K-STATE Research and Extension Finney County

Extension Connection

AGRICULTURE NEWSLETTER By: Katelyn Barthol March 2016

Topics

Spring herbicide applications on winter wheat: The importance of wheat growth stage

The unseasonably warm temperatures recently have caused wheat to green up and begin spring growth considerably earlier than normal in Kansas. Producers should pay close attention to the growth stage of their wheat before making their herbicide applications. Dicamba can be applied to wheat between the 2-leaf and jointing stages of wheat. Application of dicamba after wheat reaches the jointing stage of growth causes severe prostrate growth of wheat and significant risk of yield loss. Dicamba is effective for control of kochia, Russian thistle, and wild buckwheat, but is not good for control of mustard species. Kochia, Russian thistle, and wild buckwheat are summer annual weeds that may emerge before or after wheat starts to joint, so timing of dicamba for control of these weeds can sometimes be difficult. Fortunately, dicamba provides some residual control of these weeds following application. Other herbicides that must be applied prior to jointing include Agility SG, Beyond (on Clearfield varieties only), Olympus, Orion, PowerFlex, Pulsar, Rage D-Tech, and Rave. MCPA and 2,4-D have different application guidelines. In general, MCPA is safer on wheat than 2,4-D, especially when applied prior to tillering. We recommend that 2,4-D not be applied to wheat until it is well-tillered in the spring. Application of 2,4-D prior to tillering hinders the tillering process, causes general stunting and can result in significant yield loss.

2,4-D is labeled for application to wheat from the full-tiller stage until prior to the boot stage of growth, but is probably safest between full-tiller and jointing stages of growth. Wheat will sometimes exhibit prostrate growth from 2,4-D applications applied in the jointing stage of growth, but yields generally are not significantly affected if applied before the boot stage of growth. MCPA is relatively safe on young wheat and can be applied after the wheat is in the three-leaf stage (may vary by product label) until it reaches the boot stage of growth. Consequently, MCPA would be preferred over 2,4-D if spraying before wheat is well-tillered. Neither herbicide should be applied once the wheat is near or reaches the boot stage of growth, as application at that time can result in malformed heads, sterility, and significant yield loss.

Both 2,4-D and MCPA are available in ester or amine formulations. Ester formulations generally provide a little better weed control than amine formulations at the same application rates, but also are more susceptible to vapor drift. Ester formulations generally are compatible for use with fertilizer carriers, while amine formulations often have physical compatibility problems when mixed with liquid fertilizer. Other herbicides used in the spring on wheat can be applied up to the time the flag leaf is visible, or later. Affinity BroadSpec, Affinity TankMix, Ally Extra SG, Express, Harmony + 2,4-D or MCPA, Harmony Extra, and Supremacy must be applied before the flag leaf is visible. Huskie, Weld, and WideMatch can

be applied through the flag leaf stage. Herbicides that can be applied later in the spring – prior to the boot stage -- include Ally + 2,4-D, Amber, Finesse, Starane Ultra, and Starane Plus Salvo. (Dallas Peterson, KSRE Weed Management Specialist)

Starter fertilizer rates and placement for corn

Many producers in Kansas could benefit by using starter fertilizer when planting corn. Starter fertilizer is simply the placement of some fertilizer, usually nitrogen (N) and phosphorus (P), near the seed -- which "jump starts" growth in the spring. It is not unusual for a producer to see an early season growth response to starter fertilizer application. But whether that increase in early growth translates to an economic yield response is not a sure thing in Kansas. How the crop responds to starter fertilizer depends on soil fertility levels, tillage system, soil temperature, and N placement method. Phosphorus source is not an important factor.

