Use pasteurized eggs for dishes containing raw eggs.](#) [Salmonella](#) and other harmful germs can live on both the outside and inside of normal-looking eggs. Many holiday favorites contain raw eggs, including eggnog, tiramisu, hollandaise sauce, and Caesar dressing. Always use pasteurized eggs when making these and other foods made with raw eggs.
- [Do not eat raw dough or batter.](#) Dough and batter made with flour or eggs can contain harmful germs, such as [E. coli](#) and [Salmonella](#). Do not taste or eat raw dough or batter that is meant to be baked or cooked This includes dough or batter for cookies, cakes, pies, biscuits, pancakes, tortillas, pizza, or crafts.



(continued on page 2)

(continued from page 1)

Do not let children taste raw dough or batter or play with Dough at home or in restaurants. Some companies and stores offer edible cookie dough that uses heat-treated flour and pasteurized eggs or no eggs. Read the label carefully to make sure the dough is meant to be eaten without baking or cooking.



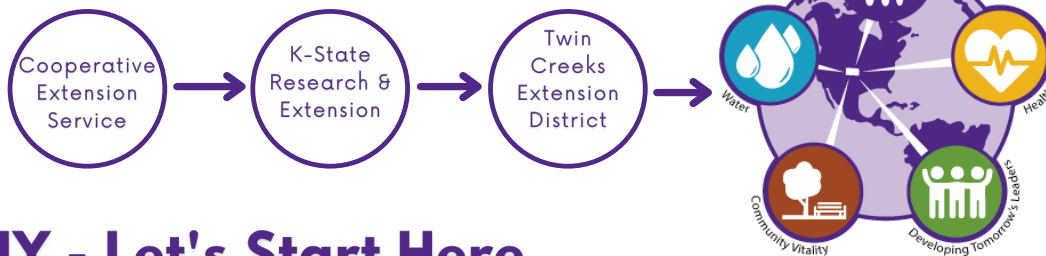
- [Keep foods separated](#) Keep meat, chicken, turkey, seafood, and eggs separate from all other foods at the grocery store and in the refrigerator. Prevent juices from meat, chicken, turkey, and seafood from dripping or leaking onto other foods by keeping them in containers or sealed plastic bags. Store eggs in their original carton in the main compartment of the refrigerator.
- [Thaw your turkey safely](#) Thaw turkey in the refrigerator, in a sink of cold water (change the water every 30 minutes), or in the microwave. Avoid thawing foods on the counter. A [turkey must thaw](#) at a safe temperature to prevent harmful germs from growing rapidly.
- [Wash your hands](#). Wash your hands with soap and water during these key times when you are likely to get and spread germs:
 - **Before, during, and after** preparing food
 - **Before** eating food
 - **After** handling pet food or pet treats or touching pets
 - **After** using the toilet
 - **After** [changing diapers or cleaning up a child who has used the toilet](#)
 - **After** touching garbage
 - **Before** and **after** caring for someone who is sick
 - **Before** and **after** treating a cut or wound
 - **After** blowing your nose, coughing, or sneezing



Who, What, Why OF TWIN CREEKS EXTENSION



The Cooperative Extension System is a partnership between federal, state, and local government to bring research-based, unbiased education to our local communities. This system is operated through the land-grant universities in each state, so here in Kansas, we operate through Kansas State University. Every county in the country is required to have Extension by federal law. ***In order to have local programs like 4-H, Walk Kansas, Stay Strong Stay Healthy, wheat schools, calving schools, and more, you must have Extension.***



WHY - Let's Start Here



Why start with why, you may ask. However, the "why" of Extension is the easiest question to answer. All our Extension programs, initiatives, and partnerships have one goal in mind - to provide unbiased information and assistance to Kansans so together, we can make our communities better places to live, work and play. Whether this occurs for our youngest citizens in a 4-H project meeting focused on how to measure ingredients for a recipe or our oldest citizens in a Stay Strong Stay Healthy class focused on improving balance and mobility, the PEOPLE we help are the "why" of Twin Creeks Extension.

WHO - It's a partnership!

BOARD MEMBERS

Twin Creeks Extension District serves the citizens of Decatur, Graham, Norton, and Sheridan counties in Northwest Kansas. Our Extension Board is made up of four elected members from each county who voluntarily serve as the leadership for our local Extension program. The board members are responsible for drafting and approving budget, hiring and evaluating Extension Agents and support staff, monitoring monthly financials, guiding programming, and much more. In addition to board members, the Program Development Committee (PDC) consists of 24 citizens from each county that help identify needs and pertinent educational efforts.

STAFF

In the Twin Creeks District, we have 5 Extension Agents, 2 part-time 4-H Program Assistants, and 4 specialized Office Professionals. Each person is specialized for their job and plays an integral role in our Extension program.

