Straw bales are an intriguing option for Kansas home gardeners. Straw can serve as a gardening bed and growth medium. Kansas State University horticulture specialist Ward Upham says Kansans curious about straw bale gardening are living in a pretty good place to give it a try.

“What better place to try this than in Kansas, where we have an abundance of straw,” Upham said.

Straw bales are made from the stalks of such crops as wheat and barley and can give home gardens a boost, especially in areas where soil conditions are less than ideal for growing herbs and vegetables.

The small rectangular bales, about two feet high, can be used as raised beds in the yard so that no additional soil is needed. They can be placed just about anywhere, Upham said, even on concrete or asphalt. “Just make sure there is plenty of sun and watering is convenient,” he said.

Straw bales are different from hay bales, which are made from grass. Straw bales serve as both the gardening bed and a growing medium and is considered an inexpensive method for growing vegetables.

Upham says straw bales must first be conditioned for 10 days before planting. “Water the bales and keep them wet for three days,” he said. “The bale will start to heat up as it breaks down. Then, on days 4-6, sprinkle fertilizer on the top of each bale with 1 cup of ammonium sulfate or ½ cup of urea; and on days 7-9, continue fertilizing, but cut the amount in half.”

On the tenth day, he said, stop fertilizing but keep the bale moist. Check the heat on top of the bale daily after 10 days. “When the temperature drops below 100, your crops can be planted into the bale.”

He described two methods for planting:

- **Pocket method** – make a hole for each plant several inches deep and fill with a growing medium, such as well-aged manure, compost or potting soil.
- **Flat bed method** – cover the top of the bale with 3-4 inches of growing medium.

“Watering is the most challenging aspect of straw bale gardening,” Upham said. “The straw dries quickly, so if you can install a drip irrigation system on a timer, that is a good way to keep the bales wet. Gardeners may also use soda bottles or milk jugs to water by poking drip holes in the lid, filling with water, and then turning it upside down next to the target plant.”

As a guideline, the number of plants that can be planted in one bale:

- Cantaloupe: 2
- Cucumber: 3-4
- Peppers: 3-5
- Winter squash: 2
- Summer squash: 2-3
- Tomatoes: 2-3

Upham credited the extension horticulture program at Washington State University for an “excellent publication that includes much more detail and images” on straw bale gardening. That publication, Using Cereal Straw Bales in Home Gardens, https://pubs.extension.wsu.edu/Product/ProductDetails?productId=4446 is available free online.

**Straw Bale Gardening Pointers**

There has been growing interest in straw bale gardening. What better place to try this than in Kansas where straw is so abundant. First, some pointers.

- These are the “small” straw bales that are about 2 feet high and 3 feet long.
- Place the bale on edge so the twine doesn’t rot.
- Bales can be placed anywhere including concrete or asphalt. Just make sure there is plenty of sun and watering is convenient.
Bale Conditioning
- Water the bales and keep them wet for 3 days. The bale will start to heat up as it breaks down.
- On days 4, 5 and 6, sprinkle fertilizer on the top of each bale with 1 cup of ammonium sulfate (21-0-0) or ½ cup of urea (46-0-0). Water the fertilizer in. This speeds the decomposition process.
- On days 7, 8 and 9, continue to sprinkle fertilizer on each bale but cut the amount in half.
- Stop fertilizing on day 10 but keep the bale moist.
- Check for heat on the top of each bale for each day after day 10. When the temperature drops to below 100, the bale can be planted.

Planting
- Pocket Method: Make a hole for each plant several inches deep and fill with growing medium.
- Flat Bed Method: Cover the top of the bale with 3 to 4 inches of growing medium.
- The growing medium can be well-aged manure, compost or potting soil.

