

Extension Agronomy

eUpdate

10/20/2017

These e-Updates are a regular weekly item from K-State Extension Agronomy and Kathy Gehl, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Kathy Gehl, 785-532-3354 kgehl@ksu.edu, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

Subscribe to the eUpdate mailing list: https://listserv.ksu.edu/cgibin?SUBED1=EUPDATE&A=1

eUpdate Table of Contents | 10/20/2017 | Issue 658

1. Replanting decisions for winter wheat	3
2. New label amendments and guidelines for dicamba products used on Xtend crops	9
3. Management decisions for the last fall cutting of alfalfa	11
4. Fall soil testing of hay fields and pasture	13
5. Dectes stem borer in soybeans: Harvest implications	15
6. Fall wheat pests: Fall armyworms, armyworms, and army cutworms	
7. Consider fall treatments for control of marestail in soybeans	
8. The spotlight is on cover crops at the 2017 Agronomy Field Day, November 3	
9. Comparative Vegetation Condition Report: October 10, 2017 - October 16, 2017	29

1. Replanting decisions for winter wheat

Many Kansas wheat fields planted prior to late-September 2017 have poor stands (Figure 1). The poor emergence tends to be spotty, often with lower areas in the field exhibiting the worst stand establishment. These low-lying areas are typically not as well-drained as other areas in the field, which contributes to the poor emergence. The main reason for reduced emergence in the 2017-18 cropping season is the excessive rainfall during the first half of October, which may have led to poor soil aeration and seedling death. Also, some fields have been crusted by heavy rains after planting, which can prevent the coleoptile from breaking through the soil surface. If the coleoptile stays below the soil surface for more than a week or so, it will start losing viability. At that point, the producer will need to consider replanting.



Figure 1. Poor wheat emergence in lower areas of a wheat field in Saline County, Kansas. Higher areas, as seen in the back of the photo, tend to have good emergence and stand establishment. Photo taken mid-October 2017 by Tom Maxwell, Extension Agent for the

Central Kansas District.

While the example shown on Figure 1 occurred in Saline County, it is typical of many wheat fields across the state. Reports of poor wheat emergence due to excessive moisture occurred as far west as Rooks and Phillips counties. Where stands are too thin, producers will have to decide whether to replant.

Considerations when deciding whether to replant wheat fields are i) stand uniformity, ii) percent stand compared to the target stand, iii) replanting date, iv) weed control, and v) insurance cutoff date.

i. Stand uniformity

As shown in Figure 1, easily recognizable patterns occur in the field based on soil water drainage and water accumulation when excessively moist soils are the cause for poor wheat emergence. In this case, stands might be relatively uniform in better-drained areas but non-existent in poorer-drained areas, leading to a high within-field variability. Producers should consider replanting top-priority for large areas with poor emergence once conditions allow for field work. If the stand is patchy in areas that already emerged, producers should also consider replanting at lower seeding rates to bring final population closer to the desired stand, as discussed below.

ii. Percent stand compared to the goal

In areas that already emerged despite the excessive moisture, stands might also be sub-optimal and thinner than desired. In order to check how far actual stands are from the target stand, counting the number of emerged plants per row foot and comparing to the values on Table 1 should give a good estimate.

Table 1 shows the number of target plants per row foot depending on seeding rate, seed size, row spacing, and considering 80% emergence. If seed size is not known, 14,000 to 16,000 seeds per pound can be used for most wheat varieties in Kansas, except those with rather large or small kernels. To determine the average number of plants per foot of row, several random plant counts across the field should be taken, given a more or less uniform emergence throughout the field. If the average number of plants is about 50 percent or more of normal and the stand is evenly distributed, the recommendation is to keep the stand. Wheat's tillering ability can greatly compensate for a poor stand provided soil fertility is adequate and the weather is favorable. With less than 40 percent of normal stand, the recommendation is to replant the field. If possible, replanting should be done at a 45 degree angle to the original stand to minimize damage to the existing stand.

Recent K-State research indicates that a minimum of approximately 900,000 emerged plants per acre is needed for most varieties to maximize yields under normal fertility conditions in Kansas. Thus, if producers are not aware of their target plants per row foot, the above threshold might be a good goal for central Kansas producers.

