K-State researchers study wheat for grazing, grain

K-State Research and Extension wheat specialist Romulo Lollato said he and his colleagues tested 28 wheat varieties at the South Central Experiment Field near Hutchinson – simulating grazing the crop in the winter and early spring and harvesting grain in the summer – to determine how the performance of different wheat varieties compared when managed under the dual-purpose system versus a grain-only system.

Their results are now available in a publication available at https://bookstore.ksre.ksu.edu/pubs/MF3312.pdf

“The three most important things that we need to keep in mind when selecting a wheat variety for a dual purpose system are fall forage production, the date of the first hollow stem and how varieties respond to grazing stress,” Lollato said.

The yield potential of fall forage is important because it affects the potential beef production from cattle grazing wheat in the fall, winter and spring. Lollato said approximately 100 pounds of beef can be produced for every 1,000 pounds of dry matter, wheat forage production in an acre.

The date of the first hollow stem will determine when producers should stop grazing cattle. Grazing past the first hollow stem can decrease the following spring’s wheat yield by as much as 1% to 5% per day, Lollato said.

How well wheat varieties respond to stress often shows up in its’ grain yield following grazing, as compared to the ungrazed counterparts.

“The recovery of wheat varieties from grazing is very specific to the variety,” Lollato said.

He said that one trend researchers found in their study is that wheat yields in a grain-only system might not necessarily indicate how a variety would stack up in a dual-purpose system.

“What we saw this year is typically what we see year in and year out,” Lollato said. “Sometimes in the dual purpose situation, we have different varieties showing up toward the top (of the wheat yield rankings). The potential to bounce back from grazing is showing up whenever we look at the ranking of those varieties in the dual purpose situation.”

For example, Lollato said a few varieties were among the top yielding group in both grazed and ungrazed scenarios, including Rock Star (a Polansky variety) and two Westbred varieties, WB4269 and WB4699.

“When evaluating the grazed plus grain group only, other varieties, including a few from Oklahoma State University, also appeared in the top yielding group, showing that those varieties might be better suited for the dual-purpose system,” he said.

The researchers tested several varieties grown in Kansas and the surrounding region, including varieties from Oklahoma. The new publication outlines those varieties
that are expected to be the best candidates for a dual-purpose system, based on being exposed to grazing stress during the early stages of development.

Lollato also has posted the publication and other updates regarding Kansas wheat production on Twitter; search for @KSUWheat.

2020 Kansas Performance Tests with Winter Wheat Varieties report available online

The 2020 Kansas Performance Tests with Winter Wheat Varieties report is now online. The Kansas Agricultural Experiment Station annually compares both new and currently grown wheat varieties across different regions in Kansas. These performance tests generate unbiased information designed to help Kansas growers chose the best wheat varieties for their cropping system.

In this report, you will find a recap of the 2019-20 wheat crop, with a detailed discussion of factors that made this year a very challenging growing season for some Kansas wheat producers. From extreme drought and harsh spring freezes, to an almost stress-free growing season; variability is the key word explaining the 2020 winter wheat growing season in Kansas. Different parts of the state were exposed to different levels of stresses, resulting in very different crop conditions and yield levels. More importantly, the results of the 2020 wheat variety performance tests are also shown.

Producers and crop consultants can use this resource to help select wheat varieties for their operation by checking for varieties that show a consistently good performance in their region.

The link for the online version of the 2020 Wheat Variety Performance test results is https://bookstore.ksre.ksu.edu/pubs/SRP1158.pdf. Results from previous years are available at http://www.agronomy.k-state.edu/services/crop-performance-tests/winter-wheat/index.html

Tips for fall planting of alfalfa

Alfalfa is a very important leguminous crop for dairy and other livestock industry in Kansas, with high yields that are highly digestible and high in protein. Late summer and early fall are often the best times to plant alfalfa in Kansas due to less weed pressure than spring planting.