(continued on page 4)

(continued from page 3)

4-H Program Assistants

Dana Geisinger, *Sheridan & Graham County*
Molly Maddy, *Decatur & Norton County*

Office Professionals

Shelly Holland, *Newsletter*
Donna Newell-Culley, *Marketing*
Pam Simonsson, *Financials*
Crystal Tatkenhorst, *4HOnline*

Extension Agents

Jenilee Godsey, *Youth Agriculture*
Patsy Maddy, *4-H Youth Development*
Alyssa Rippe-May, *Interim District Director,
Livestock & Farm
Management*
Karen Shepard, *Family & Consumer Sciences*
Keith VanSlike, *Agronomy & Natural
Resources*

WHAT - Educational Programs & Initiatives

Through staff specialties, we offer an array of educational programs and services, as well as provide volunteer and organizational development opportunities. Our programs fall into five main areas set to address specific needs of Kansas. Here are some of our highlights!



Health Programs such as the Simply Produce program, which provides 15 pounds of fresh produce for only \$15 through a partnership with the local grocery store. In the Twin Creeks District, over 500 participants have received fresh produce to date.



Global Food Systems Programs like the Calving School, where participants see different calving difficulties and get hands-on practice managing them. Since 2016, over 140 producers have attended this program.



Water & Natural Resources Programs such as the annual Cover Your Acres conference where 400-600 producers annually hear about the latest developments and research in no-till farming practices. As part of the conference, a large agriculture trade show is also available.



Developing Tomorrow's Leaders Programs like the Twin Creeks District 4-H program, providing a positive environment for youth to learn life skills from their community in a family-friendly setting. In 2021, the TCD 4-H program had 366 enrolled youth and 108 year-round volunteers.

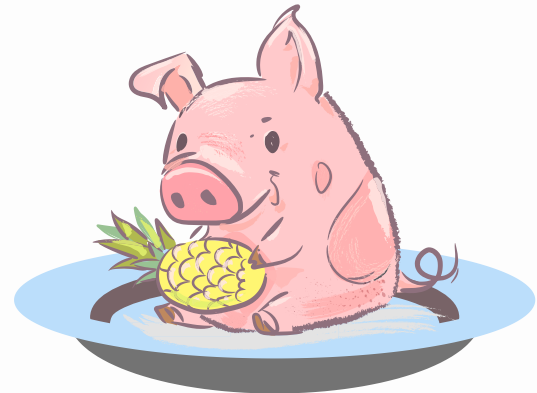


Community Vitality Programs such as the Leadership Norton County and Leadership Graham County programs. You'll also find Extension staff and board members serve and partner with many organizations in our communities, such as PRIDE groups, Farm Bureau Associations, community gardens, farmers' markets, and more.



Meat the Future

Written By: Jenilee Godsey
Youth Agriculture Agent



"Where Does Our Food Come From?"

Are you familiar with where your food comes from? Anymore, it's hard not to notice the interest consumers have in their food. Although there are less people directly involved in production agriculture, consumers are questioning the safety of their food, the source of their food, and how it was produced now more than ever. A poll in 2011 by the National Grocers Association showed that 85 percent of consumers prioritized grocery stores that stocked food from area producers. (Michigan State University Extension, 2014)

As I was growing up, it was always difficult to understand how my classmates could be so unsure of where the food on their tables had sourced from. I grew up on my family's farrow-to-finish hog operation in Southwest Missouri. My grandmother had started the operation as a 4-H project for my uncle, years before my mother was born. The family farm also consisted of wheat, corn and soybean production, as well as a cow-calf operation which was taken on by my uncle. As I was nearing 4-H age, my parents joined in partnership with my uncle in the swine operation.

From a very young age, I learned first-hand the labor involved in running a sixty sow farrow-finish operation. I helped grind feed, check sows for heat cycles, vaccinate, farrow, fix water leaks, clean pens . . . you name it, I was involved. And, because of my involvement in the operation, I was able to show pigs through 4-H. Showing livestock brought me a whole new level of appreciation for the industry, and a passion that would continue to develop as I aged. I quickly began to enjoy learning about different breeds, studying genetics, and learning the importance of proper feeding. By the time I was in high school, there was no doubt in my mind that I wanted to obtain a career in agriculture.

After graduating high school, I attended Fort Scott Community College on a Meat Judging Team Scholarship. It was during this time that I not only learned how to determine the quality of meat, but how important a high quality of meat could be to both consumers and producers.

After reading about my background, it's not difficult to understand where and how I developed my knowledge and passion for the agriculture industry. I learned about my food source through everyday life, through college education, through my own determination to research and study a field that intrigued me. However, that is not a common background for a majority of youth in today's society.

I recently read an internet blog that did a great job of describing what I see in today's youth. In this blog Jane Powell says, " There is something inherently democratic about food. We are all equal in our need for it. Sitting around the table for a meal reminds us that we all deserve to eat, and that we have an obligation to ensure that others can too.

