WHAT THE HECK IS ON MY CEDAR TREE???

Although it looks very gross for lack of a better work, cedar-apple rust, is harmless to the cedar (juniper) tree. There are two other rusts that can affect a juniper tree, cedar-hawthorn and cedar-quince rust. **The effects of these diseases on junipers are minimal.** Both cedar-apple and cedar-hawthorn rusts produce reddish-brown galls on the twigs of junipers. These woody galls usually are ½ to 2 inches in diameter. In early April, galls swell and produce orange, one-inch long, gelatinous tendrils. The tendrils remain on the galls through May. Trees with numerous galls are easily identified by their bright orange cast during rainy weather.

The galls of cedar-apple rust last only one season; the spent galls dry and fall from the tree during the summer months. The galls of cedar-hawthorn rust may last for several years. The cedar-quince rust produces perennial, cigar-shaped galls on the twigs and branches of juniper. The cedar rusts overwinter in the galls on juniper.

During April, galls expand and release fungal spores which can only infect the alternate rosaceous host. Infection of flowering crab and apples is favored by relatively cool temperatures (50-75 F) and prolonged leaf wetness (longer than 4-6 hours). Rust lesions begin to develop one to three weeks after infection. Cuplike fruiting structures (aecia) form on the lower surface of apple leaves in late June and produce dusty-orange spores. These spores, which cannot infect the rosaceous host, are released from July through August and are carried by wind currents back to juniper. After infection of juniper, galls develop very slowly. Only small twig swellings may be seen the spring following infection. The galls begin to enlarge during the summer but do not release spores until the following spring. The complete life cycle of cedar-apple rust takes two years.

Cedar-apple, cedar-hawthorn, and cedar-quince rust are common diseases of apple and flowering crab in Kansas. These rust fungi spend a portion of their life cycle on rosaceous hosts such as apple, flowering crab, and hawthorn, and another portion on species of Juniperus (which includes eastern red cedar). Cedar-apple rust is the most prevalent of the three diseases in Kansas. These rust fungi can result in considerable damage to rosaceous plants by causing premature defoliation and fruit distortion and abortion.

On apple trees symptoms of cedar-apple rust on flowering crab and apple are easily identified. In late spring or early summer, bright, yellow-orange spots approximately 1/8 to 1/4 inch in diameter form on the upper surface of leaves. These spots gradually enlarge and turn orange. Small black fruiting structures of the fungus form in the center of the lesion. An orange gelatinous matrix often may be seen oozing from the fruiting structures during wet weather. Eventually, an orange, cup-like fungal structure forms on the bottom surface of the leaf directly beneath the lesion on the upper surface. This structure has small, tube-like projections in which dusty-orange spores of the fungus are produced.

Symptoms of cedar-hawthorn rust are similar to those described. Cedar-quince rust does not affect leaves but does occur on young twigs and fruit. Leaves with numerous spots drop during the summer. Premature defoliation weakens the tree and reduces fruit set and yield the following year. Trees with severe defoliation also are susceptible to other diseases.
Cedar-apple and cedar-quince rust may cause fruit lesions. Diseased fruits develop deep pits or become distorted and usually drop before harvest.

On juniper’s, the severity of rust infection on apple in the spring is highly dependent on weather conditions. It is also dependent on the amount of infection that occurred two years previously on juniper, since those infections eventually produce the active galls of the current year that in turn produce the spores which infect apple. A combination of a large number of active galls along with wet spring weather can result in serious infection of apple.

Recommendations for apple and flowering crab apple trees:

1. Removal of junipers within a ½- to 2-mile radius of apple orchards disrupts the life cycle of the rust fungi and has been suggested as a control measure in some states. Unfortunately, in Kansas, eradication of the alternate host becomes an impossible task because of the large native population of eastern redcedar and the wide use of junipers in windbreak and ornamental plantings. Nevertheless, homeowners should avoid planting apples or flowering crabs adjacent to junipers.