Seeding	Seed size	Row spacing (inches)					
rate		6	7.5	8	10	12	
lb/ac	seeds/lb	Target plants per row foot (80% emergence)					
45	12,000	5	6	7	8	10	
	14,000	6	7	8	10	12	
	16,000	7	8	9	11	13	
	18,000	7	9	10	12	15	
60	12,000	7	8	9	11	13	
	14,000	8	10	10	13	15	
	16,000	9	11	12	15	18	
	18,000	10	12	13	17	20	
75	12,000	8	10	11	14	17	
	14,000	10	12	13	16	19	
	16,000	11	14	15	18	22	
	18,000	12	15	17	21	25	
90	12,000	10	12	13	17	20	
	14,000	12	14	15	19	23	
	16,000	13	17	18	22	26	
	18,000	15	19	20	25	30	
120	12,000	13	17	18	22	26	
	14,000	15	19	21	26	31	
	16,000	18	22	24	29	35	
	18,000	20	25	26	33	40	

Table 1. Target plants per row foot (80% emergence) based on seeding rate, seed size, and row spacing.

iii. Replanting date and seeding rate

As of late October, most of the state is past the optimum sowing date, with maybe the exception of south central Kansas. For portions of the field with no stand established - where the entire stand will need to be replanted - producers should plan to increase their seeding rates 10-15% for every week past the optimum sowing date.

In parts of the field where a partial stand was achieved but for a total of about 50% stand, or parts of the field that did not emerge evenly, or that the seedlings have perished after planting as is the case for many fields, producers should replant immediately to avoid compromising the yield potential.

In portions of the field where stand is below-optimum, producers can cross-drill at the rate of 30-40 pounds per acre in western Kansas and 40-60 pounds per acre in central and eastern Kansas, using a double-disc opener drill if at all possible, to minimize damage to the existing stand. If the replanting is done in November or later, increase the seeding rates to 60-75 pounds per acre in western Kansas and 75-90 pounds per acre in central Kansas. If stands are less than 30 percent of normal, increase these seeding rates by 20-30 pounds per acre.

iv. Weed control

A thin wheat stand can increase the potential for weed and grass infestations. If these concerns become severe, the wheat stand should probably be replanted or thickened. Uneven wheat stands can also influence herbicide timing due to different staging of the crop within the same field. Herbicides such as 2,4-D and dicamba have very specific application guidelines, and attention must be paid to the herbicide label to avoid injury to the wheat crop. Paying attention to wheat leaf stage when controlling weeds can help minimize the consequences of applying these herbicides outside the labeled recommendations. Potential problems due to improper application timing include trapped heads, missing florets, or twisted awns. More developed plants during the fall often hold the best yield potential; thus, this factor might be considered if a decision needs to be made between risking some herbicide injury to more developed plants versus those that emerged late in uneven wheat fields.

v. Insurance cut off dates

Finally, some producers might also consider insurance cut off dates, as they need to ensure their crop is planted prior to that date. Figure 2 shows 2018 crop year final plant dates for wheat. For insurance purposes, crops planted before these dates are insured with no reduction in coverage or adjustment to the premium. The final plant date is already past for parts of western Kansas, which means that producers replanting after this date will have a reduction in coverage of 1% per day until the end of the late-planting period. For wheat, late-planting period often occurs about 15 days after the final plant date shown in Figure 2.

KANSAS 2018 Crop Year Final Planting Dates WHEAT



Figure 2. USDA 2018 crop year final planting date for wheat. Crops planted before the dates above can be insured with no reduction in coverage or adjustment to premium. The final planting date for wheat is generally 15 days after the dates above, at a reduction in coverage of 1% per day during the period between initial and final plant date.

Romulo Lollato, Wheat and Forages Specialist lollato@ksu.edu

2. New label amendments and guidelines for dicamba products used on Xtend crops

Most producers have probably already heard that EPA, and the companies selling dicamba products registered for use on Xtend soybeans and cotton, have reached an agreement on label modifications and application requirements to try and further minimize the potential for off-target damage to susceptible crops. Below is a brief summary of the key changes to the Xtendimax, Fexapan, and Engenia product labels.