(continued on page 6)

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Studying the food chain cuts through the notion that we are self-made individuals, and reminds us of our interdependence." Powell goes on to talk about how we, as a nation, rely on a world full of farmers, ranchers, supermarket employees, cooks, veterinarians, scientists and even transportation employees. Often times we forget that ultimately alike we depend upon a healthy soil, weather, pollination, and the rest of the biosphere to keep everything working correctly. (Powell, 2017)

Powell states, "On a farm visit, children encounter the natural world, appreciating the compromise between human needs, animal welfare and wildlife. When they make the connection between farm animals and the food chain, or see the uncultivated margin around a cereal field where wildflowers and insects flourish, or learn how drought and flooding can destroy crops, they see the tough decisions that need to be made if we are to feed ourselves. Back in school, following crops such as broad beans and potatoes from seed to plate, they gain skills and confidence as they learn to partner with the rhythms of the seasons. The enthusiasm and earnestness with which some children will plant, weed and dig in the school garden suggests they are gaining something more necessary to them than exam results."

So how do we as a community (and as a nation) ensure that our children understand the importance of production agriculture? How do we ensure that our children have the knowledge necessary to provide themselves with a safe and healthy food source? It is in our hands to provide our youth with the education that often times isn't offered in their existing everyday life. Teaching our children that milk comes from cows, not a grocery store. Teaching them that farrowing crates in a swine operation save piglets and gives them the opportunity to grow a healthy food source for our people. Teaching children how to grow a tomato plant from seed to harvest. These are all ways that we restore a knowledge base among agriculture and safe, healthy food systems.



There are many opportunities for your local extension office to help our youth understand where their food comes from. Community and home gardens are an excellent way for kids to watch the entire process of vegetable production. Extension offers several different resources to start and maintain your garden. Local youth programs, such as 4-H, offers children the opportunity to not only develop social and leadership skills - but, project areas such as foods, horticulture, and livestock allow them to learn and practice production of many sorts. Local extension units and Farm Bureau Associations are always looking for

opportunities to engage with students within and outside of the classroom to teach them about where their food comes from.

Jenilee Godsey is a Youth Agriculture Agent for the Twin Creeks Extension District which covers Decatur, Graham, Norton and Sheridan counties. Email her at jenileem@ksu.edu or reach her by telephone at the Graham County Office, (785) 421-3411.

Risk Management Skills for Kansas Women in Agriculture

A statewide program to teach skills of determining cost of production, utilizing crop insurance, crop marketing plans, and government farm programs.



Jennings Senior Center
133 S. Kansas Ave., Jennings



Program Schedule

All Sessions begin with dinner at 5:30 pm and conclude by 8:30 pm.

January 12th, 2022:
Enterprise Budgeting

January 19th, 2022:
**Crop Insurance
Stress and Resiliency**

January 26th, 2022:
**Crop Marketing
Family Communication**

February 2nd, 2022:
Farm Bill Programs

Optional Session #5
Beef Cow/Calf Risk Management

February 23rd, 2022:
**Enterprise Budgeting
Cattle Marketing
Insurance Options**

Program Description:

This workshop series will teach principles of determining cost of production, developing a marketing plan, purchasing crop insurance, and participating in farm programs (ARC/PLC). Participants will work with a case farm to apply these topics to a real-world farming operation. An optional 5th session will cover similar risk management principles for beef cow/calf operations.

The program will be a combination of broadcasted keynote speakers, local speakers, and facilitators to assist in completing the hands-on activities. The goal is for participants to acquire risk management skills they can apply directly to their farming or ranching operations.

Registration Information:

\$50 registration fee will cover all meals and program materials if registered before Dec. 31st (\$75 late registration fee)
Add \$10.00 registration fee for optional 5th session

Register for the series by visiting:
www.AgManager.info under "Events"
or contact Twin Creeks Extension Office
785-475-8121.

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United States Department of Agriculture
National Institute of Food and Agriculture

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Roots & Chutes

Written By: Alyssa Rippe-May
Interim District Director &
Livestock and Farm Management Agent



"Hay Waste"

As the drought in our area continues and we move further into hay feeding season, it's time to start thinking critically about how we can make the most of the forage resources we have. As we all know, feed costs add up fast and are among the top, if not the top, cost for livestock producers. It's not just feed costs but harvested feed costs in particular that take dollars from our bottom line. We all know that a cow can harvest forage much more efficiently than we can with a swather and a baler. According to the University of Wisconsin, we only end up feeding an average of 65% of the standing crop we actually harvest due to waste during cutting, storage, and feeding. However, there are just times of the year where we have to bring the feed to the cow and we need that stored hay.



In general, most of us in this area are feeding large round bales. Though, the way we feed those bales can be vastly different between operations and Some of us are rolling out large rounds for our cows, some of us are using bale feeders, some of us are feeding ground hay in a bunk, and that's not the end of the list. between groups of cows on one operation. No matter how you're feeding hay this fall and winter, looking at ways to minimize the amount wasted during feeding can help out your bottom line.



Hay Feeders. According to research done at the University of Missouri, large round bales rolled out resulted in up to 45% of the hay being wasted due to trampling and fouling. If we're talking about today's prices of \$170 per ton for good quality alfalfa according to the latest Department of Agriculture Northwest Kansas Hay Market Report, that could mean we're wasting up to \$53.55 per 1400-pound bale every time we feed. I don't have to tell you that is going to add up in a hurry.