Soil fertility levels

The lower the fertility level, the greater the chance of an economic response to starter fertilizers. A routine soil test will reveal available P and potassium (K) levels. If soils test low or very low in P, below 20 ppm, there is a very good chance that producers will obtain an economic yield response to applying a starter fertilizer containing P, even in some low-yield environments. If the soil test shows a medium level of P, 20-30 ppm, it's still possible to obtain a yield response to P fertilizer. But the yield response will not occur as frequently, and may not be large enough to cover the full cost of the practice. If the soil test is high, above 30 ppm, economic responses to starter P fertilizers are rare. The chances of an economic return at high P soil test levels are greatest when planting corn early in cold, wet soils. In general, the same principles apply with K. If soil tests are low, below 130 ppm, the chances of a response to K in starter are good. The lower the soil test level, the greater the odds of a response.

All of the recommended P and/or K does not need to be applied as starter. If the soil test recommendation calls for high rates of P and K in order to build up or maintain soil test levels, producers will often get better results by splitting the application between a starter and a preplant broadcast application. As a general rule, starter fertilizer should be limited to the first 20-30 pounds of P or K per acre, with the balance being broadcast for best responses.

Phosphorus source

Does the type of phosphorus used as a starter make any difference? In particular, what about the ratio of orthophosphate to polyphosphate in the fertilizer product? This has been a concern for many producers.

Liquid 10-34-0 is composed of a mixture of ammonium polyphosphates and ammonium orthophosphates. The dissolved ammonium orthophosphate molecules are identical to those found in dry MAP (e.g. 11-52-0) and/or DAP (e.g. 18-46-0). Ammonium polyphosphates are simply chains of orthophosphate molecules, formed by removing a molecule of water, and are quickly converted by soil enzymes back to individual orthophosphates identical to those provided by MAP and/or DAP.

Polyphosphates were not developed by the fluid fertilizer industry because of agronomic performance issues. Instead, polyphosphates were developed to improve the storage characteristics of fluid phosphate products (and other fertilizers made from them) and to increase the analysis of liquid phosphate fertilizers. Ammonium polyphosphate is equal in agronomic performance to ammonium orthophosphates when applied at the same P2O5 rates in a similar manner. And liquid phosphate products are equal in agronomic performance to dry phosphate products if applied at equal P2O5 rates in a similar manner. When polyphosphate is added to soil, a process called hydrolysis breaks down the polyphosphate chains into orthophosphates. The concern of many people is the length of time it takes for this process to occur. Previous studies indicate that although it may take a few days to complete the hydrolysis process, the majority is completed in 48 hours. As a result, phosphorus in soil solution will typically be similar from either source shortly after application.

Tillage system

No-till corn will almost always respond to a starter fertilizer that includes N – along with other needed nutrients – regardless of soil fertility levels or yield environment. This is especially so when preplant N is applied as deep-banded anhydrous ammonia or UAN, or

where most of the N is sidedressed in-season. That's because no-till soils are almost always colder and wetter at corn planting time than soils that have been tilled, and N mineralization from organic matter tends to be slower at the start of the season in no-till environments. In general, no-till corn is less likely to respond to an N starter if more than 50 pounds of N was broadcast prior to or shortly after planting.

In reduced-till systems, the situation becomes less clear. The planting/germination zone in strip-till or ridge-till corn is typically not as cold and wet as no-till, despite the high levels of crop residue between rows. Still, N and P starter fertilizer is often beneficial for corn planted in reduced-till conditions, especially where soil test levels are very low, or low, and where the yield environment is high. As with no-till, reduced-till corn is also less likely to respond to an N starter if more than 50 pounds of N was broadcast prior to or shortly after planting. Conventional- or clean-tilled corn is unlikely to give an economic response to an N and P starter unless the P soil test is low.

Starter fertilizer placement

Producers should be very cautious about applying starter fertilizer that includes N and/or K, or some micronutrients such as boron, in direct seed contact. It is best to have some soil separation between the starter fertilizer and the seed. The safest placement methods for starter fertilizer are either:

-- A subsurface-band application 2 to 3 inches to the side and 2 to 3 inches below the seed, or

-- A surface dribble-band application 2 to 3 inches to the side of the seed row at planting time, especially in conventional tillage or where farmers are using row cleaners or trash movers in no-till.

