



AGRICULTURE & NATURAL RESOURCES

Cooperative Extension Service
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Carlisle County ANR Newsletter February 2022

Dates to Remember:

Pesticide Training Dates-Feb. 7, 27, 2023-flyer attached

Winter Ag Conference –Feb. 10, 2023-Flyer attached

WAVE Farmer Appreciation Lunch-Feb. 2, Young Center at Clinton-11:00 a.m.

4-H Dog Club-Feb. 16 Extension Office-Flyer attached

Dicamba In-Person Training-Feb. 10 Lowry Farm-after Meeting at 1:00 p.m.

Tobacco GAP Training Options-see attached Options

WAVE Ag Day-July 20-Columbus Belmont Park

Rinse and Return-July 26, 2023-as usual-plus see attached sheet





University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

PESTICIDE CARD RENEWAL

January 31– February 7, 27, 2023

Carlisle County Extension Office

65 John Roberts Road , Bardwell KY 42023

Times for each Day

Jan. 31, 2023-10:00-12:00

Feb. 7, 2023-10:00-12:00

Feb. 27, 2023-1-3:00 pm



**Winter Ag. Conference will be
Feb 10, 2023 at Lowry Farms.**



**For more information call your
County Extension Office:**

Carlisle

270-628-5458



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University of Kentucky
College of Agriculture,
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WINTER AG CONFERENCE

February 10, 2023



LOWRY'S SHOP IN PILOT OAK

5183 St. Rt. 94 W, Water Valley KY 42085

Agenda

7-8:00 am	Registration/Sponsor Set-Up
8-8:30	Alex Hayes –Grain Market Outlook
8:30-9	Matt Dixon-Weather in KY
9-9:30	John Grove-Sulfur in Corn and Soybeans
9:30-9:45	Break
9:45–10:45	Carl Bradley –Soybean and Wheat Disease Update
1:45-12:00	D. Dobson-The Power of a Handshake-Farm Safety
12:00-1:00	Lunch/Door Prizes
1:00-2:00	Dicamba Training

KY & TN Pesticide and CCA CEU's Available



Sponsored Lunch !!!!
Product vendors on site.

For more information call your
County Extension Office:

Calloway	270-753-1452
Carlisle	270-628-5458
Fulton	270-236-2351
Graves	270-247-2334
Hickman	270-653-2231
Marshall	270-527-3285
McCracken	270-554-9520



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Come learn about
breeds of dogs,
ownership responsibility
bring your dog to dog
days- fun activities

Ages 9-18

Chuck Flowers, Club Leader

Meeting Dates
3:30-5:00 PM

Jan. 24

Feb. 16

March 16

April 20

May 18

June 29

Call Carlisle Co. Extension at

(270) 628-5458 by Jan. 13, 2023 to enroll!



University of Kentucky
College of Agriculture,
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Cooperative Extension Service
4-H Youth Development

Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

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LEXINGTON, KY 40549



Disability
accommodated
with prior notification.

Do not need a dog to participate!-If you missed the first meeting it is not too late to join.

Tobacco GAP Options on Training

Option 1:

Growers will have the opportunity to complete 2023 Annual GAP Training online through GAP Connection on their Grower Dashboard. Online training will offer growers the opportunity to complete training at their leisure on their time schedule from their home or farm office. A variety of crop and environmental and labor management video modules will be available for growers to choose. Growers must watch a certain number of the videos and complete a short quiz for each video to receive credit for training. Online Annual GAP Training launched on January 18, 2023. Growers need to log in on their grower dashboard and complete the required number of modules.

Option 2:

In-person meeting. GAP connections has set up a limited number of in-person meetings in Kentucky. These meetings occur within a relatively narrow window of time and growers may only have one meeting that will be near them. We are not able to do as many meetings as we have in the past. The full list of meeting can be found on the list at the link below. Please let your growers know about meeting options in your area, as they may be limited

<https://shop.gapconnections.com/training>

Bob Pearce and Andy Bailey

Nuisance Weed Spraying Program

This program consists of weed spraying demonstration plots. The department will provide the sprayer and enough chemical for the treatment of 10 acres of agricultural land or 200 gallons of spot spraying mix to be used on agricultural land. The department's representative will demonstrate proper mixing and application techniques. A number of nuisance weeds can be treated under this program depending on the needs of the participant. This program is limited to broadleaf weeds.