(continued on page 9)

(continued from page 8)

So, let's say you're using a bale feeder instead. In that original study, a bale feeder reduced the waste to just 9%. Back to our example in today's prices, that's only \$10.71, much easier on the pocketbook. However further research has shown that hay waste varies significantly depending on



the type of feeder you're using. According to work done at Michigan State University, feeders with an enclosed bottom resulted in much lower hay waste than open feeders. Open feeders, like a cradle or trailer, resulted in hay waste of 14.2% and 11.1%, respectively. Feeders with enclosed bottoms like a conventional ring feeder or cone feeder reduced hay waste to just 6.1% and 3.5%, respectively. Of course, initial cost plays a factor in hay feeder choice as well, but it may be worth penciling out the next time a new feeder is needed.

Hay Amount. Though feeding hay daily adds additional labor, it can also help limit waste. According to a study done at Purdue, providing a 4-day supply of hay rolled out instead of a 1-day supply resulted in cows needing 25% more hay over the feeding period. Overconsumption, trampling, and fouling can all be to blame. Just like you or I, a cow is going to eat what's tasty and what's in front of them. According to Dr. Rick Rasby of the University of Nebraska, 15-20% of that waste could be due to over-consumption. Looking at an average 1200-pound cow, she will consume an additional 4 pounds of hay every day that she doesn't really need nutritionally. You can easily see how that adds up multiplied over the entire feeding period and over multiple head of cattle.



Cows fed multiple days' worth of feed in one setting also have the potential to become picky eaters, feeding on the most palatable portions of the hay and leaving the remainder. This becomes a much larger concern when feeding hay with thick stalks such as sorghum-sudan.



In conclusion, there are a number of options to look at when thinking about reducing hay waste. Right now, during a time of high hay prices and low resources, some of these options may be more viable than in other economic settings. However,

being cognizant of the additional savings versus the additional costs can help you decide if some of these changes might fit your operation.



WE'RE HIRING!

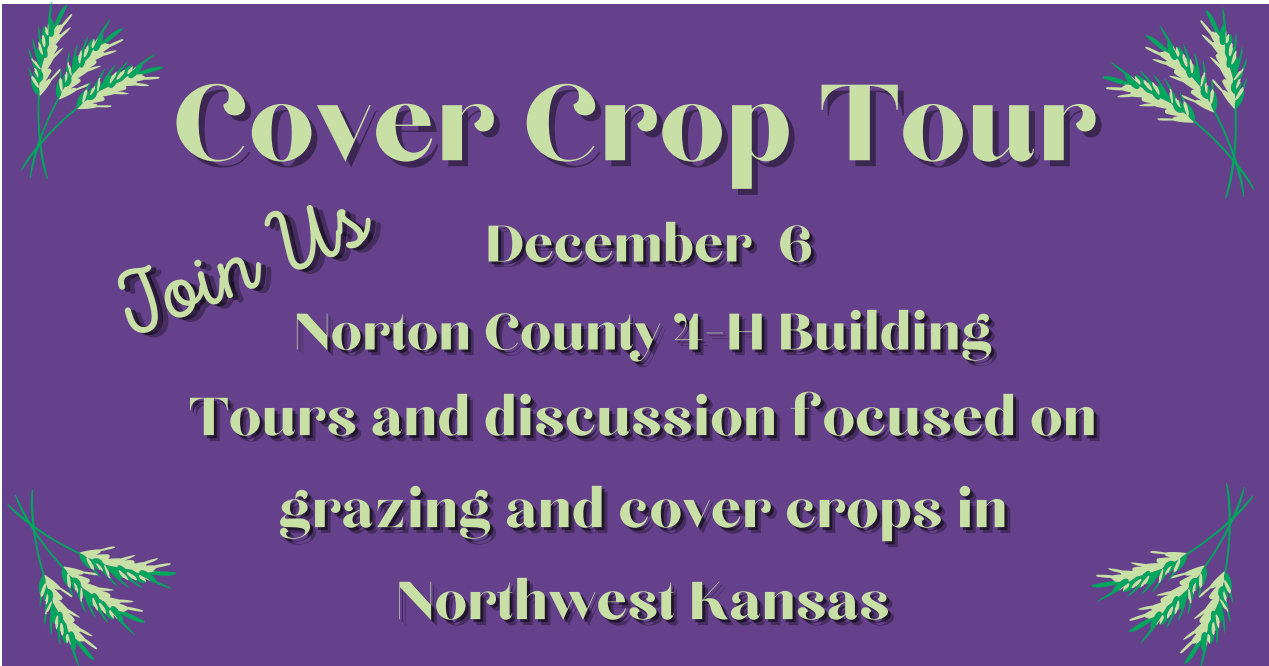
**Twin Creeks District
Extension Director**

www.ksre.ksu.edu/jobs

**APPLICATION DEADLINE
December 01, 2021**

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Cover Crop Tour

Join Us **December 6**

Norton County 4-H Building

**Tours and discussion focused on
grazing and cover crops in
Northwest Kansas**

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Chasing Clovers

Written By: Patsy Maddy
4-H Youth Development Agent



Thrive Model

The Kansas 4-H program has adopted the use of the Thriving Model for their 4-H program. Through this implementation, we should see our youth ‘thrive’ in becoming successful as they enter secondary education careers as well as adulthood.