2. Fungicides can be applied to apple or flowering crab in the spring to prevent rust infection. The first spray should be applied as soon as the gelatinous tendrils are noticed on the cedar galls. This typically occurs in early April in Kansas.
   a. Continue applications on a 7- to 10-day interval as long as the galls remain active (usually till the end of May). Several chemicals, including triforine (Funginex, labeled for apples only), propiconazole (Banner, Funginol RTS, Infuse Systemic Disease Control, Fertilome Liquid Systemic Fungicide) chlorothalonil (Daconil 2787, crabapple only), myclobutanil (Immunox, F-Stop Lawn & Garden Fungicide, Eagle, Systhane, Rally) and triadimefon (Bayleton, Green Light Fung-Away) are effective in controlling rust diseases.
   b. Captan, though labeled for control of apple scab, is not effective in controlling rust diseases. In areas where both rust and scab are a problem, be sure to select a fungicide or combination of fungicides which will control both diseases. Myclobutanil (Immunox, F-Stop Lawn & Garden Fungicide, Eagle, Rally) is labeled for both scab and rust.
   c. Note that Immunox, F-Stop Lawn & Garden Fungicide, and Eagle are labeled for both apples and crabapples and Rally is labeled for apples and not crabapples. Check fungicide labels for proper rates of application.

3. One way to avoid fungicide sprays each year is the planting of tolerant or resistant cultivars of flowering crab and apple. Both Cockspur (Crataegus crus-galli) and Washington (C. phaenopyrum) hawthorn are reported to be resistant to cedar-hawthorn rust.

For recommendations on junipers:
1. Although the presence of galls on twigs may be unsightly, rust diseases generally do not cause serious damage to junipers.
2. Therefore, fungicide controls are not recommended.
3. Several cultivars of juniper are available with resistance to cedar-apple rust. However, these cultivars may be susceptible to cedar-hawthorn or cedar-quince rust.

For more information on this and other tree problems, contact the Hodgeman County Extension Office at 620-357-5315 or by email at hg@listserv.ksu.edu. If you want a publication you can download check out “Tree & Shrub Problems in Kansas, K-State Research & Extension, MF3132” at https://bookstore.ksre.ksu.edu/pubs/MF3132.pdf.
**Targeting optimum cow size**

Genetics, feed resources and calf marketing windows are just some of the influencing factors that determine the optimum size for cows to grow, according to the Kansas State University Beef Cattle Institute’s team of experts.

Defining the optimum cow size was a discussion topic on the recent BCI Cattle Chat podcast. “That is a really difficult question to answer because for each operation the optimum cow size will be slightly different,” said Bob Weaber, beef specialist with K-State Research and Extension.

To help answer that question, Weaber and veterinarian Bob Larson worked with former graduate student Dustin Ahearn to define what the ideal cow size should be.

“Our results showed that in eastern Kansas a 1,300 to 1,400 pound cow was optimum in that she was able to produce a moderate to high level of milk in an environment where all her nutritional requirements were met,” Weaber said. “The next phase of the study will be to see what happens if the cow’s nutritional support is limited.”

“One good way for a cow-calf producer to gauge economic success is to determine how much beef can they produce per acre,” said KC Olson, a K-State range beef cattle nutrition expert who joined the recent podcast. He added that the average return for an extra 100 pounds of cow weight was just five to seven pounds of additional weight of the calf at weaning.

“The cost of the additional maintenance for 100 pounds of a cow’s weight far exceeds the value the heavier calf brings,” Olson said.

K-State veterinarian Brad White said producers need to consider the stocking density of the pastures and the timing of calving, which influences the calf marketing windows.

As an example, Olson prefers to calve in May and June because when his cows are at peak lactation, they have a plentiful source of forage for grazing.

“The most expensive time to feed a cow is from calving to peak lactation, which happens 4-6 weeks following calving,” Olson said. “So that nutritional debt can be serviced by a renewable resource — forage.”

The timing of calving also dictates the marketing opportunities for the calves.

“I don’t care what the calf size is at weaning because I retain ownership in them through at least yearling age and sometimes through the finishing phase,” Olson said.

The podcast team offered seven tips for determining the optimum cow size:

- Consider calf marketing options.
- Assess the availability of economically efficient supplemental feed.
- Know the resource requirements of your cows.
- Evaluate when you plan to wean the calves.
- Understand the calving time relative to available grass in the region.
- Determine the number of days available for grazing without supplementation.
- Optimize per acre productivity.

The bottom line is that each producer needs to look at their system and make a determination on what is the most economical for them, said White.

“There is no one size fits all when deciding the optimum cow size,” White said. “Rather, producers need to consider many factors when making that determination for their operations.”