Number of Plants per Bale
- See above

Watering
Watering will be the most challenging aspect of management. The straw will dry quickly. A drip irrigation system on a timer can work well but may take some time to set up. Gardeners may also use soda bottles or milk jugs to water by poking drip holes in the lid, filling with water and then turning upside down next to the target plant. (Ward Upham)

2020 Kansas Non-Irrigated Farm Lease Survey
**Deadline: May 31, 2020**

Understanding lease arrangement trends and changes is important to help Kansas agricultural landowners and operators make informed decisions. This survey collects information on Kansas non-irrigated farm lease arrangements for the 2019-2020 crop year. Please answer any portion of these questions that you can. The survey should take less than 10 minutes to complete. Your input is crucial to provide reliable, accurate information. The survey can be accessed at [http://www.tinyurl.com/ksdryland](http://www.tinyurl.com/ksdryland). The survey will be open until the end of April.

Response to this survey is voluntary, and your response will be kept confidential. If you know of anyone else who can answer questions from the survey, please share this email or the link to the survey with them. If you have any questions or would like a paper copy of the survey, then please do not hesitate to contact me at ltsoodle@ksu.edu or the Center at 785-532-3509.

Economics of Agriculture During the COVID-19 Pandemic
A Series of Online Gatherings
Thursdays at 7:00 pm CDT
Register:

Register for May 14 (7 pm CT) – Grain Markets by Dan O’Brien: [https://ksu.zoom.us/meeting/register/tJEvde2rpjgjH9I05uWb9uluFjI8meEKAmPm](https://ksu.zoom.us/meeting/register/tJEvde2rpjgjH9I05uWb9uluFjI8meEKAmPm)
May 21, 2020 – 2019 Kansas Farm Income Report – Kevin Herbel and Mark Dikeman

Economics of Agriculture During the COVID-19 Pandemic (Series) Recorded
- More on Livestock Markets (5/7/20)
- Kansas Land Values-Impacts of COVID-19 (4/16/20)
- Ongoing Effects on Livestock Markets (4/9/20)
- Grain Markets and Planting Intentions (4/2/20)
- Further Updates on the Macroeconomy (3/26/20)
- Analysis of the IHME COVID-19 Forecasting Model (Updated Weekly)
- Analysis of the IHME COVID-19 Forecasting Model-May 5 Update (5/5/20)
The 2020 tornado season is off to a slow start

April 2020 has come to an end without any tornadoes within Kansas, and a very low severe storms probability forecasted through early next week. That brings the question, “When did Kansas last see a late start to the tornado season?”. Turns out, you do not have to look back too far. In 2018, the first tornado of the season was recorded on May 1. That year was a relatively slow year for tornado activity, with just 48 reported over the year. A late start does not necessarily mean a calm season. Last year, the first tornado was recorded on April 17, and the annual total was 101. The earliest date for the first tornado was January 28, 2006, when three tornadoes were reported. The latest date for the first Kansas tornado occurred on May 26, 1967.

Though there have already been six tornado warnings issued in the state, none have had reported touchdowns. Annually, the severe weather season plateaus on June 10 with the highest probability for tornadoes, hail, and wind (Figure 1). This is based off a 30-year climatology ending on 2011. The peak for tornado probability occurs two weeks earlier on May 27 (Figure 2).
Thus far in 2020, the amount of tornadoes elsewhere across the United States is actually running above average (Figure 3). This activity is mostly focused in the south and southeast – especially on Easter. However, the medium term forecast shows little probability of significant outbreaks and the quick pace of rising annual tornado numbers is likely to slow down.

Figure 1. Severe weather probability climatology (Source: NOAA, Storm Prediction Center).

Figure 2. Tornado probability peak for Kansas (Source: NOAA, Storm Prediction Center).
Figure 3. United States annual average (black line) and 2020 running count (red line) of tornadoes (Source: NOAA, Storm Prediction Center).

Despite the lack of tornadoes, April 2020 wasn’t without severe weather. There were several reports of hail swaths (Figure 4), where hail piled up to a depth of several inches, and covered several miles. Also, on April 11, hail up to baseball size (2.75”) was reported in Marion County. Preliminary totals from the Storm Prediction Center are 29 large hail events and 10 damaging wind events.

Figure 4. Hail swath in Edwards County via National Weather Service Dodge City.

