Ds Notes 030121

2021 KSU Cattlemen's Day

Plan to join us for the 2021 KSU Cattlemen's Day hosted virtually on Friday, March 5, 2021. Visit *www.KSUbeef.org* for online registration and more information. Thanks to our sponsors, registration is complimentary. The tentative schedule includes: Pandemic Effects on the US Beef Industry, *Jayson Lusk, Purdue University distinguished professor and Ag Economics department head*; 2020 Beef Processing, Retail and Foodservice COVID-19 Insights; *Jason Rumley, Radian Group principal & Robert Norris, Radian Group director;* Reproductive Technology Resources and Current Tools, *Sandy Johnson, KSU ASI livestock production specialist;* Pandemic Effects on Small Kansas Processors, *Liz Boyle, KSU ASI extension meat science specialist.*

For more information, contact Dale Blasi (dblasi@ksu.edu; 785-532-5427)

Horticulture Reminders

1. Prune fruit trees
2. Check fruit trees for scale and apply dormant oil if present..

Lettuce

Though lettuce is most often planted directly from seed in late March to early April, it can be started from transplants. Transplants allow lettuce to mature earlier so that it escapes the excessive heat that can lead to a strong flavor and bitterness.

Seed should be started four to five weeks before transplanting. Because transplants are planted at the same time as direct seeding, now would be a good time to begin. Use a seed starting mix and plant shallow as lettuce requires light for germination. A soil media temperature of 60 to 68 degrees will encourage germination. Watch the media temperature carefully, as seed can enter a thermal dormancy if germination temperatures are excessive. Also, a cooler temperature of 55 to 60 degrees should be used once the plants emerge.

Time to maturity varies depending on the type of lettuce, with leaf lettuce being the quickest, followed by bibb, romaine, and buttercrunch lettuce. Head or crisphead lettuce is the slowest and is least likely to mature before becoming bitter.

Spacing also varies with type. Leaf lettuce plants are spaced 4 to 6 inches apart, buttercrunch, bibb, and romaine are set at 6 to 8 inches and head lettuce should be at least 8 inches apart in the row. Lettuce does not have an extensive root system and requires regular watering if rainfall is lacking.

Fertilize before planting according to soil test. Plants should also be sidedressed when about 1/3 grown. Sidedressing is done with fertilizers that have more nitrogen than phosphorus and potassium. Use 1/3 cup of nitrate of soda (16-0-0) or 1/4 cup of a 27-3-3, 29-5-4 or similar fertilizer per 10 feet of row. The latter fertilizers are lawn fertilizers but will work well for sidedressing as long as they do not contain weed killers or weed preventers. (Ward Upham)

Soil Temperature and Vegetables

One of the most neglected tools for vegetable gardeners is a soil thermometer. Soil temperature is a much better measure of when to plant than air temperature or the calendar. Planting when soil is too cool can cause some seeds to rot and transplants to sit there.

A number of vegetables can germinate and grow at cool temperatures. For example, peas will germinate and grow well at a soil temperature of 40 F. Though lettuce, parsnips, and spinach can sprout at a soil temperature of 35 F, they prefer at least 45 F for best germination and growth. Radishes also do well at a soil temperature of 45 F. Even if the seeds of these cool-season crops are planted below the recommended soil temperature, the seed will rarely rot.

Warm-season crops such as tomatoes, sweet corn and beans are different. They prefer at least 55 F for germination (or transplanting), but others such as peppers, cucumbers, melons and sweet potatoes need it even warmer, about 60 F. If planted when soils are too cool, they likely will rot before germinating.

Taking soil temperature accurately is a bit of a science. First, use a thermometer with a metal probe. These are sold in many garden, auto parts and hardware stores. Those in auto parts stores are used to measure the temperature inside air conditioning ducts and are often less expensive than those used for gardening. Take the temperature 2.5 inches deep at about 10 to 11 a.m. Temperature variations throughout the day and night affect soil temperature, with lowest readings after dawn and warmest around mid-afternoon. The late-morning reading gives a good average temperature. If taking the soil temperature at this time is not practical, take a reading before you leave for work and a second when you return home and use the average. Also be sure to get a consistent reading for four to five days in a row before planting, and make sure a cold snap is not predicted.