Available moisture at planting is crucial for alfalfa establishment, but too much moisture can increase seedling disease incidence and reduce alfalfa nodulation and nitrogen fixation.

If soil moisture is available, growers in northwest Kansas can plant as early as Aug. 10. Optimum sowing date occurs later as we move towards southeast Kansas, where growers can plant until mid- to late-September. In other parts of Kansas, the
optimal planting time is late August or early September. Producers just need to plant early enough to have three to five trifoliate leaves before the first frost.

Alfalfa is a four- to five-year, or longer, investment and therefore it is crucial to ensure proper establishment. Some producers shy away from alfalfa because of its high establishment cost and risk of stand failure. In the long run, however, it’s relatively inexpensive, if amortized over the life of the crop.

If managed properly and given favorable weather conditions, dryland alfalfa can produce 3 to 6 dry matter tons of forage per acre per year. Irrigated fields can produce 6 to 8 dry matter tons per acre per year or more.

When sowing alfalfa, producers should keep the following in mind:

1. **Soil test and correct soil acidity.** Alfalfa grows best in well-drained soils with a pH of 6.5 to 7.5, and does not tolerate low soil pH. If the soil is acidic, add lime to raise soil pH to 6.8 before planting. Ensuring appropriate soil pH levels prior to planting is essential, especially as lime is relatively immobile in the soil profile and the field will not be worked for the next 3-5 years.

   Soil test and meet fertilization needs. Apply the needed phosphorus (P) and potassium (K) amounts according to soil test recommendations. Phosphorus fertilizer will be required if soil test P levels are below 25 ppm, and potassium fertilizer will be required if soil K levels are below 120 ppm. Even soils that test higher than these thresholds may need additional fertilizer. Small amounts of nitrogen fertilizer (15 to 20 lb/acre) as a starter at planting are beneficial for alfalfa establishment.

2. **Plant certified, inoculated seed.** Ensuring the correct *Rhizobium* inoculation is crucial for alfalfa seedlings to fix available soil nitrogen to meet the needs of growing alfalfa for optimum production.

3. **Plant in firm, moist soil.** A firm seedbed ensures good seed-soil contact; therefore, use a press wheel with the drill to firm the soil over the planted seed. No-till planting in small-grains stubble will usually provide a good seedbed.

   Don’t plant too deeply. Plant one-fourth to one-half inch deep on medium- and fine-textured soils and three-fourths inch deep on sandy soils. Don’t plant deeper than 10 times the seed diameter.

4. **Use the right seeding rate.** Plant 8 to 12 pounds of seed per acre on dryland in western Kansas, 12 to 15 pounds per acre on irrigated medium- to fine-textured soils, 15 to 20 pounds per acre on irrigated sandy soils, and 12 to 15 pounds per acre on dryland in central and eastern Kansas.

5. **Check for herbicide carryover that could damage the new alfalfa crop** – especially when planting alfalfa no-till into corn or grain sorghum stubble. In areas where row crops were drought-stressed and removed for silage, that sets up a great seedbed for alfalfa, but may still bring a risk of herbicide damage.

6. **Choose pest-resistant varieties.** Resistance to phytophthora root rot, bacterial wilt, fusarium wilt, verticillium wilt, anthracnose, the pea aphid, and the spotted alfalfa aphid is essential. Some varieties are resistant to even more diseases and insects.
7. Purchase alfalfa varieties with a fall dormancy rating ranging from 4 - 6 for Kansas. Fall dormancy relates to how soon an alfalfa variety will stop growing in the fall and how early it will begin growing in the spring or late winter. Simply put, it would be better not buy a variety with fall dormancy of 9-10, which can be more suitable for California and regions where alfalfa can keep growing year-round under irrigation.