The 4-H Thriving Model illustrates the process of positive youth development in 4-H programs by connecting high quality program settings to the promotion of youth thriving.

High quality 4-H program settings provide youth a place to belong, matter and explore their personal spark. High quality settings foster developmental relationships with youth, relationships that express care, challenge growth, and share power. These components help ensure that 4-H programs provide a nourishing developmental context – a place where youth can belong and grow.

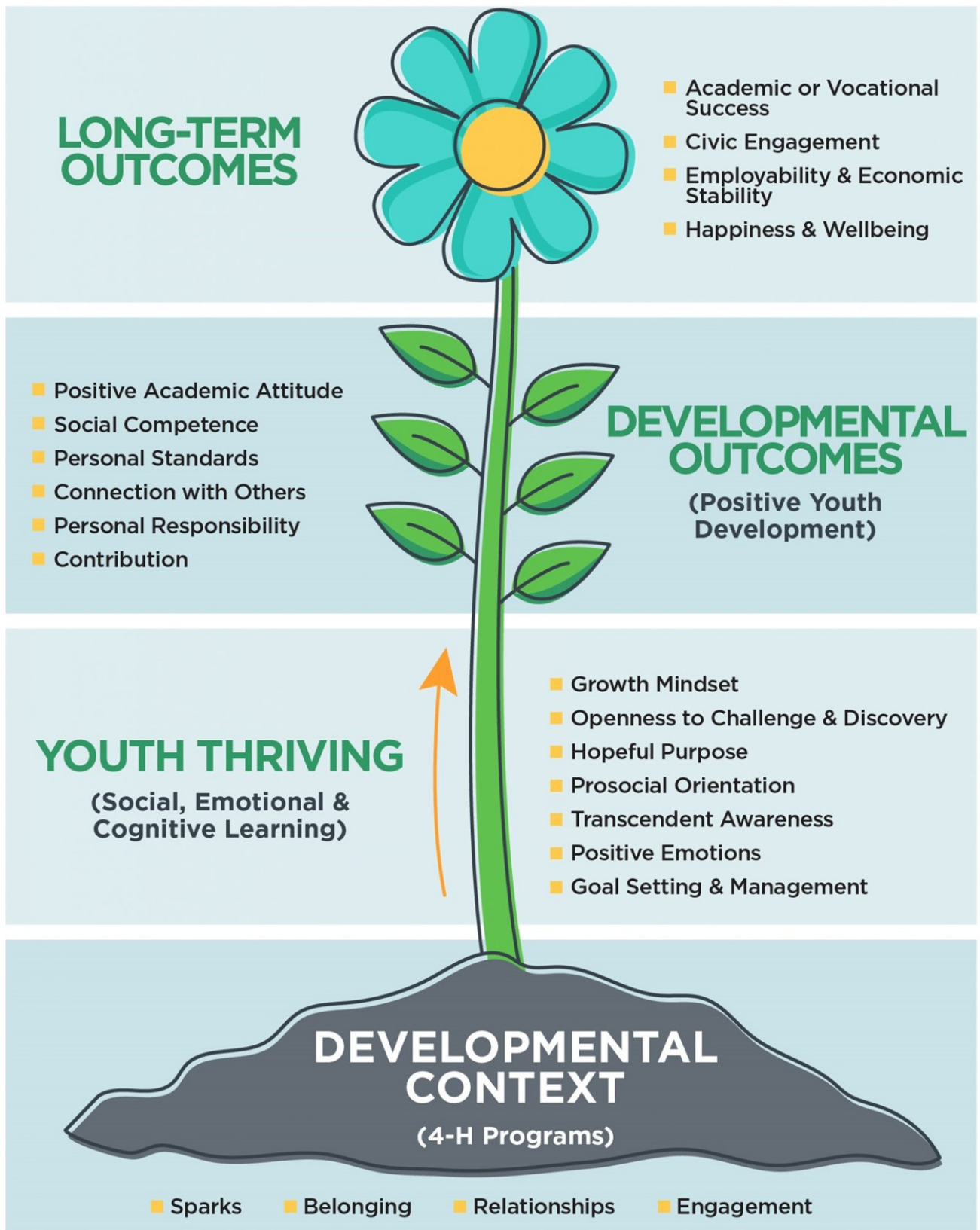
High quality 4-H programs contribute to PYD through the intentional promotion of social, emotional, cognitive and behavioral habits of mind. In the 4-H Thriving Model this process of PYD is described by seven indicators of thriving: Openness to challenge and discover, growth mindset, hopeful purpose, pro-social orientation, transcendent awareness, positive emotionality and self-regulation through goal setting and management.