An excellent guide sheet on this subject is published by the Alabama Cooperative Extension System and is titled "Soil Temperature Conditions for Vegetable Seed Germination." It can be found at https://tinyurl.com/1jw297zt (Ward Upham)

Leaching Houseplants

Everyone knows that someone stranded in the ocean should not drink the water. The salt content of that water will make a bad situation worse. What many people don't realize is that this same principle can harm plants.

Fertilizers are salts or are converted to salts before plant takeup. They must be salts in order for the plant roots to absorb them. However, salt levels can build up over time and eventually may harm plant roots leading to scorched leaves and unhealthy plants. Though this can happen under field conditions, especially in low rainfall areas, it is particularly critical with houseplants.

Houseplants have a certain soil volume that doesn't change until a plant is repotted. Salt build-up can be a crucial concern especially if the houseplants are fertilized so heavily that the plants can't use all the nutrients and fertilizer salts build up. This is especially common in winter when houseplants do not use much fertilizer due to low levels of light.

Leaching an overabundance of salts can be an important practice to ensure the health of our houseplants. Leaching is not a complicated or difficult process. It consists of adding enough water to wash out excess salts.

How much water is enough? Add the amount of water that would equal twice the volume of the pot. This, of course, would need to be done outside or in a bathtub or sink. Water must be added slowly so that it doesn't overflow the rim of the pot. If salt has formed a crust on the surface of the soil, remove it but don't take more than 1/4 inch of the underlying media. This may also be a good time to repot the plant. (Ward Upham)

An Easy Way to Propagate House Plants

You don't need a lot of equipment to propagate a houseplant. Gardeners can get by with a coffee cup, potting soil, 3 drinking straws, a plastic bag and a rubber band. Start by making a slit or hole in the bottom of the coffee cup so that it drains excess water. Then fill the cup with moist potting soil. Do not use garden soil as it does not drain well. Too much water (and too little oxygen) will harm cuttings.

Prepare the Cutting

- Remove about a 4-inch or smaller piece from the tip of the plant. The cut should be made just below a node. A node is where a leaf attaches to the stem.
- Remove the leaf or leaves from the bottom node. This is where roots will form.
- If there are just a few leaves on the tip, fine. However, if there is a cluster of leaves, remove most of them below the tip. This will cut down on water loss as the plant makes new roots.

Plant the Cutting

- Push the bottom end of the cutting into the soil. The remaining leaves should not contact the soil. A rooting hormone may be used if desired but usually is unnecessary with houseplants.

Make a Greenhouse

- Place 3 straws equidistant from each other near the outside edge the cup full of potting soil. They will support the plastic bag so that it does not contact the leaves and cause them to rot.
- Place the plastic bag over the cup like a tent and use the rubber band to secure the open end of the bag to the sides of the cup.

Grow the Cutting

- Place the cutting in bright, indirect light. Do not place in full sunlight as the cutting may overheat.
- Keep the cutting warm. A temperature of 72 degrees is ideal. Roots should form in about 10 days. Check by removing the plastic bag and pulling gently on the cutting. If it doesn't pull out easily, roots have started to form and the plastic bag can be left off. (Ward Upham)

Iris Leaf Spot Control Starts Now

Now is a good time to begin control measures for iris leaf spot by removing old, dead leaves. Iris leaf spot is a fungus disease that attacks the leaves and occasionally the flower stalks and buds of iris. Infection is favored by wet periods during the spring, and emerging leaves eventually show small (1/8- to 1/4-inch diameter) spots. The borders of these spots are reddish, and surrounding tissue first appears water-soaked, and then yellows. Spots enlarge after flowering and may coalesce. The disease tends to be worse in wet weather and may kill individual leaves. Though the disease will not kill the plant directly, repeated attacks can reduce plant vigor so that the iris may die from other stresses. Spores are passed to nearby plants by wind or splashing water.