Broadcast Spraying demonstration plots consist of:

- 10 acres of agricultural land will be treated with chemical provided by the department
- Application is performed with a two-wheeled trailer type sprayer equipped with non-boom nozzles
- If additional chemical is provided by the participant, an additional 10 acres can be treated

Spot Spraying demonstration plots consist of:

- 200 gallons of broadleaf chemical mix which is applied until sprayer is empty
- Application is performed with a two-wheeled trailer type sprayer equipped with a handheld spray wand used by the tractor operator
- If additional chemical is provided by the participant, an additional 200 gallons can be sprayed

For each demonstration:

- The participant must provide water source
- The participant must provide tractor and operator
- All chemical products must be labeled and the product label will be strictly followed
- A maximum of 7 participants per county. Participants may only apply to the program every 36 months.

This program is designed to target weeds that have a negative impact on the participant's agricultural production. There will be an annual online application period to participate in this program. You may submit an application using our on-line services (located in the top menu bar) on the Kentucky Department of Agriculture Website. Dates to apply February 1 to February 28 of 2023.

Corn fertilizer timing strategies: Starter, pop-up, relay, lions, tigers, and bears...oh my!

We have a few minutes before planters start rolling for #Plant2021 in Kentucky. So, this is a perfect time to think about your early season corn fertilizer strategy. First, when managing phosphorus (P), potassium (K), and soil pH, soil testing is your best bet. We tend to think of the less mobile nutrients, like P and K, as relatively unaffected by timing of application. For the most part this is true; we can apply P and K in the fall or winter when the ground might be drier, and we have less to do. However, there is always some benefit to applying nutrients closer to the time when crops need them. Phosphorus forms strong bonds with iron and aluminum minerals in acidic soils and the longer that the P reacts with these soil components the stronger those bonds become making it less available to the plant. In addition, runoff from fields is generally higher over the winter when soils are wetter and the risk of nutrient losses in runoff increases. With nitrogen (N), timing is of the utmost importance. Of all the strategies to increase N uptake, minimize loss, and maximize efficiency, timing management is most important. There are many additives on the market that claim to increase N efficiency, and a few do (under certain conditions), but the gains that can be achieved by spoon feeding N to your corn crop far outweigh any potential benefit achieved via these products. So, what role do starter, pop-up, or other at-planting fertilizers play in nutrient management?

Starter fertilizer is a broad term generally used to cover any fertilizer applied close to the seed in relatively small amounts at the time of planting. However, with precision guidance technology and new styles of application equipment we can now use equipment other than our planters for the same effect. A few years back when we talked about starter applied with the planter, we were talking about 2 by 2, "pop-up," or surface band. Now, there are other options like 2 by 2 by 2, pulsed fertilizer in the furrow, or even "relay."

Starter fertilizers fall into two broad placement categories, in-furrow and offset. In-furrow, or "pop-up" as it is commonly called, is placed directly in the furrow with the seed and can also be referred to as seed-row fertilizer (Figure 1).

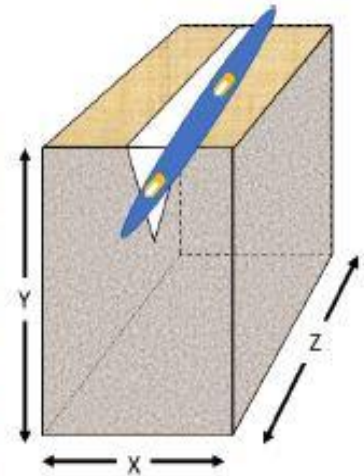


Figure 1. In-furrow, pop-up, or seed-row fertilizer is placed in the furrow with the seed.

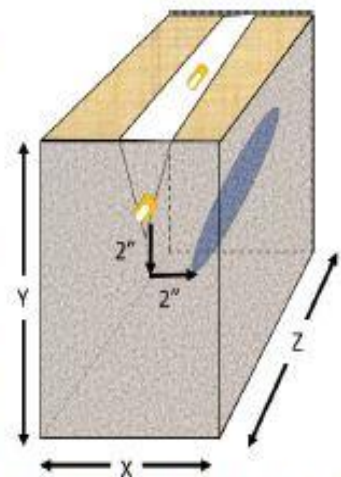


Figure 2. Fertilizer banded 2-inches to the side and 2-inches down from the seed, commonly called 2 by 2, is type of offset fertilizer application.



Figure 3. No-till corn planter with coulters for offset or 2x2 application provides an effective means to get N under surface residue.

Offset fertilizer is just what it sounds like, it refers to placing the fertilizer off-set from the seed row. The most common offset placement is probably 2 by 2, where a fertilizer band is placed 2-inches to the side and 2-inches below the seed (Figure 2). This is achieved with a fertilizer coulter offset from the row openers (Figure 3). The newer 2 by 2 by 2 placement offers a similar approach but a band of fertilizer is placed on each side of the seed furrow. Some of the newer equipment, particularly with 2 by 2 by 2, does not technically place the fertilizer 2-inches below the seed as shown in Figure 2. Instead, they place the fertilizer closer to the surface, often at the same depth as the seed.