If producers apply starter fertilizer with the corn seed, they run an increased risk of seed injury when applying more than 6 to 8 pounds per acre of N and K combined in direct seed contact on a 30-inch row spacing. Nitrogen and K fertilizer can result in salt injury at high application rates if seed is in contact with the fertilizer. Furthermore, if the N source is urea or UAN, in-furrow application is not recommended regardless of fertilizer rate. Urea converts to ammonia, which is very toxic to seedlings and can significantly reduce final stands.

Work several years ago at the North Central Kansas Irrigation Experiment Field near Scandia illustrates some of these points. In this research, former Agronomist-In-Charge Barney Gordon compared in-furrow, 2x2, and surface band placement of different starter fertilizer rates in a multi-year study on irrigated corn. Excellent responses from up to 30 pounds of N combined with 15 pounds of P were obtained with the both the 2x2 and surface-band placement. In-furrow placement however, was not nearly as effective. This was due to stand reduction from salt injury to the germinating seedlings, likely due to the high application rate of N plus K in furrow, indicating the importance of monitoring the N+K rates for in furrow application. Where no starter, or the 2x2 and surface band placement, was used, final stands were approximately 30-31,000 plants per acre. However, with the 5-15-5 in furrow treatment, the final stand was approximately 25,000. The final stand was just over 20,000 with the in-furrow 60-15-5 treatment. (Dorivar Ruiz Diaz, KSRE Nutrient Management Specialist & Dave Mengel, KSRE Soil Fertility Specialist)

Preventing Weeds in Flower Beds

Often mulch does a good enough job in perennial flower beds to prevent weeds but sometimes the mulch needs a little help. In annual beds, judicious hoeing will keep weeds down until the foliage forms a canopy that prevents weed germination. However, a lack of time may have you considering an easier way than hoeing or pulling weeds that come through mulch. Preemergence herbicides can help though you should not expect 100% control.

Preemergence herbicides do not keep the weed seed from germinating but kill the young plant as it starts to grow. It is necessary to water these products in (1/4 inch of water) so that the young weed root will contact the herbicide. Be aware that most of these products are more effective on grassy weeds such as crabgrass rather than broadleaves such as dandelions or spurge.

These herbicides often have no effect on existing plants, so they must be applied before the weed seed germinates. Additionally, preventers do not last forever once applied to the soil. Microorganisms and natural processes begin to gradually break them down soon after they are applied. However, all should last long enough so that you get canopy cover before the herbicide wears off.

Read the label for information on when to apply the product. Also, be sure the ornamental plants within the bed area are on the label before purchasing the product. See below for products we can use.

Dimension (dithopyr)

- Hi-Yield Turf & Ornamental Weed and Grass Stopper
- Bonide Crabgrass & Weed Preventer

Treflan (trifluralin)

- Hi-Yield Herbicide Granules Weed and Grass Preventer
- Miracle Gro Garden Weed Preventer
- Preen Weed Preventer

(Ward Upham, KSRE Rapid Response Specialist)

Managing Turf in Shade

Turfgrasses differ in their capacity to grow in shade. Among Kansas turfgrasses, tall fescue is the best adapted to shade though it isn't all that good. Although the fine fescues (i.e., creeping red, chewings, hard and sheep) have better shade tolerance, they lack heat tolerance and typically decline during hot Kansas summers. The warm-season grasses have the poorest shade tolerance, although zoysia does better than Bermuda or buffalo. Where shade is too heavy for fescue, there are other courses of action. The most obvious is to either remove trees, or to prune limbs and thin the tree canopies. Grass will do better under openly spaced trees than under closely spaced trees. Pruned limbs and thinned canopies will allow more sunlight to directly reach the turfgrass. If possible, raise the mowing height in the shade to compensate for the more upright growth of the leaves, and to provide more leaf area for photosynthesis. The thin, weak turf in the shade may tempt you to fertilize more.