Because this disease overwinters in old leaves, removal and destruction of dead leaves will help with control. For plants that had little infection the previous year, this may be all that is needed. Plants that were heavily infected last year should be sprayed with chlorothalonil (Bravo Fungicide, Fertilome Broad Spectrum Landscape & Garden Fungicide, Ortho Garden Disease Control, GardenTech Daconil, Bonide Fungonil, Bravo Flowable Fungicide) or myclobutanil (Immunox, Fungi-Max, Fertilome F-Stop Lawn & Garden Fungicide) starting when leaves appear in the spring. Repeat sprays every seven to 10 days for four to six sprays. Iris leaves are waxy, so be sure to include a spreader-sticker in your spray to ensure good coverage. (Ward Upham)

Pruning Deciduous Shrubs

Gardeners are eager to get out and do something in the landscape this time of year. One chore that can be taken care of now is pruning certain shrubs. Often, gardeners approach pruning with trepidation, but it is not as difficult as it may seem. Remember, not all shrubs need to be pruned (i.e. witch hazel), and certain shrubs, which will be identified later, should not be pruned this time of year. Shrubs are pruned to maintain or reduce size, rejuvenate growth, or to remove diseased, dead or damaged branches. Deciduous shrubs are those that lose their leaves each winter. Evergreen shrubs maintain foliage all year and include yews and junipers.

Deciduous shrubs are placed into three groups:

- Those that flower in the spring on wood produced last year;
- Those that flower later in the year on current season's growth; and
- Those that may produce flowers, but those flowers are of little ornamental value.

Shrubs that flower in the spring should not be pruned until immediately after flowering. Though pruning earlier will not harm the health of the plant, the flowering display will be reduced. Examples of these types of plants include forsythia, lilac and mock orange. Shrubs that bloom on current season's growth or that do not produce ornamental flowers are best pruned in late winter to early spring. Examples include Rose-of-Sharon, pyracantha, Bumald spirea and Japanese spirea.

Pruning during the spring allows wounds to heal quickly without threat from insects or disease. There is no need to treat pruning cuts with paints or sealers. In fact, some of these products may slow healing. There are three basic methods used in pruning shrubs:

thinning, heading back and rejuvenating. Thinning is used to thin out branches from a shrub that is too dense. It is accomplished by removing most of the inward growing twigs by cutting them back to a larger branch. On multi-stemmed shrubs, the oldest canes may be completely removed.

Heading back is done by removing the end of a branch by cutting it back to a bud and is used for either reducing height or keeping a shrub compact. Branches are not cut back to a uniform height because this results in a "witches-broom" effect.

Rejuvenation is the most severe type of pruning and may be used on multi-stem shrubs that have become too large, with too many old branches to justify saving the younger canes. All stems are cut back to 3- to 5-inch stubs. This is not recommended for all shrubs but does work well for spirea, forsythia, pyracantha, ninebark, Russian almond, little leaf mock orange, shrub roses and flowering quince. (Ward Upham)

2020 Kansas Performance Tests with Grain Sorghum Hybrids

The *2020 Kansas Performance Tests with Grain Sorghum Hybrids* report is now online. In this report, you will find a recap of the 2020 grain sorghum crop, with a detailed discussion summarizing the statewide growing conditions, diseases, and insects. More importantly, the results of the 2020 grain sorghum performance tests are also shown.

Grain sorghum performance tests, conducted annually by the Kansas Agricultural Experiment Station, provide farmers, extension workers, and seed industry personnel with unbiased agronomic information on many of the grain sorghum hybrids marketed in Kansas. Because entry selection and location are voluntary, not all hybrids grown in the state are included in tests, and the same group of hybrids is not grown at all test locations.

The online version of the 2020 Kansas grain sorghum performance tests can be found at: https://bookstore.ksre.ksu.edu/pubs/SRP1161.pdf.

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Potential for winterkill to the Kansas wheat crop

The extremely cold temperatures observed in Kansas in mid-February 2021 have the potential to cause winterkill to the winter wheat crop. However, several factors determine whether winter wheat will actually survive the winter. The most important factors from the crop's perspective include proper cold hardening and root system development, as well as the overall crop status in terms of damage from pests. From an environmental perspective, important factors include air temperature and the consequent soil temperature at the crown level, as well as snow cover and soil moisture content.