• All products will be classified as "restricted use", permitting only certified applicators to purchase and apply or supervise the application of the products.

- Supplemental labeling will be incorporated into the regular labels, and application guidelines will be the same for all uses, including dicamba and non-dicamba tolerant crops.
- Applicators must complete dicamba or auxin-specific training prior to application.
- Requires more specific record keeping of applications, including checking for the presence of sensitive crops in the area.
- Do not spray when wind is blowing in the direction of neighboring sensitive crops, including non-Xtend crops. More clearly states that this restriction includes non-Xtend soybeans and cotton.
- Restricts applications to wind speeds between 3 and 10 mph. Reduced maximum wind speed from 15 mph in 2017 and prohibits all applications at less than 3 mph when temperature inversions are more likely to occur.
- Prohibits applications between sundown and sunrise. All applications prohibited during temperature inversions regardless of time of day.
- Restricts the maximum application ground speed to less than 15 mph, with 5 mph recommended on field edges.
- Thoroughly clean spray equipment before and after application. Must be documented.
- Use an approved buffering agent if the water source or tank mix components result in an acidic spray solution less than pH 5.

In addition, remember that AMS is not allowed with any of these products because it greatly increases the volatility of dicamba. Approved tank-mixes, adjuvants, spray tips, and maximum pressures are still presented at the corresponding websites for each respective product as listed below:

Xtendimax: www.xtendimaxapplicationrequirements.com

Fexapan: www.fexapanapplicationrequirements.dupont.com

Engenia: <u>www.engeniatankmix.com</u>

There is still a great deal of debate in the scientific community about the degree of vapor drift that might be occurring from dicamba applications. Most of the new application guidelines are directed more towards minimizing physical spray drift vs vapor drift. The time-of-day restrictions are intended to help reduce applications during temperature inversions (see <u>eUpdate Issue 657</u> for more information on temperature inversions), which could result in greater off-target movement from both fine droplets and vapor. Be aware that the majority of problems seemed to occur from

postemergence applications made after soybeans were emerged and during warmer conditions. Applications earlier in the season may help minimize off-target issues.

Keep in mind that additional restrictions may be implemented by state regulatory agencies.

Dallas Peterson, Extension Weed Management dpeterso@ksu.edu

Curtis Thompson, Weed Management Specialist and Extension Agronomy State Leader <u>cthompso@ksu.edu</u>

Doug Shoup, Southeast Area Crops and Soils Specialist <u>dshoup@ksu.edu</u>

3. Management decisions for the last fall cutting of alfalfa

In some areas of Kansas, alfalfa may still be producing growth. This creates a dilemma for producers in need of forage, or for those who want to maximize profits from one last cutting. Should you cut it now or just before the first killing frost (24 to 26 degrees) is forecast to get as much productivity as possible – or wait until right after the first killing frost?

At this point in the year, the best approach is to wait until right after the first killing frost, before too many of the leaves have dropped. The timing of the last cutting can impact the productivity of the stand in the following year.

The agronomics of the question are clear. At this stage of the growing season, alfalfa plants need to store enough carbohydrates to survive the winter. If root reserves are not replenished adequately before the first killing frost in the fall, the stand is more susceptible to winter damage than it would be normally. That could result in slower green-up and early growth next spring.

The last cutting, prior to fall dormancy, should be made based on expected crown regrowth rather than one-tenth bloom because of the decreasing photoperiod. The last cutting of alfalfa should not be made 4 to 6 weeks before the first killing frost. This should allow adequate time for replenishment of root reserves.



Figure 1. Alfalfa stand with approximately 12 inches of top growth prior to winter dormancy.

The last cut in this stand was performed early September and this photo was taken in late October. This stand will be hayed immediately following the first killing frost. Photo by Romulo Lollato, K-State Research and Extension.

For northern areas of the state, particularly northwest Kansas, late September should be the target date for the final cutting before dormancy. The last week of September should be the cutoff date for southwest Kansas. The first week of October is the cutoff for southeast Kansas. In other words, it's too late now to make the last cutting until after a killing frost occurs in southeast Kansas.