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Some publications that may have some value to Hodgeman County residents:

Bonding Thru Board Games: Developing Soft Skills, Fact Sheet. MF3489, https://bookstore.ksre.ksu.edu/pubs/MF3490.pdf. Elizabeth Brunscheen-Cartagena. Many children lack soft skills such as self-control and social and communication skills that are needed in the workplace and daily living. Parents and other caregivers can help children gain these vital skills by creating board game nights in the home or attending community board game events. Playing board games is a safe platform for soft skills to be developed and practiced.

Bonding Thru Board Games: Developing Soft Skills, Leader's Guide. MF3490, https://bookstore.ksre.ksu.edu/pubs/MF3490.pdf. Elizabeth Brunscheen-Cartagena. Many children lack soft skills such as self-control and social and communication skills that are needed in the workplace and daily living. Parents and other caregivers can help children gain these vital skills by creating board game nights in the home or attending community board game events. This leader's guide includes suggestions for presenting the lesson and developing a game night, as well as an evaluation.

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4-H Discovery Days will go virtual this year

Kansas 4-H officials have announced that the popular Discovery Days event, which brings together several hundred youth from across the state each year, is moving to an online format at the end of May.

Discovery Days is one of K-State’s longest-running traditions, now in its 96th year. More than 400 youth from 84 Kansas counties who attended last year.

Due to the ongoing COVID-19 pandemic and restrictions on mass gatherings, however, Kansas 4-H is adapting to still offer a learning opportunity for youth, said 4-H and youth development specialist Shane Potter.

“We realize this will not replace the in-person pieces and the friendships and connections that are made during Discovery Days, but we can still do some great things,” Potter said. “We are going to move forward and offer a great virtual learning environment for youth at the same time as the original event.”

Kansas youth are encouraged to register online through the Kansas 4-H website. This year’s program, set for May 27-29, includes live sessions each morning as well as interactive, small group sessions in the afternoon. There will also be many recorded sessions available for youth to view at their leisure.

“We strive for hands-on learning, where youth are immersed in content,” Potter said. “A lot of things may be similar, but we know it won’t be the exact same experience. This is what we see as kind of a supplement to what we’ve done in the past. If it works, this may help us be better in the future by maybe incorporating some technology, or deepened learning, during in person events.”

Ironically, Discovery Day organizers – including several Kansas youth – had already planned this year’s event around the theme, ‘2020: A Vision for the Future.’ With the move to an online format, some of that future is happening now, according to Potter.

“Technology is great, and we really want to use it to the best of our abilities,” he said. “Being able to break out in small groups, ask questions, engage with one another -- even though it can be difficult -- is really providing growth. So as we’re looking at career and college readiness, these are skills that can help youth in the future. By being able to engage in an online platform, they may be more prepared to do a video interview someday.”

In the past, Discovery Days activities were open to youth ages 13-18. While the content may be more applicable for that age group, Potter said that youth of all ages are welcome to participate in this year’s online format.
“We want to provide a safe environment for all youth, so we will ask youth to register for the live sessions,” he said. “We would prefer that people register by the week before, at least by May 22, and then we will send information to them so that they can connect to the live sessions.”

Potter added that Discovery Days continues to focus on career and college readiness, community service and hands-on learning. He said youth also will have an opportunity to purchase a Discovery Days t-shirt, as in past years.

“Regardless of what is happening in our world, we are building resilience for our 4-Hers, and this is an example of that,” he said. “The youth voice is still guiding what we’re doing and how we’re moving forward to provide things in difficult times.”

For more information on Discovery Days and to register, visit www.Kansas4-H.org.

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**Online resource can help organize family records**

The new coronavirus pandemic has many of us thinking about topics that, let’s face it, we’d rather not.

But in an emergency, would your family or trusted friend know who to contact? Your bank? Your financial adviser? Your insurance company?

Free resources from K-State Research and Extension are available online for downloading and printing, including Our Valuable Records, https://bookstore.ksre.ksu.edu/pubs/MF685.pdf, which can help anyone gather important information in one place. That information can be kept in a safety deposit box or other secure location and can be invaluable in emergencies.

“It may take a bit of time if you are starting from scratch to collect this information in one place, but the effort is well worth it,” said Elizabeth Kiss, financial management extension specialist and the publication’s author. “Having this information in an easy-to-retrieve form can make recovery from natural disaster or a health emergency go more smoothly.”

The form includes space for family members’ names, birthdates and more, plus contact information space for key advisers, such as attorney, executor, doctor, religious adviser, insurance agents, and banker. It can also help gather basic information about vehicles and other property and credit, bank and retirement accounts.