Crop condition

The crop conditions of the Kansas wheat crop are variable depending on region and planting date. Some of the fields planted early were able to capitalize on a few rainfall events that happened mid -September and attain a good stand establishment and early development. For the large majority, these would include wheat fields planted after a fallow period in western Kansas (about 57-66% of the crop in western Kansas, Figure 1), and after a wheat or after a canola crop in central Kansas (about 32-49% of the crop in central Kansas,

Figure 1). For the most part, these fields emerged by the first week of October (Figure 1) and were able to produce a good number of tillers, as well as good root development, improving its winterhardiness. The remainder of the crop around the state was likely planted after corn in western Kansas or after soybeans in central Kansas. Even if these fields were planted relatively on time (i.e., sometime in October in central Kansas), the emergence rate was considerably lower due to a lack of precipitation during October and into November. Consequently, as much as 36% of the Kansas crop emerged as late as November, depending on the region of the state (Figure 1). These fields had a much more limited development in the fall both in terms of tillers and root, owing to a combination of a late emergence and cool and dry weather conditions. Thus, fields in this condition will be more exposed to potential consequences of the cold temperatures.

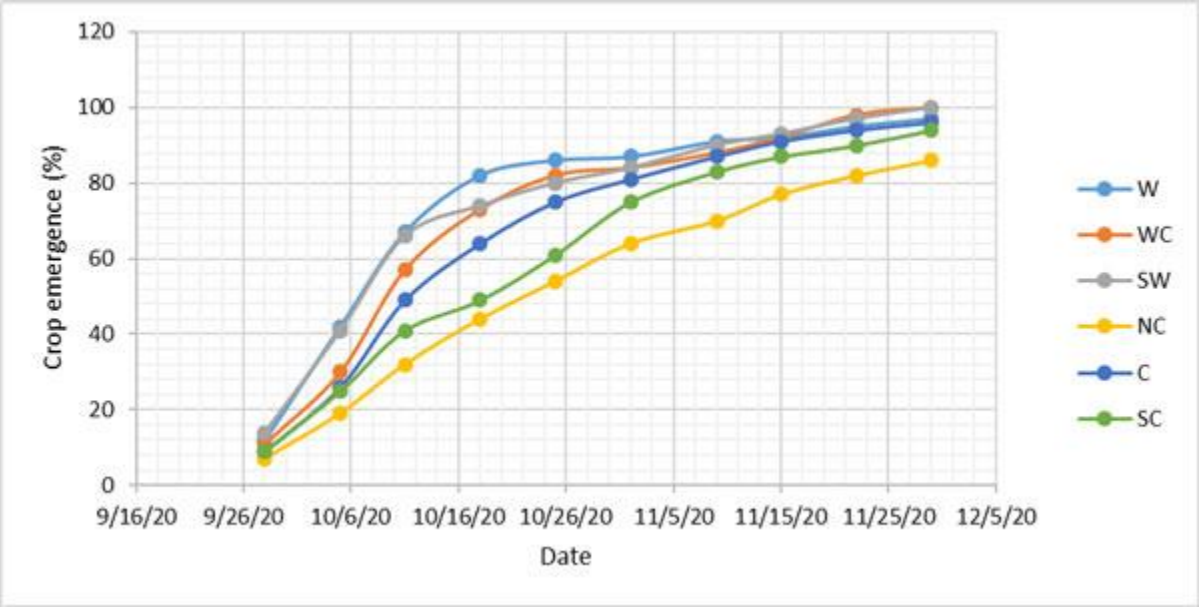

Figure 1. Percent emergence of winter wheat as a function of date for the six major winter wheat producing regions of Kansas: West, West Central, Southwest, North Central, Central, and South Central. Data courtesy of USDA-NASS.

The dry conditions experienced during October and into November extended through the winter wheat growing season for the majority of western and central Kansas – except for the south central and southeast portions of the state (Figure 2). In fact, total precipitation from September 1, 2020 through February 8, 2021 (prior to the extreme cold temperatures) was less than 4 inches for a large portion of the wheat growing region in Kansas (Figure 2), which decreased crop growth and development during the fall and early winter.