Remember the problem is lack of light, not lack of fertility. Too much nitrogen in the spring causes the plant to grow faster and may result in weak plants. The nitrogen rate for shaded grass should be cut back to at least half of that for grass in full sun. Late fall fertilization after tree leaves have fallen, on the other hand, is important for shaded cool-season turfgrasses and should be applied at a full rate. Irrigate infrequently but deeply. Light, frequent irrigation may encourage tree feeder-roots to stay near the surface, which increases competition between the trees and the turf. Restrict traffic in the shade.

Many times, the best choice for shaded areas is switch from a turfgrass to a more shade-tolerant plant. For example, English ivy and periwinkle (Vinca minor) are much more shade tolerant than any turfgrass adapted to our area. Another option is simply to mulch the area where turf doesn't grow well. The trees will love the cool, moist soil and the absence of competition. (Ward Upham, KSRE Rapid Response Specialist)

Brown Coloration on Junipers

Certain eastern redcedar and various other junipers are showing a brownish cast when viewed from a distance. This may be the male flowers. Male flowers are on the tips of the leaves and look somewhat like a cross between a miniature hand grenade and a pinecone. Shaking the branches on dry days will often result in a cloud of pollen being released.

Most junipers are dioecious, meaning they have both male and female plants. About half the junipers (the males) will have this coloration. The female flowers are much less obvious. If you have clients who are concerned about this brown coloration, have them check the plants to ensure the male flowers are the cause. If they are, assure them that this is normal and will fade with time. (Ward Upham, KSRE Rapid Response Specialist)

Adding Organic Matter in the Spring

Organic matter is a good way to improve garden soil as it improves a heavy soil by bettering tilth, aeration and how quickly the soil absorbs water. However, organic matter added in the spring should be well decomposed and finely shredded/ground. Manures and compost should have a good earthy smell without a hint of ammonia. Add a 2-inch layer of organic matter to the surface of the soil and work the materials into the soil thoroughly. Be sure soils are dry enough to work before tilling as wet soils will produce clods.

To determine if a soil is too wet to work, grab a handful and squeeze. If water comes out, it is much too wet. Even if no water drips out, it still may not be dry enough to work. Push a finger into the soil you squeezed. If it crumbles, it is dry enough, but if your finger just leaves an indentation, more time is needed. Be sure to take your handfuls of soil from the depth you plan to work the soil because deeper soils may contain more moisture than the surface. (Ward Upham, KSRE Rapid Response Specialist)

Frost Proof Vegetable Plants

Certain vegetables can withstand cold spring temperatures as long as they have been toughened up by gradually exposing them to sunlight and outdoor temperatures. This "hardening off" process usually takes about a week.

Reducing watering and temperature is the key to toughening up transplants. If possible, move transplants outside for a portion of each day. Start by placing them in a shady, protected location and gradually move them into a more exposed, sunny location as the week progresses. Hardened off cabbage, broccoli, cauliflower and onions can withstand temperatures near 20 F without being killed. Lettuce plants are not quite as tough but will be okay if exposed to temperatures in the mid 20s.

Don't hesitate to put these plants out now if extreme cold is not forecast. (Ward Upham, KSRE Rapid Response Specialist)

Upcoming Events

April:

9th: Finney County Pig Sale

Youth PQA Certification after Pig Sale

16th: 4-H Livestock Early Tag-in (8-Noon)
Showmanship Clinics (1p.m.-5p.m.)

May:

2 & 3rd: PQA & LQA Certification training

6th: Finney County Spring Livestock Show
Pre-registration deadline

9 & 10th: 4-H Livestock Tag-in (5p.m.-7p.m.)

20 & 21st: Finney County Spring Livestock Show

25th: Tractor Safety Training

30th: Office Closed for Memorial Day