Youth who experience high quality developmental settings in 4-H with an emphasis on these key social-emotional skills achieve key positive youth development outcomes, including academic motivation and success, social competence, high personal standards, connection with others, personal responsibility, and contribution to others through leadership and civic engagement. Youth who achieve positive developmental outcomes are more likely to also achieve long-term

outcomes marked by vocational or academic success, civic engagement, employability and economic stability and happiness and well-being.







Eating & Aging Well

Submitted By: Karen Shepard
Family Consumer Science Agent



Cut the Salt: FDA'S push a boost for healthier hearts

The [U.S. Food and Drug Administration's](#) recent request for food manufacturers and restaurants to cut the salt in their products is a positive step toward reducing Americans' risk of high blood pressure and heart disease, said a nutrition specialist at Kansas State University.

Sandy Procter said reducing salt intake by 12% over the next 2½ years – the FDA's recommendation – “could save thousands of lives.”

“As a country...we typically take in too much salt on a daily basis,” Procter said. “For years, nutritionists have advised individuals to eat less salt.”

And now, she adds, the FDA is joining the push.

“This problem is widespread and it is beyond the individual's capability to deal with,” Procter said, noting that putting away the salt shaker and limiting salt in cooking is not enough.

“For decades, nutrition professionals and educators have been urging people to use less salt. But that is not the message that is going to make a difference because there is so much salt in processed foods.”



The FDA reports that the average person in the U.S. consumes about 3,400 mg of sodium a day, approximately 70% of which comes from processed foods (not table salt). The goal is to reduce that average to 3,000 mg per day, though the [U.S. dietary guidelines](#) actually suggest 2,300 mg a day – equivalent to about one teaspoon of table salt.

Consuming too much salt is often associated with high blood pressure and heart disease. The [U.S. Centers for Disease Control and Prevention](#) lists heart disease as the leading cause of death in the U.S. for all adults.

Procter said consumers often don't realize that many common foods contain sodium. As an example, she mentions a simple sandwich for lunch: “Deli meat with cheese on bread, and mayonnaise or maybe mustard...all of those foods have quite a lot of salt in them,” she said.

(continued on page 14)

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"We have become accustomed to salt in food, and our taste for it has increased as more of our foods are purchased ready-to-eat. It's been added more and more by food processors throughout the years."

The FDA's recommendations are voluntary for food manufacturers and restaurants, but could promote changes at many popular fast food restaurants and food companies.

"Salt is one of those things we develop a taste for," Procter said. "We can get acclimated to less salt, but it's usually something that nutritionists recommend you do over time - don't try cutting excess salt out all at once."



"If food industries would take it back gradually and lower the amount of salt, as a population we probably wouldn't notice it in our food, and it would have far-reaching, positive health effects."

Aside from changes potentially coming in the food industry, Procter said consumers can take steps to reduce their own salt intake, including:



- Buy low-sodium food choices at the grocery store, when available.
- Taste your food before choosing to add salt. You may find you like it just as well without the salt.
- Use herbs and other spices to flavor foods.
- Add fresh or frozen vegetables to soups or other dishes to add low-salt sources of flavor. If using canned vegetables, rinse them first to reduce the salt content.
- Choose unsalted butter when baking.
- Ask for unsalted versions of food in restaurants, including french fries at a fast food restaurant.
- Reduce your portion sizes - less food equals less salt.

Procter also suggested eating more fresh fruits and vegetables, which are naturally salt-free and contain potassium.

"The amount of water that is retained in our bodies is due to a sodium-potassium pump," she said. "Eating more fruits and vegetables really helps with increasing the potassium, which offsets the amount of sodium held in the body."

"If we can lower the amount of sodium we are taking in, and increase the amount of potassium we take in by eating more fruits and vegetables, we are taking a healthy step and it's one of the most positive things we can do for our heart."





4-H Word Search



Just for Fun! Search for the words in the word bank to see if you can find things related to our 4-H program.