Always be prepared for severe weather

Although the forecast is for relatively quiet severe weather through the beginning of May, don’t become complacent. The severe weather season is just beginning across Kansas. Be weather aware, have multiple ways to obtain warnings, and always have a plan!
Here are some good websites for additional severe weather data in Kansas:
National Weather Service (NWS) Topeka: https://www.weather.gov/top/
NWS Wichita: https://www.weather.gov/ict/
NWS Kansas City: https://www.weather.gov/eax/
NWS Dodge City: https://www.weather.gov/ddc/
NWS Goodland: https://www.weather.gov/gld/
NWS Hastings: https://www.weather.gov/gid/
NWS Springfield: https://www.weather.gov/sgf/
NOAA Storm Prediction Center: www.spc.noaa.gov

Summary
- In 2018 the first Kansas tornado of the year was recorded on May 1.
- The latest first tornado recorded in the state occurred in 1967 on May 26.
- Tornado numbers are above average across the nation thus far in 2020.
- Despite a lack of tornadoes thus far, severe weather has and still will occur – don’t become complacent!

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Mary Knapp, Assistant State Climatologist mknapp@ksu.edu

Do you use the Chemical Weed Control Guide?
The Chemical Weed Control Guide is one of the most used K-State Extension publications. If you have not seen it hard copies are available at the Hodgeman Extension Office or you can get it download it at: https://bookstore.ksre.ksu.edu/Item.aspx?catId=236&pubId=22321. Just click on the book cover and it will download.

WHAT BEEF PRODUCERS SHOULD BE THINKING ABOUT IN JUNE……
-- Tips by Dale Blasi, Extension Beef Specialist
June is a month to let Mother Nature take her course. Assuming timely precipitation, native grasses are usually at peak production; therefore, little supplementation is needed, with the exception of some minerals.

Cow-Herd Nutrition
☐ Provide plenty of clean, fresh water.
☐ Provide free-choice minerals to correct any mineral deficiencies or imbalances.
☐ Monitor grazing conditions and rotate pastures if possible and practical.
☐ Consider creep-feeding if it’s cost-effective.

Herd Health
☐ Monitor and treat pinkeye cases.
☐ Provide fly control. Consider all options; price and efficiency will dictate the best options to use.
☐ Monitor and treat for foot rot.
☐ To reduce heat stress, avoid handling and transporting cattle during the hottest times of the day.

Forage and Pasture Management
☐ Check and maintain summer water supplies.
☐ Place mineral feeders strategically to enhance grazing distribution.
☐ Check water gaps after possible washouts.
☐ Harvest hay in a timely manner; think quality and quantity.

Reproductive Management
If using AI, do not expect all females to conceive. A common practice is to breed once or twice with AI, then turn out cleanup bulls for the balance of a 65-day breeding season. A 42-day AI season with estrus synchronization at the front end gives most females three chances to conceive by AI.

Watch bulls for libido, mounting and breeding function.

Record breeding dates to determine calving dates.

By imposing reproductive pressure (45-day breeding season) on yearling heifers, no late-calving 2-yearolds will result. This will increase lifetime productivity and profits.

**Genetic Management**

Monitor herd performance. Then identify candidates to cull because of poor performance.

**General Management**

Check equipment (sprayers, dust bags, oilers, haying equipment, etc.), and repair or replace as needed. Have spare parts on hand because downtime can make a big difference in hay quality.

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**Scout now to control bagworms this spring**

A Kansas Forest Service official says mid-May is an important time to start scouting for bagworms, a perennial problem that affects many trees common to Kansas landscapes.

Ryan Armbrust, the forest health coordinator with KFS, said bagworms negatively affect ornamental landscape conifers, windbreak trees like eastern redcedar and arborvitae, and Scotch pine Christmas tree farms.

“While deciduous broadleaf trees can recover from the defoliation that bagworms cause, conifers are often severely impacted, and sometimes killed outright by large infestations of bagworms,” Armbrust said.

In the spring, overwintered eggs hatch and small larva begin to feed on leaves and needles of the tree. At this stage, they are called “crawlers” and are most easily controlled.

Armbrust said it is important to start scouting now for effective control of bagworms, before they begin to form the protective casing of plant debris that they get their name from, and become more difficult to control.