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**“Protein Sources for Growing Cattle”**

One of the outcomes of the recent Coronavirus (COVID-19) situation that unexpectedly affected many cattle feeding operations throughout Kansas and the Midwest was a sudden reduction in the availability of distiller’s grains. As many Americans heeded “stay at home” orders, demand for fuel, oil, and ultimately ethanol fell resulting in price declines that forced many ethanol plants to scale back production. The cattle feeding industry has relied heavily on distiller’s grains as the primary source of protein in both growing and finishing rations for many years. Distiller’s grains comprise 10-30% of many cattle rations depending upon the nutrient composition and price of other commodities. The reduced supply of distiller’s grains forced many cattle producers to look at traditional sources of protein, such as soybean meal, cottonseed meal, alfalfa and urea that many producers had not used for at least a decade.

The prices of several common commodity protein sources (central, KS; obtained 4/28/2020) on a per ton and a cost per unit of protein basis are shown below. It is essential that producers evaluate protein sources on a cost per unit of protein prior to making purchasing decision. All of the traditional protein sources in the table were comparably priced on a cost per unit of protein basis ($0.44-0.49 /lb CP) with the exception of urea. However, urea must be used with caution, should not comprise more than 0.5 to 1.0%
of the total diet on a dry matter basis, and it is generally recommended that urea be added into the ration using a premix or liquid to ensure that urea is appropriately mixed in the ration.

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Cost/ton, $</th>
<th>% Crude Protein</th>
<th>Dry Cost/lb of Crude Protein Dry, $</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alfalfa</strong></td>
<td>200</td>
<td>23</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>Soybean meal</strong></td>
<td>375</td>
<td>48</td>
<td>0.44</td>
</tr>
<tr>
<td><strong>Cottonseed meal</strong></td>
<td>350</td>
<td>41</td>
<td>0.48</td>
</tr>
<tr>
<td><strong>Feed Urea</strong></td>
<td>660</td>
<td>281</td>
<td>0.12</td>
</tr>
</tbody>
</table>

For more information, contact Justin Waggoner at jwaggon@ksu.edu.

**Sorghum management considerations:**

The most critical planting practices affecting yields in sorghum are: row spacing, row arrangement, seeding rate/plant population, planting date, and hybrid maturity.

Sorghum plants can compensate and adjust to diverse environmental conditions through modifications in the number of tillers, head size, and final seed weight. For sorghum, the final number of seeds per head is the plant component that varies the most; and thus has more room for adjustment than the other plant components (seed weight and number of tillers).

**Seeding rate / plant populations**

Sorghum population recommendations range from a desired stand of 23,000 to more than 100,000 plants per acre depending on annual rainfall Table 1:

**Table 1. Grain sorghum recommended seeding rate, plant population and row spacing at different average annual rainfall.** Source: [https://www.bookstore.ksre.ksu.edu/pubs/MF3046.pdf](https://www.bookstore.ksre.ksu.edu/pubs/MF3046.pdf)

<table>
<thead>
<tr>
<th>Avg. Annual Rainfall (inches)</th>
<th>Seeding rate (x 1,000 seeds/acre)*</th>
<th>Recommended Plant Population (x 1,000 plants/acre)</th>
<th>Within-row Seed Spacing (65% emergence)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10-inch rows</td>
<td>20-inch rows</td>
<td>30-inch rows</td>
</tr>
<tr>
<td>&lt; 20</td>
<td>30-35</td>
<td>23-27</td>
<td>21-18</td>
</tr>
<tr>
<td>20 to 26</td>
<td>35-64</td>
<td>25-45</td>
<td>18-10</td>
</tr>
<tr>
<td>Irrigated</td>
<td>110-150</td>
<td>80-110</td>
<td>5-4</td>
</tr>
</tbody>
</table>

*Assuming 65% field emergence.

Because of sorghum’s ability to respond to the environment, final stands can vary at least 25 percent from the values listed above, depending on expected growing conditions, without significantly affecting yields. Lower seeding rates minimize risk of crop failure in dry environments. Sorghum can compensate for good growing conditions by adding tillers and adjusting head size, but yields can be reduced in a dry year if populations are too high. For a high-yielding environment (>150 bu/acre), under narrow rows, high plant populations can be a critical factor for improving sorghum yields.

Higher seeding rates also should be used when planting late. Increase rates by 15-20 percent if planting in late-June or later. Late planting will restrict the time that sorghum plants will have in the season for producing productive tillers, thus decreasing the plants’ ability to compensate for inadequate stands.