More information about growing alfalfa in Kansas can be found in the Alalfa Production Handbook. That information also is available on the web at: www.ksre.ksu.edu/bookstore/pubs/c683.pdf Also see Alalfa Growth and Development, available on the web at: https://www.bookstore.ksre.ksu.edu/pubs/MF3348.pdf

******************************

Horticulture Reminders
1. Light pruning of shrubs and trees where 10% or less of the plant is removed can be done any time of year. Heavier pruning should be done in the spring if possible.
2. Fertilize strawberry bed for added flower bud development and larger crop next year.
3. Too late to spray for bagworms but can pull them off and dispose of them if practical.

******************************

Fall Lawn Seeding Tips
The keys to successful lawn seeding are proper rates, even dispersal, good seed to soil contact, and proper watering. Evenness is best achieved by carefully calibrating the seeder or by adjusting the seeder to a low setting and making several passes to ensure even distribution. Seeding a little on the heavy side with close overlapping is better than missing areas altogether, especially for the bunch-type tall fescue, which does not spread. Multiple seeder passes in opposite directions should help avoid this problem.

A more serious error in seeding is using the improper rate. For tall fescue, aim for 6 to 8 pounds of seed per 1,000 square feet for new areas and about half as much for overseeding or seeding areas in the shade.

Kentucky bluegrass is much smaller seed so less is needed for establishment. Use 2 to 3 pounds of seed per 1,000 square feet for a new lawn and half that for overseeding or shady areas.

Using too much seed results in a lawn more prone to disease and damage from stress. The best way to avoid such a mistake is to determine the square footage of the yard first, and then calculate the amount of seed. Using too little seed can also be detrimental and result in clumpy turf that is not as visually pleasing.
Establishing good seed to soil contact is essential for good germination rates. Slit seeders achieve good contact at the time of seeding by dropping seed directly behind the blade that slices a furrow into the soil. Packing wheels then follow to close the furrow. The same result can be accomplished by using a verticut before broadcasting the seed, and then verticutting in a different direction a second time.

Core aerators can also be used to seed grass. Go over an area at least three times in different directions, and then broadcast the seed. Germination will occur in the aeration holes. Because those holes stay moister than a traditional seedbed, this method requires less watering.

If the soil that has been worked by a rototiller, firm the soil with a roller or lawn tractor and use light hand raking to mix the seed into the soil. A leaf rake often works better than a garden rake because it mixes seed more shallowly.

Water newly planted areas lightly, but often. Keep soil constantly moist but not waterlogged. During hot days, a new lawn may need to be watered three times a day. If watered less, germination will be slowed. Cool, calm days may require watering only every couple of days. As the grass plants come up, gradually decrease watering to once a week if there is no rain. Let the plants tell you when to water. If you can push the blades down and they don't spring back up quickly, the lawn needs water. Once seed sprouts, try to minimize traffic (foot, mower, dog, etc.) seeded areas receive until the seedlings are a little more robust and ready to be mowed. Begin mowing once seedlings reach 3 to 4 inches tall. (Ward Upham)

Overseeding a Lawn

Tall fescue lawns that have become thin over the summer can be thickened up by overseeding during September. Start by mowing the grass short (1 to 1.5 inches) and removing the clippings. This will make it easier to achieve good seed-soil contact and increase the amount of light that will reach the young seedlings.

Good seed-soil contact is vital if the overseeding is to be successful. Excess thatch can prevent seed from reaching the soil and germinating. Normally we want 1/4 inch of thatch or less when overseeding. If the thatch layer is 3/4 inch or more, it is usually easiest to use a sod cutter to remove it and start over with a new lawn. A power rake can be used to reduce a thatch layer that is less than 3/4 inch but more than a quarter inch.

Once thatch is under control, the soil should be prepared for the seed. This can be done in various ways. For small spots, a hand rake can be used to roughen up the soil before the seed is applied.