He explained that many insecticides are labeled to control bagworms, but timing and coverage must be carefully planned to ensure effectiveness. Bagworms are best controlled by timing sprays to May or June, depending on how early spring arrived. Armbrust added the emergence of larvae usually peaks between the bloom time of black locust and catalpa, so it is helpful for homeowners to watch the trees to signal that it’s time to start scouting for bagworms.

“When bagworms are in the ‘crawler’ stage, just a fraction of an inch long, they are most sensitive to chemical control,” he said. “Full coverage, including penetrating the tree’s interior canopy, is needed. Low-pressure consumer-grade sprayers are not usually adequate, and commercial treatment may be more effective.”

When crawlers are small, the organic selective insecticides Bt (*Bacillus thuringiensis*, subspecies *kurstaki*) or spinosad can be effective. Armbrust said these insecticides do not impact beneficial insects like broad-spectrum options, which sometimes lead to resurgent populations of spider mites that further damage treated trees. However, if the early window for treatment is missed, broad-spectrum insecticides containing malathion, carbaryl, acephate, or cyfluthrin may be better options.

Unfortunately, he notes, “once these pests are hunkered down in their protective cocoons, they are largely protected from chemical treatment options that we may attempt to control them with.”

Bagworm populations are dependent on environmental factors, including bird populations that feed on adult bagworm moths, and therefore experience population peaks and valleys.

“Infestations may be severe for several years, only to subsequently drop below damaging levels for several years, giving trees time to recover, which they often do,” Armbrust said.

**Horticulture Reminders**

- Mound soil around potato plants to make sure tubers aren’t exposed. Sunlight hitting tubers will cause them to turn green.
- Check houseplants and repot if rootbound.
- Check fruit trees for fruit. Multiple frost events this spring may have eliminated fruit on apricots, peaches, plums and even pears. Some apples may have made it through. If no fruit, sprays may not be needed except for the leaf disease on apples such as cedar-apple rust, apple scab and powdery mildew.
- Transplant peppers and seed cucumbers and melons if soil temperature is at least 60 degrees. Maybe wait a bit for sweet potatoes as we have plenty of time and want to make sure the soil is warm enough.
- Wait until about mid-June to plant winter squash and pumpkins so they mature in cooler fall weather.
- Transplant annual flowers when soil temperature reaches 65 degrees.

**Protecting New Vegetable Transplants from the Wind**

New transplants, even those hardened off in a cold frame, may need protection from strong winds when set out. Wooden shingles placed to block the wind used to be recommended but are now difficult to find. Try a plastic milk jug or a 2-liter soda bottle with both the bottom and top cut off. Push the jug or bottle into the soil far enough so it won’t blow away. In windy conditions, it may need to be stabilized with a wooden dowel or metal rod. (Ward Upham)

**Storm Damage and the Garden**

We are entering storm season and various areas of the state will likely have high winds, excessive rainfall and hail. This column deals with what can be done to help our gardens recover.

- **Heavy rain**: The force of rainfall pounding on the soil can result in a thick crust that prevents seed emergence and partially blocks oxygen from reaching roots. A light scraping after the soil surface has dried is all that is needed to correct these problems. Be careful of deep tilling as it may damage young, tender roots.

- **Standing water**: Standing water cuts off oxygen to the roots, which can result in plant damage if it doesn’t drain quickly enough. Most plants can withstand 24 hours of standing water without harm. Hot, sunny weather can make a bad situation worse by the water becoming hot enough to “cook” the plants. There isn’t much that can be done about this unless a channel can be cut to allow the water to drain.

- **Hail damage**: Plants should recover quickly as long as the leaves only were damaged by the hail as leaves regenerate quickly. The situation becomes much more serious if the stems and fruit were damaged. The plant can recover from a few bruises but if it looks like the plants were mowed down by a weed whip, replanting is in order.