A well-developed crop, in fields that emerged in mid-September to early-October, can handle air temperatures during the winter in the single digits fairly well. However, soil temperatures at the single digits can cause significant damage and winterkill. A less developed crop, such as that fields emerged in late October or afterwards, will be more sensitive to winterkill with higher temperature thresholds for damage.

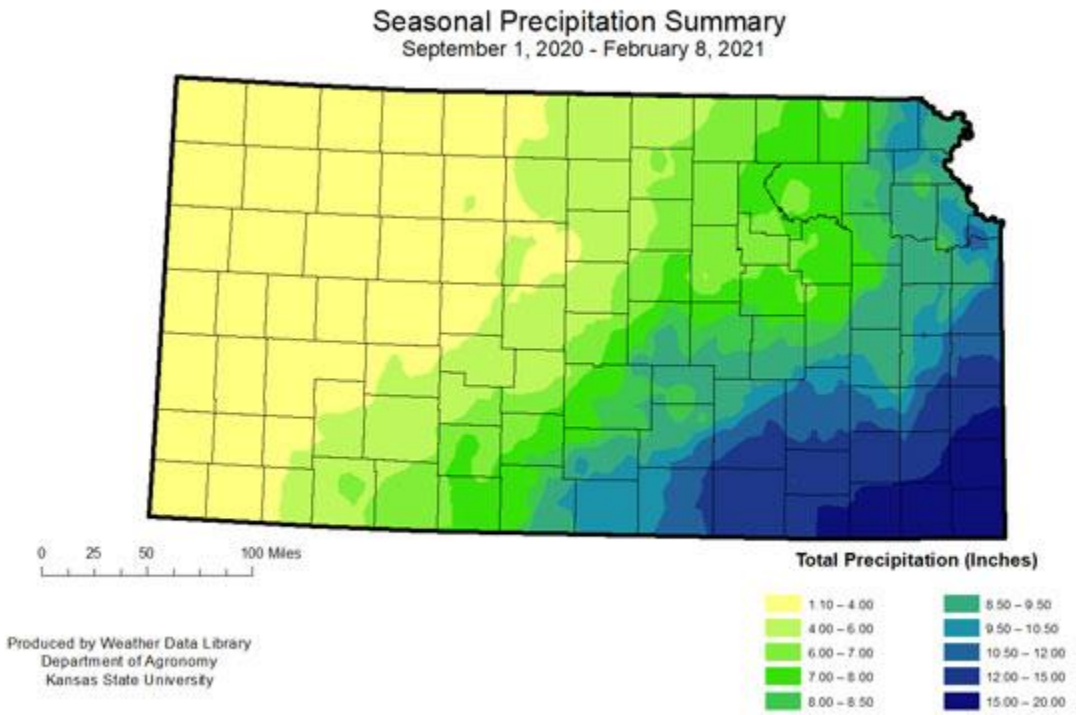

Figure 2. Total precipitation during the winter wheat growing season (September 1, 2020 – February 8, 2021) for Kansas. Map courtesy of the Kansas Weather Data Library.

Weather conditions: Air and soil temperatures

The lowest air temperatures ranged from -11°F in south central Kansas to -29°F in north central Kansas, with the majority of the temperatures in northwest Kansas ranging from -18 to -26°F (Figure 3). These temperatures would be low enough to cause leaf burn and, if soil temperatures reached these levels, winterkill. While average soil temperatures in in the February 10-17 period were usually above 20°F (data not shown), the lowest soil temperatures dropped as low as 5 to 14°F (Figure 3). Soil temperatures in the low teens or single digits occurred mostly in northwest Kansas, but were also present in parts of southwest and central Kansas.