Making a cutting now, before a killing frost occurs, could initiate regrowth, which will reduce root reserves during a critical time. About the worst thing that could happen to an alfalfa stand that is cut in late-October would be for the plants to regrow about 3 to 6 inches and then get a killing frost. In that scenario, the root carbohydrate reserves would be at a low point which could hamper green-up next spring.

After a killing frost, the remaining forage (if any) can be haved safely. However, the producer should act quickly because the leaves will soon drop off.

Late fall is a great time of the year to soil sample alfalfa ground. This timing allows for an accurate assessment of available soil nutrients and provides enough time to make nutrient management decisions before the crop starts growing in the spring. Soil tests of most interest include pH, phosphorus, and potassium, and to a lesser extent sulfur and boron. In particular, potassium is highly related to winter survival so it's important to make sure to have adequate soil potassium levels before entering winter. When sampling for immobile nutrients, sampling depth should be six inches, while mobile nutrients (sulfur) should be sampled to 24 inches. See the companion eUpdate article in this issue, "Fall soil testing of hay fields and pasture", for more detailed information.

Romulo Lollato, Wheat and Forages Specialist lollato@ksu.edu

Doo-Hong Min, Forage Agronomist dmin@ksu.edu

4. Fall soil testing of hay fields and pasture

Soil testing can be done in either spring or fall on hay fields and pasture. Given a choice, fall would be the preferred time because it allows more time for any needed lime applications to have an effect before the main growing season begins, and it gives the producer some flexibility for planning nutrient applications.



Figure 1. Grazing pasture in the fall. Photo by Doo-Hong Min, K-State Research and Extension.

Soil sampling on a regular basis (every 3 – 4 years) can keep you from applying excessive and unnecessary amounts of fertilizer or manure, and can increase yields by revealing exactly which soil nutrients are too low for optimum productivity. By doing this practice properly, producers can save money and reduce the environmental impacts.

To take accurate soil samples, it is best to use a soil probe. You can borrow a probe from many county extension or NRCS offices. A shovel or spade can be used, but make sure to dig a hole first and then take a nice even slice to the correct depth. A shovel or spade that angles to a point at the bottom can easily result in misleading soil test results because the sample is biased by having more soil from the surface and less from lower depths.

When taking soil samples, it's important to have a representative composite soil sample from the field by combining several soil cores and mixing thoroughly. The ideal sampling technique is to take at least one composite soil sample every 10 acres. On these 10-acre areas, take 15 to 20 cores or subsamples to make up your representative composite sample.

If the field has areas where different forages or crops have been grown, or has different soil types, then soil sampling from these areas should be done separately. Sampling depth for pastures and hayfields should be 3 to 4 inches for pH evaluation. For phosphorus and potassium, a 6-inch depth is preferred when submitting samples to the K-State Soil Testing Laboratory since that is the depth we have used to calibrate recommendations.

One important soil property for forage production, especially with legumes, is soil pH. The optimal pH level is 6 to 7, depending on the forage species. Grasses such as brome or fescue do well at a lower pH. But legumes, especially alfalfa, require a near-neutral pH (~pH 7). If the soil pH is too low or too high, nutrient uptake of macro- and micronutrients can be reduced. Especially important for legumes such as alfalfa and clover is the impact of pH on nodulation and nitrogen fixation. At low soil pH, aluminum toxicity can also be an issue.

When you lime a new pasture, it is important to apply the lime 6 to 12 months before planting legumes. If you want to get a more rapid response from liming, use fine-ground liming materials with a high effective calcium carbonate (ECC). Fields that will be planted to alfalfa next spring should also be evaluated for phosphorus and potassium levels and make corrections before planting.

For more information on soil sampling and submitting samples to the K-State Soil Testing Laboratory, visit their website at <u>http://www.agronomy.k-state.edu/services/soiltesting/</u>. You can also access two previous eUpdate articles discussing fall soil sampling and collecting a representative soil sample in <u>Issue 652, September 22, 2017</u>.