- **Leaning plants**: Either wind or water can cause plants to lean. They should start to straighten after a few days. Don’t try to bend them back as they often break easily. (Ward Upham)

**'Staggering' Sweet Corn Planting**

Sweet corn is one of those crops that is only "good" for a few days. If you want longer periods of production, consider staggering the planting. In other words, plant a small block, wait a period of time, and then plant the next block. Though it is tempting to follow a calendar schedule, such as planting a small block every week, it is better to use crop development as a trigger. If you plant on a calendar schedule, you may have noticed that later plantings often catch up with earlier ones. Instead, plant the next block of sweet corn when the previous one is one-half to one inch tall. (Ward Upham)

**Rabbits in the Garden**

Rabbits in gardens are a perennial problem because of the wide variety of plants they can feed on. This time of year, they gravitate to young vegetables and flowers. But there are some vegetables that are rarely bothered including potatoes, tomatoes, corn, squash, cucumbers, and some peppers. The question
is how do you protect other, more susceptible plants? Fencing provides a quick and effective control method. The fence does not need to be tall; 2 feet is sufficient for cotontails. But the mesh must be sufficiently fine (1 inch or less) so young rabbits will not be able to go through it. Support for the fence can be supplied by a number of products, but electric fence posts work well. Often fencing is not an acceptable choice because it affects the attractiveness of the garden.

Another type of barrier is a floating row cover. Though most often used to promote early growth by keeping plants warmer than normal, it can also help protect young plants from insects and wildlife. Other ways to control rabbits including repellents, trapping and shooting. Repellents are often suggested for control but often do not last long and require frequent reapplication. Also, many are poisonous and cannot be used on plants or plant parts destined for human consumption. Live traps can be used to collect and move the rabbits to a rural area several miles from where they were trapped. A number of baits can be used to entice the rabbit to enter the trap including a tightly rolled cabbage leaf held together with a toothpick. However, rabbits often avoid baits if other attractive food is available.

Another possibility is to use a motion-activated sprinkler. These are attached to a garden hose and release a short burst of water when motion is detected. Contech, Orbit and Havahart are suppliers and each is advertised as protecting up to at least 1,000 square feet. Shooting is another possibility when it is safe and legal to do so. (Ward Upham)

**Moving Houseplants Outside for the Summer**

It is often helpful to set many houseplants outside for the summer so they can recover from the low light levels endured during the winter months. As soon as night temperatures stay consistently above 55 degrees F, houseplants can be moved to their summer home. Choose a spot that has dappled shade, is protected from the wind and is close to water. A porch or a spot that receives shade from trees or buildings will work well. Putting houseplants in full sun will cause the leaves to photooxidize or sunburn because the leaves have become adapted to low light levels inside the house. Where possible, sink the pots into the ground to help moderate root temperatures and reduce watering frequency.

If you have a number of plants, dig a trench 6 to 8 inches deep (or deeper if you have larger pots) and long enough to accommodate all of your plants without crowding. Place peat moss under and around the pots. Peat moss holds water, helps keep the pots cool and reduces evaporation from clay pots. About every two weeks, rotate the pots a quarter turn to break off any roots that have penetrated the peat moss surrounding the pot and to equalize the light received on all sides of the pot. Water as needed. If the potting soil is dry a half-inch deep in the pot, it is time to water. (Ward Upham)

**‘Victory Garden’ course**

When Rebecca McMahon, Sedgwick County Horticultural Agent, saw a newspaper article in March indicating that garden stores in Wichita were already selling out of supplies, she had an idea what was going on.

The state’s stay-at-home order as a result of the COVID-19 pandemic was inspiring many homeowners to plant their own garden, she thought.

So McMahon, quickly made plans to help out. In April, she launched an eight-week online gardening course, titled Victory Garden 101, to set up aspiring gardeners for success.

“‘The topics are geared toward first-time gardeners, or those who have dabbled in the past without a whole of success, and at the time were taking advantage of the stay-at-home order to jump back into vegetable gardening,” McMahon said. “But anyone who gardens knows that there is always something more to learn.”

The live class is being held on Tuesday evenings through the end of May, but all of the lessons are available for free, seven days a week on the Sedgwick County extension office’s website.

“Everyone can access the materials on the website, but they need to register if they want email updates and the chance to join the live class,” McMahon said.

The concept of a ‘Victory Garden’ dates back to World War II when Americans were encouraged to plant a home garden to provide a certain amount of their food during a time when many of the country’s agricultural products were being used to support the military.
“I saw a statistic that indicated about 40% of fruits and vegetables consumed by Americans at that time were provided by Victory Gardens during World War II,” McMahon said. “That’s a huge number.”