Recent research in Kansas has confirmed these long-term recommendations. In these studies, sorghum yields were maximized at 25,000 plants per acre (optimum between 20,000 to 30,000 plants per
acre) in western Kansas at 17 inches annual precipitation. For western Kansas, final stands of about 20,000 to 30,000 plants per acre can attain yields of 60 to 80 bushels per acre or more.

Having more than the recommended number of plants per acre results in fewer fertile and productive tillers and thinner stems, which will reduce yield in the drier environments and increase susceptibility to drought. On the other side, thin stands can compensate for better-than-expected growing conditions somewhat by producing more and/or larger heads. However, under high-yielding environments, a higher final plant population will be needed to increase yields as much as possible (Table 1).

**Planting date**

A summary of research data performed in the last several years has confirmed that the optimum planting date for maximizing yields will be around early June (Figure 1). Still, the decision related to the optimum planting date should be timed so plants have the best possible chance of avoiding hot, dry weather at the flowering stage, but can still have sufficient time to mature before the first frost.

Planting date has some effect on seeding rates. Sorghum will tiller more readily in cool temperatures and less readily under warm conditions. As a result, later plantings in warmer weather should be on the high side of the recommended range of seeding rates for each environment since there will be less tillering. The potential for greater tillering with earlier planting dates makes sorghum yields more stable when planted in May and early June compared to late June or July plantings.

**Planting depth**

Seed placement is also a critical factor when planting sorghum. Optimum seed placement for sorghum is about 1-2 inches deep. Shallower or deeper planting depths can affect the time between planting and emergence, affecting early-season plant uniformity. We recently conducted a planting depth study, using late planting (about mid-June) under uniform soil temperatures and three seed placements – shallow, 0.5 inch; optimum, 1.5 inches; and deep, 3 inches. Optimum and deep placement resulted in similar shoot growth while shallower placement resulted in delayed development with fewer number of leaves and less total shoot mass (Figure 2).

**Row spacing**

The other factor that can influence yield is row spacing. The last three columns in Table 1 show that plant spacing within the row becomes greater as row spacing decreases. This greater intra-row plant spacing reduces plant-plant competition early in the growing season when head number and head size are being determined.

A response to narrow row spacing is expected under superior growing environments, when water is a non-limiting factor. Narrow rows increase early light interception, provide faster canopy closure, reduce evaporation losses, can improve suppression of late-emerging weeds (a major issue in sorghum), and maximize yields.

The influence of row spacing on sorghum yield has not been entirely consistent in K-State tests. In a summary of experiments conducted in Kansas, the comparison between wide (30-inch) vs. narrow (15-inch) row spacing shows a close relationship, with an overall yield benefit of 4 bushels per acre with narrow rows. In addition, narrow rows out yielded wide rows in 71 percent of all observations evaluated (Figure 3).

A more consistent response to narrow rows was documented when yields were above 70 bushels per acre, with a greater chance of having higher yields when using narrow rows. In summary, the potential for a positive yield response to narrow rows is greatest in high-yielding environments, but the response is not always consistent. Under low-yielding environments, conventional (30-inch) wide row spacing is the best alternative.

**Should populations be adjusted with narrow rows?**
Research results indicate that the population producing the greatest yield doesn’t change with different row spacing, but the magnitude of response to population potentially can be greater with narrower row spacing in high-yielding environments.

Planting date seems to have an interaction with row spacing. Over three years at the North Central Experiment Field, there was essentially no difference in yield between 15- and 30-inch rows for late-May plantings, but there was a 10-bushel yield advantage for 15-inch rows for late June plantings. A similar response was observed at Manhattan in 2009 when no difference in row spacing was observed for the May planting, but 10-inch rows had an 11-bushel/acre yield advantage over 30-inch rows with the June planting. The opposite response was seen at Hutchinson in 2009 where narrow rows had a 6 bushel/acre yield advantage with a May planting date, but wide rows had a 6 bushel/acre yield advantage with a June planting date. In all cases, yields were less with the June planting, but the June plantings at Belleville and Manhattan averaged more than 115 bushels/acre, while yields at Hutchinson were less than 92 bushels/acre.