Doo-Hong Min, Forage Agronomist <u>dmin@ksu.edu</u>

Dorivar Ruiz Diaz, Nutrient Management Specialist ruizdiaz@ksu.edu

Andrew Stammer, Soil Testing Laboratory Manager ajstammer@ksu.edu

5. Dectes stem borer in soybeans: Harvest implications

Dectes (soybean) stem borer damage is becoming more and more apparent as soybean harvest is delayed throughout north central Kansas. The Dectes stem borer was first detected infesting soybeans in Kansas around 1985 in south central parts of the state. Annually, the adults emerge from soybean stubble, where they overwinter as larvae, around the 4th of July. The adults mate and deposit eggs around soybean leaf petioles. The small larvae bore into the plants and feed, making their way into the main stem.









Dectes stem borer larvae are cannibalistic, so as these larvae come into contact with others, only one survives to tunnel down the main stem to the base where they girdle around the interior of the stem, typically just prior to harvest. This girdling activity often goes unnoticed by producers. However, the stems are weakened and wind will blow girdled plants over. Fields with significant infestations will have serious lodging, as we are seeing now in parts of north central Kansas. Harvesting these lodged plants is very difficult at best, and if harvest is delayed further, the grain lying on the ground may be lost to rodents, disease, etc. Infested fields should be harvested as soon as possible, hopefully before any additional lodging occurs! There is no preventative or rescue treatment available for Dectes stem borers in soybeans.

For more information on the biology of the Dectes stem borer, please visit Dectes Stem Borer, MF2581: <u>https://www.bookstore.ksre.ksu.edu/pubs/MF2581.pdf</u>

Jeff Whitworth, Extension Entomology jwhitwor@ksu.edu

Holly Schwarting, Entomology Research Associate

holly3@ksu.edu

6. Fall wheat pests: Fall armyworms, armyworms, and army cutworms

Where wheat has emerged, fields need to be checked for fall armyworms, armyworms, and army cutworms. If worms are found on your wheat this fall, the first thing to do is to determine which worm is present. Proper identification is important because they have different feeding and overwintering patterns.

We have been hearing about and seeing a mixture of both armyworms and fall armyworms on wheat and other host plants this fall. These small worms start by causing small "windowpanes" in wheat (Figure 1) or alfalfa. No army cutworm infestations have been verified yet on wheat this year.



Figure 1. "Windowpane" feeding damage on wheat leaf. Photo by Holly Schwarting, K-State Research and Extension.

Flocks of birds in wheat or alfalfa fields in fall or early spring are often indicative of a "worm" infestation as the birds are feeding on the larvae. Fields with 25-30 percent of the plants showing "windowpane" feeding need to be monitored frequently as these larvae consume more as they get larger. Treatment should be applied before stands become threatened.

For treatment options, please refer to the latest K-State Wheat Insect Management guide at: <u>http://www.bookstore.ksre.ksu.edu/pubs/mf745.pdf</u>

Fall armyworms

When scouting fields for fall armyworm damage, look for "windowpane" injury caused by tiny larvae (Figure 2) chewing on seedling leaves. Each individual field should be scouted in several locations, including the field margins and the interior. The larvae themselves are usually too small to be easily observed after they first hatch. The newly hatched larvae will hide in or around the base of seedlings. Within a few days of hatching, the larvae become large enough to destroy entire leaves.

The suggested treatment threshold is 2-3 actively feeding larvae per linear foot of row in wheat. Fields with 25 to 30 percent of plants with windowpane injury should be re-examined daily and treated immediately if stand establishment appears threatened. Larvae increase in size at an exponential rate, as does their food requirements. Later instars do the most damage, sometimes destroying entire stands, and are the least susceptible to insecticides. Without treatment, problems can continue until larvae reach maturity or until a killing frost. Thin stands of wheat are especially at risk.



Figure 2. Fall armyworm larva. Photo by Holly Schwarting, K-State Research and Extension.

Fall armyworms will feed until the temperatures cool into the mid-20's (F) or they pupate, whichever comes first. If a killing frost does not occur soon after the treatment threshold is reached, fields may require chemical treatment.