C	I	T	I	Z	E	N	S	H	I	P	U	I	T	P	A	C	X	K	S	O	D	Z	D	M
O	Y	J	W	S	M	F	E	B	F	R	M	R	R	G	J	L	Q	H	A	N	D	S	C	Z
M	T	D	C	O	M	P	E	T	E	N	C	E	E	W	G	U	M	S	P	A	R	K	H	K
M	K	J	O	S	C	O	M	M	U	N	O	T	A	C	G	B	F	P	U	C	K	S	A	Z
I	M	U	N	Z	P	X	F	Z	G	A	N	D	S	C	O	U	N	C	I	L	I	J	L	X
T	K	N	N	E	F	A	M	I	L	Y	F	V	U	U	R	O	R	R	R	O	G	J	L	M
T	G	I	E	M	W	X	T	K	I	W	I	I	R	R	U	B	U	C	A	V	K	N	E	C
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O	P	E	O	U	N	C	R	Q	I	Z	C	R	N	U	O	R	P	H	N	U	G	F	S	U
A	T	A	N	M	Q	M	G	H	S	X	E	E	F	L	N	S	J	Y	G	D	H	Z	G	N
L	W	D	B	K	W	Y	O	X	T	P	S	S	X	U	T	X	H	Y	L	I	W	P	U	I
S	V	E	Z	W	H	I	T	E	O	A	Z	I	P	M	R	H	T	N	E	H	M	R	D	T
Z	U	R	F	W	W	A	T	S	R	K	B	D	W	M	I	E	J	Y	A	E	B	E	N	Y
Y	N	S	J	R	P	P	W	Z	I	W	M	E	L	O	B	A	G	P	D	A	M	S	B	S
T	L	H	W	E	R	F	U	S	A	Y	Q	N	A	D	U	L	T	Y	E	D	C	I	N	E
B	K	I	K	P	I	I	A	D	N	O	X	T	H	S	T	T	I	X	R	F	C	D	C	R
E	X	P	U	O	A	H	N	N	I	U	Y	M	S	X	I	H	K	M	Q	K	A	E	U	V
F	Q	U	B	R	E	C	R	E	A	T	I	O	N	Z	O	R	O	H	Y	G	R	N	D	I
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Y	G	C	L	O	V	E	R	O	G	I	S	J	U	V	F	S	E	C	R	E	T	A	R	Y
Z	Z	A	Y	Z	V	A	T	P	A	R	L	I	A	M	E	N	T	A	R	I	A	N	W	A

(continued from page 15)

Can you find all these words in the puzzle?

ADULT
 CHARACTER
 CLOVERBUD
 COMMUNITY
 CONFIDENCE
 COUNCIL
 GOALS
 HEAD
 HISTORIAN
 PARLIAMENTARIAN
 PROJECT
 SECRETARY
 STEM
 VICE PRESIDENT

CARING
 CITIZENSHIP
 CLUB
 COMMUNITY SERVICE
 CONNECTION
 CURRICULUM
 GREEN
 HEALTH
 JUNIOR LEADER
 PLEDGE
 RECREATION
 SONGLEADER
 THRIVE
 WHITE

CHALLENGES
 CLOVER
 COMMITTEE
 COMPETENCE
 CONTRIBUTION
 FAMILY
 HANDS
 HEART
 LEADERSHIP
 PRESIDENT
 REPORTER
 SPARK
 TREASURER
 YOUTH

BEEF ACROSS KANSAS SERIES
'Ready for the Ring'

**JAN. 30TH
 2:00 PM**

Are you doing what it takes to be ready for the show ring?
 Join us as we learn about fitting and clipping, and hear from a panel of beef showman alumni on how they fine-tuned their showmanship skills!

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4-H **SHOWING**

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Views With Van

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Agronomy, Natural Resources,
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Considerations for Fall Applications of Anhydrous Ammonia



Applying anhydrous ammonia in the fall ahead of the next corn crop has some appeal to producers. For one thing, fall fertilizer application spreads out the workload so there's more time to focus on corn planting in the spring. Secondly, wet conditions in the spring sometimes prevents producers from applying lower-cost anhydrous ammonia ahead of corn planting and forces them to apply more expensive sources after planting. Equally important for many producers have been issues with anhydrous ammonia availability at times in the spring. Despite those advantages, producers should be aware that there is

potential for higher nitrogen (N) loss in the spring following a fall application, as a result of nitrification of the ammonium during late winter and very early spring and subsequent leaching, or denitrification.

Reactions of anhydrous ammonia in the soil

When anhydrous ammonia is applied to the soil, a large portion of the ammonia is converted to ammonium and can be bound to clay and organic matter particles within the soil. As long as the nitrogen remains in the ammonium form, it can be retained on the clay and organic matter and does not readily move in most soils except sandy soils with very low CEC, so leaching is not an issue.

At soil temperatures above freezing, nitrification occurs - ammonium is converted by specific soil microbes into nitrate-N. Since this is a microbial reaction, it is very strongly influenced by soil temperatures. The higher the temperature, the quicker the conversion will occur. Depending on soil temperature, pH, and moisture content, it can take 2-3 months or longer to convert all the ammonia applied in the fall to nitrate.

By delaying application until cold weather, most of the applied N can enter the winter as ammonium, and over-winter losses of the applied N will be minimal.

Average soil temperatures at this depth from October 21st through October 28th have been 54 degrees in this Twin Creeks District. The use of a nitrification inhibitor can help reduce N losses from fall N applications under specific conditions, particularly during periods when soil temperatures warm back up for a period after application.



(continued on page 18)

(continued from page 17)

When is Nitrogen Lost?



When considering fall application of N, keep in mind that loss of N during the fall and winter is not normally a problem in Kansas. The conversion of “protected” ammonium to “loss prone” nitrate during the fall and winter can be minimized by waiting to make applications until soils have cooled, and by using products such as nitrification inhibitors. The fact that essentially all the N may remain in the soil as ammonium all winter, coupled with our dry winters, means minimal N is likely to be lost over winter.