Pulsed fertilizer provides a new approach to in-furrow starter fertilizer. A pulsed system is triggered by seed drop and the same aerial or per acre rate is applied but in shots divided equally per seed. Every time a seed drops a pulse of fertilizer is shot into the furrow. The user can set the system to deliver the pulse directly on the seed or a set distance behind the seed. We are currently testing this approach at the University of Kentucky to evaluate potential risks and rewards. Another term that might be new to some of our users is “relay,” which refers to a combination of both offset and in-furrow fertilizer.



Figure 4. Salt damage can be terminal as in the bottom left or delay emergence as seen in the top right. Even plants that emerge in a timely fashion can appear to suffer from various nutrient issues due to root damage.

Let’s take a look at in-furrow techniques first. The term pop-up comes from the belief that placing a small amount of fertilizer with the seed contributes to quicker emergence, but this is rarely the case. In fact, the opposite can often be true. Even when the final emerged stand is not affected, emergence is typically slower when an in-furrow or pop-up fertilizer is used – soil temperature, texture, and moisture all play a role how long emergence is delayed and how much damage occurs. Let’s review what’s happening in the furrow when we place fertilizer with the seed. Generally, we use liquid fertilizers, which are salty solutions. Placing a salt in the soil creates an osmotic potential. If you put pure water on one side of a semipermeable membrane that allows water to pass across the membrane, but not salt, and you then put salt in the water on the other side of the membrane, you create osmotic pressure. The pure water moves towards the salt to balance the salt concentration on both sides of the membrane. Too much salt placed close to seed or roots causes plasmolysis, where water moves out of seed or root cells towards the salt and the cells collapse. If you dig up corn seeds with spotty emergence and they look like raisins, you’ve more than likely got a salt issue (Figure 4).

Because of the risk to the seed and emergence, in-furrow fertilizer rates must be kept very low, even with low salt fertilizers.

As a result, in-furrow fertilizer only provides an advantage when total nutrient requirement is very low. For example, if you apply 6 gallons/acre of 10-34-0, which is more than I would recommend applying in-furrow, you are only supplying 7 lb/acre N and 23.8 lb/acre P_2O_5 . Using a low salt fertilizer like 6-24-6 at the same rate would only supply 4 lb/acre of N and K_2O and 16 lb/acre P_2O_5 . If you plan to sidedress at V4 or later, we recommend you apply at least 20% of your expected N requirement at or before planting, clearly an in-furrow application couldn’t be used to supply this much N.

A relative newcomer to the in-furrow fertilizer technique is pulsed. In 2020 we put out our first trials to evaluate this technique, so we don't have much to report at this time. However, it's worth mentioning how pulsed fertilizer works and some potential concerns as well as benefits. The system squirts a pulse of fertilizer using a solenoid nozzle that flashes open triggered by the seed drop. The length of the pulse of fertilizer in the soil is a factor of planter speed, population, pump pressure, and fertilizer rate. For example, if you were running your planter 4 mph, dropping 38k seeds/acre on 30-inch rows, with 40 psi pump pressure, and trying to hit 6 gallons/acre of 10-34-0 with a pulsed system produced by CapstanAG™ you would be putting down a pulse of fertilizer measuring 1.7 inches in length. Because it is a pulse, the head of the fertilizer pulse is a higher rate than the tail. You can choose how far the fertilizer pulse is located from the seed. You could center the pulse on the seed or pick a set distance after the seed to place the pulse. One of the drawbacks of offset fertilizer is that it typically requires a separate fertilizer coulter, which is a turnoff to many producers. Pulsing the fertilizer might provide an effective method to get fertilizer down at planting at a reasonable rate, without putting it on the seed, and without the extra coulters. Alternatively, you could use the pulsed system to put a high dose right on the seed, but with a lower per acre rate – saving on fertilizer cost. We are evaluating both of these approaches to see if there are advantages.

As a cautionary note, it's useful to compare the rate the seed would see with a continuous application in-furrow and a pulsed application. If you used the same speed and population settings as above and applied 6 gallon/acre of 10-34-0 in a continuous application you would be applying about 0.06 mg/cm of fertilizer, but pulsed you would be applying about 0.19 mg/cm. That pulsed rate would be the same as a continuous in-furrow application of 19.5 gallons/acre, which would SMOKE your seed! I would not recommend putting the pulse on the seed, but perhaps you could offset it from the seed. At a population of 38k your seeds would be spaced 5.5-inches apart so you could start that pulse 2.8-inches from the seed (the same distance achieved with 2 by 2 shown in Figure 2) and the tail, which would have a much lighter rate, would still be about 1-inch from the next seed. We are about to kick off our second field season testing this technology, hopefully this time next year we will be able to give more concrete advice on its implementation.