Armyworms

Armyworm larvae are green to black with stripes of various colors (Figure 3). The head capsule is medium brown with dark markings. Most damage to wheat in Kansas occurs in southern and eastern areas of the state during warm, moist periods from late April to early June rather than in the fall. Like fall armyworms, armyworms will feed until the temperatures cool in the mid-20s or they pupate, whichever occurs first.



Figure 3. Armyworm larva. Photo by Holly Schwarting, K-State Research and Extension.

Most armyworm damage occurs during the last three to five days of larval feeding. When leaf feeding is observed, look for larvae curled up on the ground under litter, especially in patches of lodged plants. Treatment is usually not necessary below levels of 4 to 5 larvae per foot, but is probably justified at infestations of 5 to 8 per foot depending upon larval maturity in relation to crop maturity.

Army cutworm

The army cutworm is a late fall /early spring pest in Kansas. Leaf damage by early-stage army cutworm larvae looks very similar to that of fall armyworms. However, army cutworm larvae are

typically very small in the early fall – smaller than fall armyworms or armyworms. If the worms causing defoliation in wheat in the fall are relatively large, 1/2 inch or more, they are probably armyworms and/or fall armyworms.

Adult moths lay their eggs in soil in the fall. The brown, faintly striped larvae hatch during the fall and early winter (Figure 4). They will feed throughout the winter (unlike armyworm and fall armyworm larvae), burrowing in the soil to escape frost and emerging again to feed during spells of warmer weather.



Figure 4. Army cutworm larva. Photo by Holly Schwarting, K-State Research and Extension.

Unlike other cutworms, only above-ground plant parts are consumed, giving plants the appearance of being grazed by cattle.

Infestations in well-established stands will probably not require insecticide applications while wheat is dormant, but some fields never green up in the spring because of cutworm feeding. Along with fall scouting, frequent inspections during warm periods in February, March, and early April are strongly encouraged, particularly when preceded by a dry fall.

Moisture availability, crop condition, and regrowth potential are all factors influencing potential

losses to this pest. Late-planted fields under dry conditions with poor tillering may suffer economic damage with as few as 1 or 2 larvae per square foot.

In most fields treatment will not be necessary until populations average 4 to 5 worms per square foot. Vigorous, well-tillered fields under optimal growing conditions can tolerate even higher populations, as many as 9 or 10 larvae per square foot, without measurable yield loss. Infestations in later stages of crop development are less damaging than early ones because established plants can compensate for considerable defoliation and larvae normally finish feeding before wheat enters reproductive stages.

Mixed populations

Mostly the same insecticides are registered for control of these species of worms, but higher rates are recommended for fall armyworm. Any fields with mixed populations should be treated with the fall armyworm rate.

Jeff Whitworth, Extension Entomology jwhitwor@ksu.edu

Holly Schwarting, Entomology Research Associate holly3@ksu.edu

7. Consider fall treatments for control of marestail in soybeans

Herbicide effectiveness on marestail depends largely on the stage of growth and size of the plants. Marestail generally is most susceptible to herbicides when it is small and still in the rosette stage of growth (Figure 1). Once marestail starts to bolt and exceed 4 to 6 inches tall, it becomes very difficult to kill with most herbicides. Since marestail can germinate throughout much of the year, a single herbicide application probably will not provide season-long control, particularly in no-till.



Figure 1. Growth stages of marestail at seedling, rosette, and bolting. Photos by Dallas Peterson, K-State Research and Extension.

The most effective marestail control program should start with fall treatments, especially in fields with a history of marestail problems or fields that we can see now with adult plants setting seed. A number of different herbicides can be applied in the fall for marestail control ahead of soybeans, such as 2,4-D, dicamba, Sharpen, Canopy EX, Autumn Super, or Valor XLT. The addition of glyphosate helps control grasses and other broadleaf weeds, and can even help on glyphosate-resistant marestail.

Fall applications can be effective even into December as long as applications are made to actively growing weeds during a stretch of mild temperatures. In fact, for fall applications, it may be better to wait until November to allow most of the fall-germinating winter annuals to emerge (Figure 2).



Figure 2. Photo taken in April 2017 of a plot sprayed with glyphosate plus dicamba in late November 2016. Photo by Dallas Peterson, K-State Research and Extension.