Similarly, the basis for McMahon’s class is to encourage consumers to grow some of their own food, adding to their community’s food security, while also saving a little money on their grocery bill.

“Gardening is a great thing anytime, pandemic or not,” McMahon said. “I encourage folks to pick up vegetable gardening as a great opportunity for learning for their kids, activity for themselves and a great way to add vegetables and healthy foods to your diet.”

McMahon noted that it doesn’t take a lot of room to grow a few vegetables or other garden crop. People who live in apartments can grow vegetables or other crops in small containers on a balcony or patio, for example.

“Even in a small yard, you can grow a few things,” she said. “You don’t have to till up a rectangular section of your yard in order to have a garden.”

McMahon added that the weekly lessons provide a nifty template for getting started. Starting with week one, Victory Garden 101 is leading gardeners through preparing a site, planning the garden, growing your own salad, tips for great tomatoes, using vertical space, watering, and dealing with insect of disease problems.

It’s also not too late to get some of Kansans’ favorites into the ground.

“Right now is a great time to plant tomatoes and green beans,” McMahon said. “And over the next couple weeks, other warm season vegetables like cucumbers, squash, melons, peppers and eggplant can be planted.”

For ideas on what can be planted in Kansas – and the best time to do so – interested persons should read the Vegetable Garden Planting Guide, published through K-State Research and Extension. McMahon notes that the third page of that guide has a planting calendar that serves as an easy-to-use reference for planting fruits and vegetables.

“I really encourage people to start with some leafy greens because they grow to maturity a lot faster than other crops,” McMahon said. “Plus, they’re a short project. If you grow some lettuce and after harvesting it in 50 to 60 days you decide this gardening thing is not for you, then you haven’t invested too much time and you still got something out of it.

“Tomatoes, potatoes and squash…they’re flashy vegetables, but they are an investment of time, and you have a lot of gardening work to do to get to your harvest endpoint.”

For more information regarding gardening, interested persons are also encouraged to join the Victory Garden 101 Facebook page.

Cabbage Worms

This is the time of year we normally start seeing damage from cabbage worms. The imported cabbage worm is usually the first cabbage worm species to appear and is a fuzzy, elongated green worm. Larvae come from eggs laid by the white butterfly often seen flitting around the plants.

Early control is essential to reduce injury. BT (Bacillus thuringiensis) and spinosad (Monterey Garden Insect Spray, Captain Jack's Dead Bug Brew) are effective organic products that are labeled for this pest. BT can be found in Dipel, Thuricide and other similar materials. Direct sunlight deactivates BT quickly so it is helpful to spray late in the day or on a cloudy day.

Conventional insecticides such as carbaryl (Sevin dust), malathion and methoxychlor are also effective but will kill natural enemies of these pests. Be sure to hit the underside of leaves where insects feed. Note that hitting the underside of leaves is easier when using a dust applied with a duster than when using a liquid spray. (Ward Upham)

Cucumber Beetles and Bacterial Wilt

If you had cucumbers or muskmelons that suddenly turned brown and died last year, you may have had a disease known as bacterial wilt. The cucumber beetle carries this disease. Once a plant is infected, there is no cure, so prevention is the key. Because cucumber beetles overwinter as adults, early control measures are essential.
There are two types of cucumber beetles: striped and spotted. The striped cucumber beetle is the most common. The 1/4-inch-long beetles are conspicuously colored: black head and antennae, straw-yellow thorax, and yellowish wing covers with three distinct parallel and longitudinal black stripes. Young plants can be protected with row covers, cones, or other types of mechanical barriers. Edges must be sealed to ensure that the beetles do not find a place to enter.

Plants will eventually outgrow these barriers, or they will need to be removed to allow insect pollination of the flowers. Apply insecticides before beetles are noticed in the planting. Continue to spray weekly throughout the season.

Homeowners can use permethrin (Bonide Eight Vegetable, Fruit & Flower Concentrate and Hi Yield Garden and Farm Insect Control). Once plants have started flowering, spray in the evening after bees have returned to the hive and the flowers are closed. (Ward Upham)