**Hybrid selection**

The selection of sorghum hybrids should be based not only on maturity, but also on other traits such as resistance to pests, stalk strength, head exsertion, seeding vigor, and overall performance. The selection of a sorghum hybrid based on its maturity should be strictly related to the planting date, expected duration of the growing season, and the probability the hybrid will mature before the first freeze event. Shorter-season hybrids might be a better fit for late planting dates (mid-June to July depending on the regions); while a longer-season hybrid is recommended when planting time is early and the duration of the growing season is maximized.

For the summary of planting date information in Figure 1, hybrid maturity showed a very complex pattern across the diverse locations. Overall, longer-season hybrids showed a better yield at the mid-May planting time, but yields were less than 100 bushels per acre. For medium- and short-season hybrids, the early June planting date produced yields of more than 100 bushels per acre. The goal is to plant a hybrid maturity at each particular site/environment (weather and soil type) so the plants can bloom in favorable conditions, and have adequate grain fill duration before the first fall freeze occurs.

**Summary**

- Determine your desired population based on average rainfall and expected growing conditions. There is no need to go overboard.
- Make sure you plant enough seed for your desired plant population. About 65-70 percent field germination is a good general rule to use.
- Think about using narrower row spacing to close the canopy sooner and potentially capture greater yields in yield environments of 70 bushels per acre or more.
- Planting data and hybrid selection are tied together and are related to the conditions experienced by sorghum plants during the late summer. Think about this before deciding your planting time and selecting a hybrid.

**Suggested Resources from K-State Research and Extension**


Ignacio Ciampitti, Crop Production and Cropping Systems Specialist, [ciampitti@ksu.edu](mailto:ciampitti@ksu.edu)

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**Stripe Rust**

As wheat this week in Kansas ranges from Feekes 9 (flag leaf fully emerged) to Feekes 10.5 (full head emergence and flowering), stripe rust continues to be reported.
In Hodgeman County, as of May 12, infected leaves were located on the lower leaves. Infected upper leaves are most likely to result in yield loss. It is important to remember that there is a lag between when new leaves are infected and when they start to show symptoms. The severity of symptoms is dependent on weather conditions, and favors temperatures between 50-60° F with high humidity (for more information see: https://bookstore.ksre.ksu.edu/pubs/EP167.pdf). We are currently in the window to make a fungicide application to control stripe rust.

Kansas State University Virtual Wheat Field Day

Kansas State University will host its first-ever live Virtual Wheat Field Day on the evenings of Wed., May 27 and Thurs., May 28. In a twist on the typical wheat field day that Kansas farmers often attend, K-State Research and Extension will host a two-part wheat field day live on YouTube to update growers and others on the most recent crop advances and challenges while keeping producers safe from COVID-19.

The May 27-28 Virtual Wheat Field Day 2020 is really two “field evenings,” with each one to begin at 7 p.m. and end at 9 p.m. Agriculture Today radio host Eric Atkinson will moderate the program. The format will allow for questions from the audience. Growers are encouraged to attend one or both evenings on YouTube Live at separate links:
May 28 session - https://youtu.be/VrF3F2vyJpc

The program, with each speaker presenting from their own homes, includes:
May 27
- Welcome and introduction – Eric Atkinson, host of Agriculture Today radio show
- State of the 2020 Kansas wheat crop and variety selection in different parts of Kansas – Romulo Lollato, K-State Extension Agronomist
- Diseases in the 2020 Kansas wheat crop; selecting varieties with disease resistance in mind – Erick DeWolf, K-State plant pathologist
- Variety performance and selection in western Kansas - Lucas Haag, K-State Northwest Area agronomist
- Introduction: New K-State extension wheat pathologist – Kelsey Andersen
- Discussion panel with questions from the audience – Eric Atkinson

May 28
- Welcome and introduction – Eric Atkinson
- Current and upcoming K-State varieties for central Kansas – Allan Fritz, K-State wheat breeder;
- Current and upcoming K-State varieties for western Kansas – Guorong Zhang, K-State wheat breeder
- Variety performance and selection in central Kansas – Stu Duncan, K-State northeast area extension agronomist
- Overview of Kansas Wheat Commission-sponsored research - Aaron Harries, KWC
- Discussion panel with questions from the audience – Eric Atkinson

More information is available by contacting Romulo Lollato at lollato@ksu.edu or 785-477-4644.

For more information on this and other issues, contact the Hodgeman County Extension Office at 620-357-5315 or with email at hg@listserv.ksu.edu. Check out the website at https://www.hodgeman.k-state.edu/ for additional information.