A residual herbicide such as metribuzin-, Valor- or Classic-containing products (unless the marestail is ALS resistant) can be added to help control marestail through winter and early spring. However, don't expect a residual herbicide applied in the fall to provide good residual weed control through the spring and summer of the next year. If a fall treatment isn't made, early spring treatments in March to early April should be applied to help control fall-germinated marestail.

Dallas Peterson, Weed Management Specialist dpeterso@ksu.edu

Doug Shoup, Southeast Area Crops and Soils Specialist <u>dshoup@ksu.edu</u>

8. The spotlight is on cover crops at the 2017 Agronomy Field Day, November 3

Exciting advances in cover crop research will be featured at the 2017 Agronomy Field Day on November 3 at the Ashland Bottoms Research Farm in Manhattan. Topics will focus on understanding the role cover crops play in water quality, weed control, soil quality, and more.

The full list of topics and K-State speakers:

- Using cover crops for weed suppression Anita Dille, Weed Ecology
- Improving soil quality with cover crops DeAnn Presley, Soil Management Specialist
- Protecting surface water with healthy soils, cover crops, and fertilizer management Nathan Nelson, Soil Fertility and Nutrient Management
- Soybean yields and cover crops Ignacio Ciampitti, Crop Production Specialist and Doug Shoup, South East Area Agronomist.
- Ten years of cover crops in a no-till wheat-sorghum-soybean rotation Kraig Roozeboom, Cropping Systems Agronomist
- Cover crops and nitrogen management Peter Tomlinson, Environmental Quality Specialist

The field day will begin with registration at 9 a.m. and wrap up at 1 p.m. Sessions include three concurrent tours in the morning, starting at 9:30, followed by a poster session during and after lunch.

There is no charge to attend, and a complimentary lunch will be available. Preregistration is requested by October 30th so that a lunch count can be made. To preregister online, see: <u>https://agron-field-day-2017.eventbrite.com</u>. You can also preregister by calling Troy Lynn Eckart at 785-532-5776. On-site registration will also be available.

Directions to the Ashland Bottoms Research Farm are given in the infographic below. The address for the farm is 2801 W. 40th Ave, Manhattan, KS 66502.

For more information, interested persons can contact Dorivar Ruiz Diaz at 785-532-6183 or ruizdiaz@ksu.edu

Cover Crops Field Day

- Ashland Bottoms Research Farm -November 3, 2017

Department of Agronomy

Topics and K-State speakers:

Using cover crops for weed suppression Anita Dille

Improving soil quality with cover crops DeAnn Presley

Protecting surface water with healthy soils, cover crops, and fertilizer management Nathan Nelson

Soybean yields and cover crops Ignacio Ciampitti and Doug Shoup

Ten years of cover crops in a no-till wheat-sorghum-soybean rotation Kraig Roozeboom

Cover crops and nitrogen management Peter Tomlinson

Schedule:

Registration at 9 a.m. (lunch included) Sessions include two concurrent one-hour tours in the morning Poster session during and after lunch.

Registration:

Please register online by October 30 at: agron-field-day-2017.eventbrite.com or by phone: 785-532-5776

For more information contact: Dorivar Ruiz Diaz 785-532-6183 | ruizdiaz@ksu.edu

Directions to Ashland Bottoms Research Farm:

- From K-177 Highway (south of the Kansas River Bridge): turn west on McDowell Creek Road and follow it 7.4 miles, turn right (north) on W. 40th Ave. and travel 1.2 miles
- From Interstate 70, take Exit 307 and follow McDowell Creek Road 3.6 miles north before turning left (north) on W. 40th Ave and follow it 1.2 miles north.

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

9. Comparative Vegetation Condition Report: October 10, 2017 - October 16, 2017

The weekly Vegetation Condition Report maps below can be a valuable tool for making crop selection and marketing decisions.

The objective of these reports is to provide users with a means of assessing the relative condition of crops and grassland. The maps can be used to assess current plant growth rates, as well as comparisons to the previous year and relative to the 28-year average. The report is used by individual farmers and ranchers, the commodities market, and political leaders for assessing factors such as production potential and drought impact across their state.