However, soils often warm up early in the spring and allow nitrification to get started well before corn planting. Generally, if the wheat is greening up, nitrification has begun! Thus, one of the potential downsides of fall application is that nitrification can begin in early March, and essentially be complete by late May and June.

Summary

If anhydrous ammonia is to be applied in the fall, there are a number of factors that must be considered, including soil texture, temperature, and soil moisture. Consider the following guidelines:

- Do not apply anhydrous ammonia in the fall on sandy soils.
- On silt loam or heavier-textured soils, wait to apply anhydrous ammonia until soil temperatures at the 4-inch depth are below 50°F.
- Use a nitrification inhibitor with anhydrous ammonia to help reduce fall nitrification.
- To check the soil temperature in your area, visit the K-State Research and Extension Weather Data Library at: <http://mesonet.k-state.edu/agriculture/soiltemp/>

2021 4-H Achievement Celebrations!

Norton County - November 7th - 1:00 p.m.
 Decatur County - November 7th - 5:30 p.m.
 Graham County - December 5th - 2:00 p.m.
 Sheridan County - December 5th - 6:30 p.m.

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WATCH FOR DATES & INFORMATION ON THESE UPCOMING PROGRAMS!

Ag & Natural Resources

- Wheat Pre-Plant School -- *Summer/Fall*

Youth Agriculture

- Beef Across Kansas Series
- YQCA (Youth for the Quality Care of Animals - Upcoming Spring of 2022
- Livestock Showmanship Clinic - Upcoming Spring of 2022
- HOSTA (Hazardous Occupational Safety Training Association) Upcoming April of 2022

To stay current on upcoming program dates, registration info, etc. follow us on Facebook and/or check our Twin Creeks District Website!

WE WANT YOU!

THE NEW 4-H YEAR STARTED OCTOBER 1ST... COME SEE WHAT WE'RE ALL ABOUT! **ENROLL TODAY!**

[HTTPS://WWW.TWINCREEKS.K-STATE.EDU/4-H](https://www.twincreeks.k-state.edu/4-h)

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Clover Corner



Statewide Dates & Deadlines

- November 6** Shutterbugs at Old Jefferson Town, Oskaloosa, KS
Registration begins at 8:30 a.m.
- November 4:** Registration Deadline for KYLF (Kansas Youth Leadership Forum) Open to Youth 14 to 18 years of age before January 1, 2022
- November 15:** 4-H Member Enrollment Deadline 2021-2022
- November 20-21:** KYLF (Kansas Youth Leadership Forum), Rock Springs Ranch

County Dates & Deadlines

- November 7:** Norton County 4-H Achievement Celebration, 1:00 p.m. Norton 4-H Building)
Decatur County 4-H Achievement Celebration, 5:30 p.m., Bohemian Hall
- November 15:** Decatur 4-H Council Meeting, 6:30 p.m., 4-H Building
- November 29:** Sheridan 4-H Council Meeting, 7:00 p.m. Sheridan Courthouse
- December 5:** Norton 4-H Council Meeting, 2:00 p.m. 4-H Building
- December 5:** Graham County Achievement Celebration, Graham 4-H Building
Sheridan County Achievement Celebration 6:30 p.m., Sheridan 4-H Building
- December 19:** Decatur 4-H Countywide Christmas Party, 3:00 p.m., Golden Age/Bowling Alley
- December 27-31:** All Twin Creeks District Extension Offices Closed for the Holidays

Note: Youth events are open to ALL youth (with Extension agent approval for youth not currently enrolled in the 4-H program). If you have a youth that is interested in an event please contact Patsy Maddy, Twin Creeks Extension District 4-H Youth Development Agent pmaddy@ksu.edu.

Go to the Twin Creeks District website at <https://tinyurl.com/qukdd97> for a complete listing of all activities and events at the local, district, area and state levels.

K-State Crop Pest Management Schools

December 8 – Colby
City Limits Convention Center
2227 S Range Ave

December 9 – Great Bend
Knights of Columbus Hall
723 Main Street

December 21 – Virtual

Register at www.sunflower.ksu.edu/agronomy

December 8 and 9 Schools

Cost is \$50, if registered by December 1. After Dec 1, cost is \$75 and register at the door

December 21 School

Cost is \$75



Credits:

1A Commercial Applicators: 7 credits and 1 core hour have been applied for

Certified Crop Advisors: 8 pest management credits have been applied for

Topics and Speakers

- Getting the Most from Your Herbicide Application
- Identifying and Controlling Common Corn Insects
- Combatting Corn Diseases
- Weed Research Update
- Common Weeds – Identification and Characteristics
- Wheat Diseases And their Prevention/Control
- Research Update on Herbicide Applications
- Kansas Regulations

- Dr. Sarah Lancaster
- Anthony Zukoff
- Dr. Rodrigo Onofre
- Dr. Vipin Kumar
- Jeanne Falk Jones
- Dr. Kelsey Andersen Onofre
- Dr. Ajay Sharda
- KDA Representative

Schedules for each school:
www.sunflower.ksu.edu/agronomy

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