A verticut machine has solid vertical blades that can be set to cut furrows in the soil. It is best to go two different directions with the machine. A slit seeder is a verticut machine with a seed hopper added so the soil prep and seeding operation are combined. Another option is to use a core aerator.
The core aerator will punch holes in the soil and deposit the soil cores on the surface of the ground. Each hole produces an excellent environment for seed germination and growth. Make three to four passes with the core aerator to ensure enough holes for the seed. Using a core aerator has the additional benefit of reducing the amount of watering needed to get the seed germinated and growing. Aeration also increases the water infiltration rate, decreases compaction, and increases the amount of oxygen in the soil.

Of the three methods, I prefer the slit seeder for obtaining good seed/soil contact. However, if watering is difficult, core aeration may be a better option. Regardless of method used, fertilizer should be applied at the rate suggested by a soil test, or a starter fertilizer should be used at the rate suggested on the bag. (Ward Upham)

Give Cool-Season Grasses a Boost

September is almost here and that means it is prime time to fertilize your tall fescue or Kentucky bluegrass lawns. If you could only fertilize your cool-season grasses once per year, this would be the best time to do it.

These grasses are entering their fall growth cycle as days shorten and temperatures moderate (especially at night). Cool-season grasses naturally thicken up in the fall by tillering (forming new shoots at the base of existing plants) and, for bluegrass, spreading by underground stems called rhizomes. Consequently, September is the most important time to fertilize these grasses.

Apply 1 to 1.5 pounds of actual nitrogen per 1,000 square feet. The settings recommended on lawn fertilizer bags usually result in about 1 pound of nitrogen per 1,000 square feet. We recommend a quick-release source of nitrogen at this time. Most fertilizers sold in garden centers and department stores contain either quick-release nitrogen or a mixture of quick- and slow-release. Usually only lawn fertilizers recommended for summer use contain slow-release nitrogen. Any of the others should be quick-release.

The second most important fertilization of cool-season grasses also occurs during the fall. A November fertilizer application will help the grass green up earlier next spring and provide the nutrients needed until summer. It also should be quick-release applied at the rate of 1-pound actual nitrogen per 1,000 square feet. (Ward Upham)

Power Raking and Core-Aeration

September is the optimum time to power rake or core-aerate tall fescue and Kentucky bluegrass lawns. These grasses should be coming out of their summer doldrums and beginning to grow more vigorously. This is a good time to consider what we are trying to accomplish with these practices.
Power raking is primarily a thatch control operation. It can be excessively damaging to the turf if not done carefully. For lawns with one-half inch of thatch or less, I don’t recommend power raking but rather core aeration. For those who are unsure what thatch is, it is a springy layer of light-brown organic matter that resembles peat moss and is located above the soil but below the grass foliage. Power raking pulls up an incredible amount of material that then must be dealt with by composting or discarding.

Core-aeration is a much better practice for most lawns. By removing cores of soil, core-aeration relieves compaction, hastens thatch decomposition, and improves water, nutrient, and oxygen movement into the soil profile. This operation should be performed when the soil is just moist enough so that it crumbles easily when worked between the fingers. Enough passes should be made so that the holes are spaced about 2 to 3 inches apart. Ideally, the holes should penetrate 2.5 to 3 inches deep. The cores can be left on the lawn to fall apart naturally (a process that usually takes two or three weeks, depending on soil-type), or they can be broken up with a power rake set just low enough to nick the cores, and then dragged with a section of chain-link fence or a steel doormat. The intermingling of soil and thatch is beneficial to the lawn. (Ward Upham)

Composting Tips
Here are some tips for having a successful composting experience:

1. The compost pile will heat up and then cool. Turn the pile by moving material from the outside of the pile to the inside. The pile will again heat and then cool. The compost is ready once the pile has cooled a second time.
2. The top of the compost pile should be dish-shaped so that water soaks in.
3. Try to place the compost pile near a water source so water can be easily added.
4. Shredding materials before adding them to the pile will speed up the composting process.
5. Do not add fats or meat as this will attract wildlife.
6. Do not add grass clippings that have been treated with crabgrass killers. If treated with crabgrass preventers or dandelion killers, the clipping can be added to compost after three mowings. (Ward Upham)