The Vegetation Condition Report (VCR) maps were originally developed by Dr. Kevin Price, K-State professor emeritus of agronomy and geography, and his pioneering work in this area is gratefully acknowledged.

The maps have recently been revised, using newer technology and enhanced sources of data. Dr. Nan An, Imaging Scientist, collaborated with Dr. Antonio Ray Asebedo, assistant professor and lab director of the Precision Agriculture Lab in the Department of Agronomy at Kansas State University, on the new VCR development. Multiple improvements have been made, such as new image processing algorithms with new remotely sensed data from EROS Data Center.

These improvements increase sensitivity for capturing more variability in plant biomass and photosynthetic capacity. However, the same format as the previous versions of the VCR maps was retained, thus allowing the transition to be as seamless as possible for the end user. For this spring, it was decided not to incorporate the snow cover data, which had been used in past years. However, this feature will be added back at a later date. In addition, production of the Corn Belt maps has been stopped, as the continental U.S. maps will provide the same data for these areas. Dr. Asebedo and Dr. An will continue development and improvement of the VCRs and other advanced maps.

The maps in this issue of the newsletter show the current state of photosynthetic activity in Kansas, and the continental U.S., with comments from Mary Knapp, assistant state climatologist:

Kansas Vegetation Condition

Period 42: 10/10/2017 - 10/16/2017



Figure 1. The Vegetation Condition Report for Kansas October 10 – October 16, 2017 from K-State's Precision Agriculture Laboratory shows very little vegetative activity this week. The greatest areas of photosynthetic activity are in eastern Kansas, with a small pocket along the Arkansas River along the Kearney/Finney county border. As we move into fall, vegetative activity continues to decline.



Kansas Vegetation Condition Comparison

Figure 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for October 10 – October 16, 2017 from K-State's Precision Agriculture Laboratory shows a dramatic increase in vegetative activity. This is particularly true in the eastern third of the state.



Kansas Vegetation Condition Comparison Mid-October 2017 compared to the 28-Year Average for Mid-October

Figure 3. Compared to the 28-year average at this time for Kansas, this year's Vegetation Condition Report for October 10 – October 16, 2017 from K-State's Precision Agriculture Laboratory is close to average conditions across the state. Below-average NDVI values are visible in northeast Kansas along the Nemaha/Marshall county borders and also in south central Kansas in Edwards/Pawnee counties. These areas correspond to portions of the state that still have abnormally dry to moderate drought conditions.



Continental U.S. Vegetation Condition Period 42: 10/10/2017 - 10/16/2017

Figure 4. The Vegetation Condition Report for the U.S for October 10 – October 16, 2017 from K-State's Precision Agriculture Laboratory shows highest NDVI values centered along and east of the Appalachians, where rainfall has reduced drought stress. High NDVI values are also visible in the Pacific Northwest. Lower NDVI values are prominent in the Ohio River Valley into Michigan as vegetation is going dormant early.



Continental U.S. Vegetation Condition Comparison Mid-October 2017 Compared to Mid-October 2016

Figure 5. The U.S. comparison to last year at this time for October 10 – October 16, 2017 from K-State's Precision Agriculture Laboratory again shows the impact that a split in moisture has caused this year. Much higher NDVI values are visible across the southern states. Last October, Montana and the Dakotas were moving into a dry pattern that became the start of the intense drought the dominated this year. Recent rains have resulted in some recovery in the area, particularly in South Dakota.



Continental U.S. Vegetation Condition Comparison Mid-October 2017 Compared to 28-year Average for Mid-October

Figure 6. The U.S. comparison to the 28-year average for the period of October 10 – October 16, 2017 from K-State's Precision Agriculture Laboratory shows improvement in the drought conditions in the Northern Plains. Below-average NDVI values in Idaho, western Montana, and parts of Wyoming are the result of recent snow in the region. A decrease in average NDVI values in parts of Missouri, Ohio, and Illinois reflect the combination of dry conditions and rapid maturity of crops.

Mary Knapp, Weather Data Library <u>mknapp@ksu.edu</u>

Ray Asebedo, Precision Agriculture ara4747@ksu.edu

Nan An, Imaging Scientist an 198317@hotmail.com