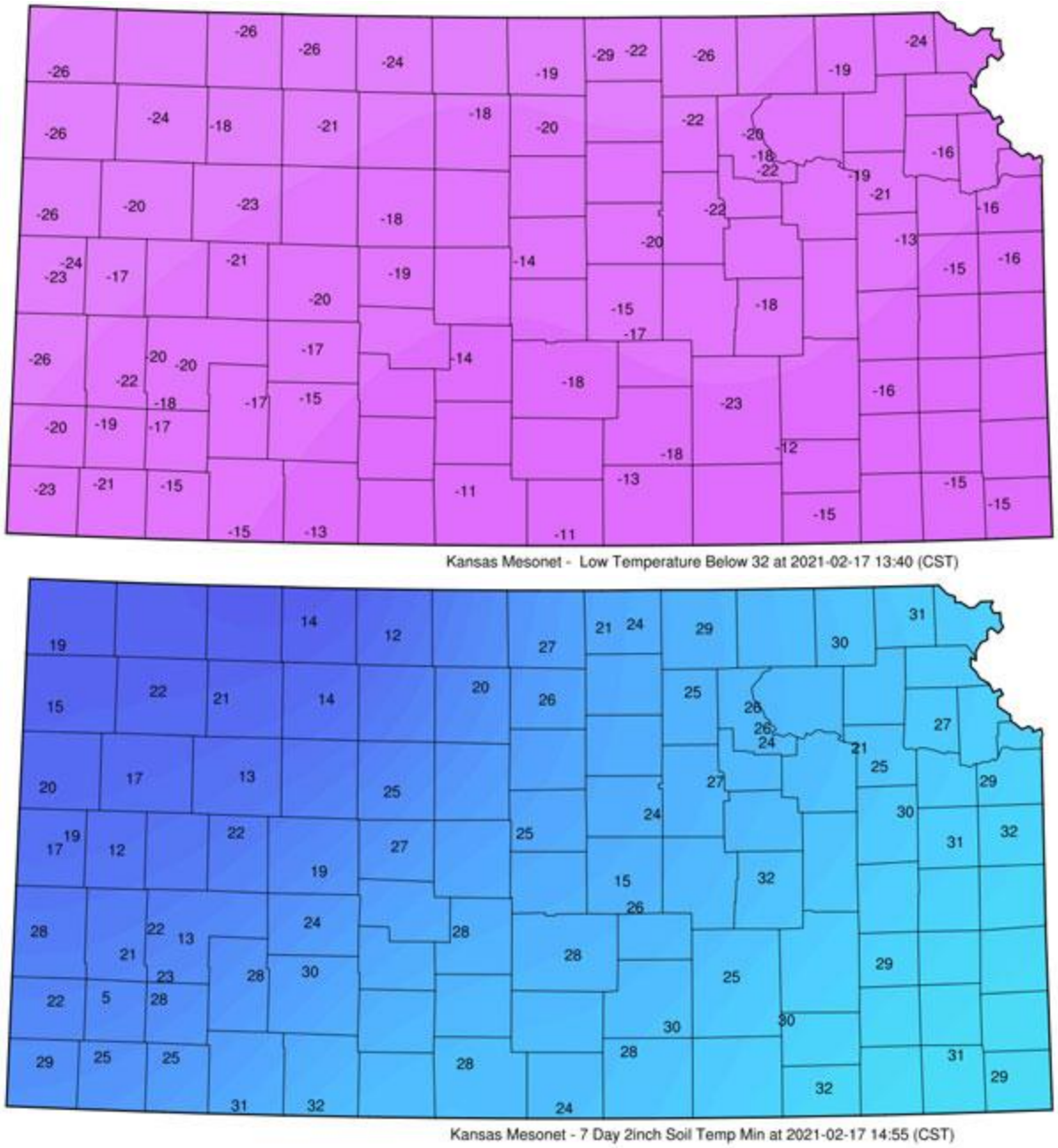

Figure 3. Lowest air temperatures (upper panel) and soil temperatures (lower panel) measured in the period between the last time a 32°F measurement occurred and February 17, 2021. Map courtesy of the Kansas Weather Data Library.

Weather conditions: Soil moisture and snow cover

Two environmental factors that affect the crop's response to cold temperatures due to their potential of buffering of low air temperatures are soil moisture content and snow cover. The dry spell observed in central, north central, and western Kansas prior to the cold spell (Figure 2) also resulted in very low topsoil moisture (data not shown), which did not help in buffering the lower air temperatures.