Offset placement, like 2 by 2, places the fertilizer band 2 – 3 inches from the seed. This avoids the delayed emergence or salt damage problems seen with in-furrow applications, as long as you keep the total salts low. Most research shows that your seed will be safe if you keep the combined N plus K₂O rate below 100 lb/A on heavier soils and below 50 lb/A on lighter soils. We're finding that with heavy cereal cover crops, like rye, we need more N upfront and it's probably better if we get that N below the soil surface. In these no-till systems, particularly if they're no-till, the organic residues tie up the N. Applying 25 – 50% of your total planned N rate using 2x2 coulters is a great way to avoid this (Figure 3). So, if you're shooting for 200 lb N/A for your corn you could easily apply 50 – 75 lb N/A as 32% UAN, at planting, through an offset system like the one in Figure 3. This would allow you to come back in with a sprayer and drop hoses or a high clearance dry fertilizer spreader and apply the remaining 125 – 150 lb N/A between V5 and V8. You can even watch the weather and crop progress and adjust based on what you're seeing.

If you're putting down offset fertilizer there's probably no need to invest in expensive low salt fertilizer because the three-inch separation decreases delayed emergence problems. If you're planning to go in-furrow you want to look for the more expensive low salt products. For comparison, a low salt choice like 6-24-6 has a salt index of 11.9, ammonium polyphosphate (10-34-0) jumps up to a salt index of 20, and 7-21-7 hits 27.8. You never want to put 32% UAN in-furrow – not only does this UAN have a salt index of 71.1, but it also can generate ammonia which can damage seeds. However, UAN is fine in an offset application like 2x2 at reasonable rates as dis-

cussed above. Even with a low salt product, delayed emergence or uneven emergence can be a problem when placed in-furrow. The longer the seed sits before germinating the worse this problem becomes, so if you use an in-furrow fertilizer and you have a cool spring or dry soils your problems will be worse than if you have warm temperatures that encourage germination.

At the end of the day, it's important to remember you will probably not get a yield response to starter fertilizer if your soil test says you don't need fertilizer. If your soil test recommends P, starter can be an economical way to deliver a lot more bang for the buck. Some sources indicate that you can deliver the same yield benefit to P deficient soils with half the rate of P recommended as surface broadcast fertilizer. If your soil test comes back at optimum or better, the probability you will see a return on a starter fertilizer investment is very low. Likewise, adding extra N above what the crop needs through a starter application will not add extra yield. Nitrogen requirement is determined by yield and N loss. You are reducing N loss if you switch from all N going down preplant to a starter plus sidedress strategy. If you see a yield gain due to this switch it's not because starter increased your yields, it's because you decreased your losses. In other words, you were shorting your crop with an all-preplant strategy. Starter fertilizer is not a magic pill – it just provides needed nutrients in a highly available form and placed for optimum early access by young seedlings.



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Rinse and Return

Please note that the Kentucky Department of Agriculture doesn't allow or grant anyone permission to leave used chemical containers for the Rinse and Return program at any agri-business or other location without the managers or land owners consent. These containers must meet the guidelines for the program and must be inspected by the person taking custody of them. The department is now operating the Rinse and Return program year around. If there are several hundred containers to be collected and if they meet the department guidelines, we will come collect them... If you have, any questions or concerns feel free to contact us. Again for program information and guidelines, or refer to the departments webpage at <https://www.kyagr.com> .Please share this email as needed to properly promote the programs.

Best Regards

John R. Board III

Kentucky Department of Agriculture

Administrative Section Supervisor

Division of Environmental Services

Pressure Rinsing

- Remove cover from container. Empty the pesticide into the spray tank and let the container drain for 30 seconds.
- Continue holding the container upside down over the sprayer tank opening so rinse will run into the sprayer tank.
- Insert the pressure-rinse nozzle by puncturing through the bottom of the pesticide container.
- Rinse for length of time recommended by the manufacturer (generally 30 seconds or more).

Triple Rinsing

- Remove cover from container. Empty the pesticide into the spray tank and let the container drain for 30 seconds.
- Fill the container 10% to 20% full of water or rinse solution.
- Secure the cover on the container.
- Swirl the container to rinse all inside surfaces.
- Remove cover from the container. Add the rinse solution from the container to sprayer tank and let drain for 30 seconds or more.
- Repeat steps 2 through 5 two more times.
- Puncture container.

KSU wants to hire 4-H agent for the county if you know of somebody interested they can go to our Facebook page for information.

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Information released by



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Agriculture & Natural Resources



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RETURN SERVICE REQUESTED