Regarding snow cover, the majority of the wheat growing region of Kansas received from 1 to 2 inches of snow, with the extreme north and southern borders receiving up to ~4

inches but the central portion of the state receiving virtually no snowfall (Figure 4). Reports also suggest that this snow was relatively dry and light-weight, decreasing its buffering potential, especially compared to the totals achieved in the neighboring states of Oklahoma (up to 10 inches) and Nebraska (up to 20 inches). Regions receiving 1-2 inches of snow probably had some buffering of the low air temperatures and may have helped in the current spell. For example, stations where snowfall was reported had lowest minimum soil temperatures of ~24-28°F, versus 15 degrees reported in a neighboring station without snowfall. Still, the combination of extremely cold air temperatures and dry soils, with a limited amount of snow across the majority of the state, might have caused damage to some fields.

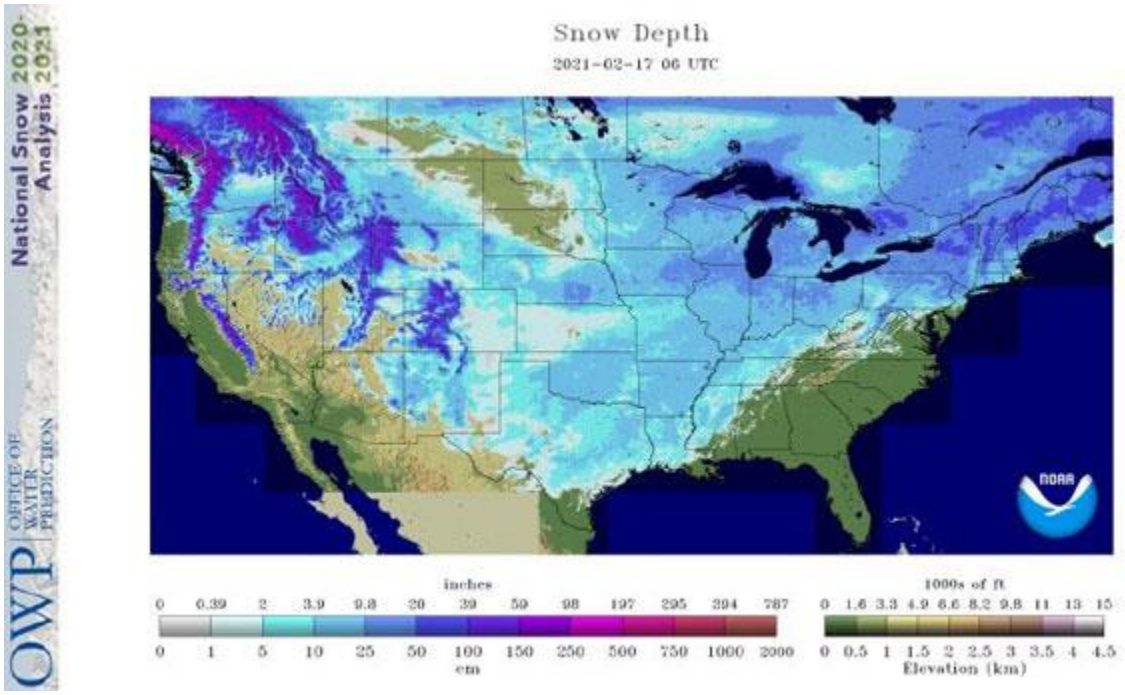

Figure 4. Snow depth as of February 17, 2021 as reported by the National Oceanic and Atmospheric Administration.

What is the potential for damage and what to look for?

The biggest potential for winterkill is in fields that emerged late (thus, with limited tiller and root development), where snow cover was limited (<2 inches), and in regions which soil temperatures reached low teens to single digits. Some of the regions of concern seem to be central Kansas (due to limited snow depth) and northwest Kansas (due to extremely cold temperatures). The conditions were less prone to winterkill in south central Kansas due to greater levels of soil moisture and snow depth.

The next 4-6 weeks will be crucial to determine the recovery potential of the crop. Ideally, precipitation would alleviate the current dry conditions and temperatures would warm up slowly so that the crop can start spring development. Continuation of the dry conditions can further impair crop recovery.

There is nothing growers can do at the moment, other than wait until green-up for further evaluation of the crop. As wheat green-up progresses, any winter injury will become more apparent. Injured wheat may initially green up, then go backwards.

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