



# AG NEWSLETTER

## DIVERSE CORN BELT PROJECT SEEKS FARMERS FOR FOCUS GROUPS, IN-FIELD TESTING



The Diverse Corn Belt project—a multidisciplinary project exploring alternative crops, longer rotations, integrating livestock and perennials that could help increase resilience in Midwest agriculture—is seeking farmer input through focus groups and in-field research. The project's 30 partners are exploring diversification at the farm, market and landscape level that can broaden new opportunities for Midwest farmers and rural communities, says Dr. Linda S. Prokopy of Purdue University, who leads the five-year, \$10 million project.

The study focuses on Indiana, Illinois and Iowa. The team will conduct research, extension and modeling in all three states.

"We are seeking farmer involvement at every stage of the Diverse Corn Belt project, starting with understanding how different producers define diversity, and getting their direction on the questions they want us to explore," Prokopy says. "We want to know what is working for them in the current system and what the barriers are to diversification.

"Guided by what farmers tell us they're facing and what they need, we will be exploring a wide range of approaches to diversification of production systems and markets that can help producers and rural communities become more economically and environmentally resilient in the future," she adds. "This project goes beyond delving into the production aspects of various options for diversification—the agronomics, economics, and animal productivity angles. We will also be exploring the social, infrastructure and policy changes needed to make them viable."

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## JULY 2022

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### FSB LOCATIONS

- 301 W. Falcon, Flanagan
- 403 State, Benson
- 2401 E. Washington, Bloomington
- 111 N. Fayette, El Paso
- 500 S. Persimmon, Le Roy
- 208 E. Gridley, Gridley

## Help Wanted

Prokopy says farmers can participate in the Diverse Corn Belt in a variety of ways, including:

- Focus groups, in which producers with a wide range of approaches—from traditional corn/soybean rotations to highly diversified operations—gather to discuss the challenges and opportunities posed by diversification.
- Hosting in-field research, allowing agronomists, entomologists, hydrologists and soil scientists to study farmers' existing management systems, ranging from conventional corn/soybean rotations to more complex cropping and/or grazing programs. Host producers will not be asked to change their management; researchers will share and help interpret data produced on participating farms.
- Joining Reimagining Agricultural Diversification (RAD) Teams, engaged conversations among producers, agricultural advisors, community leaders, and others. RAD Team members will work closely with the research team—and each other—over the next five years to share their insight on research findings, explore policy implications, and envision what the agricultural landscape of the Midwest should look like in the future.

"We are developing a vision of a Corn Belt beyond the corn/soybean system and its infrastructure, a future that provides farmers and communities with a more profitable and resilient agriculture," notes J. Arbuckle at Iowa State University. "To do that, we're working with farmers with highly specialized systems that are prevalent today and with highly diversified farmers who provide examples of what's possible.

"Of course, context is critical, so we will also be researching ways to facilitate markets, infrastructure, social networks and policy for diverse systems, as well as modeling a wide range of systems," he adds. "This holistic approach will help us map pathways to more diverse, prosperous and resilient farms and rural communities."

The Diverse Corn Belt project is funded by the USDA National Institute of Food and Agriculture through an Agriculture and Food Research Initiative competitive grant. Members of the research team represent land grant institutions, federal agencies, and non-profit organizations.



Interested farmers and other stakeholders can learn more about the Diverse Corn Belt project at [diversecornbelt.org](http://diversecornbelt.org), and volunteer to participate at <https://bit.ly/GoDCB>.

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# GRAIN BIN ENTRY SAFETY CHECKLIST

1. Is entry necessary? Can the assigned task be accomplished from the outside? Under certain conditions, a worker could use a non-conductive pole (such as fiberglass or wood) of sufficient length to probe the grain in a bin from immediately above the top hatch, without entering. However, to prevent electrical injury, workers should first verify that there are no overhead electric powerlines near the grain bin that a pole might contact. Also, for fall protection, workers should wear a harness with a lifeline tied off to a secure anchorage point on top of the bin.

- Employers should address the following items (beginning with # 2) only if entry into a grain bin has been determined necessary:

2. Are grain bins and other confined spaces posted with warning signs where workers will notice them? In this incident, a warning sign was posted on the top hatch where the victim entered.

3. Has the grain bin auger been de-energized and locked out/tagged out prior to entry?

4. Has consideration been given to testing the air quality to determine an adequate oxygen level and the presence of flammable and/or toxic dust, gas, or vapor?



5. Is ventilation equipment of explosion-proof design available and used before and during entry? Some grain storage bins, like the one in this incident, have an electric fan built into the side of the bin at the bottom. The fan can be operated to pull air from the top of the bin and out the bottom. In this incident, the fan was not used.

6. Do workers know how and when to use the following personal protective equipment?:

- a. Respirators (air-supplying and air-purifying)
- b. Lifelines/harnesses
- c. Emergency rescue equipment (SCBA, human hoist, etc.)
- d. Protective clothing
- e. Eye protection
- f. Hard hats
- g. Gloves

7. Can workers recognize confined spaces (grain bins, tanks, silos, etc.), and are they aware of their hazards?

8. Do workers discuss confined space safe work practices with employers and co-workers before attempting entry?

9. Is there a confined space rescue plan, and do workers know how to respond safely in an emergency?



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# HARVEST CHECKLIST

## *1. Create Inspection Checklist*

- Start in late July/Early August about a month before harvest on creating a checklist
- Getting this list put together early will help you go through the equipment thoroughly and effectively
- Pull equipment out of shed to clean, inspect, and repair – this will make everything easier to see/fix
- Start from the front of the piece of equipment and work your way back
- If possible, clean equipment up before putting it away in the fall – it will be easier to get ready for the next year

## *2. Clean Farm Equipment if Needed*

- It is easier to inspect clean equipment and it is easier to find fluid leaks
- Clean up decks, housings, and rakes of any debris
- While cleaning note any repairs needed

## *3. Use a farm equipment inspection checklist. An example would be:*

- Nuts and Bolts – make sure all are tight and secure.
- Tires – check pressure and tread wear – check lug nuts.
- Blades – sharpen and replace as needed.
- Cutter bars/Grain platform/skid plates – check to make sure all of these are secure with no flexibility. Check for wear.
- Mirrors – Make sure they are clean and are in the best position for visibility.
- Fluids – Check and/or change all fluids and filters – Fuel/Hydraulic/Coolant/Oil
- Hitches – Make sure you have the proper pins and keepers for the equipment.
- Brakes – Check and make sure these are working properly.
- Cooling System – Look for cracks and leaks when checking levels.
- Hoses/Belts/Chains/Plastic Parts – Check all belts, rubber hoses, and plastic parts for wear or cracks and replace as needed. Make sure all belts and chains are properly tightened and adjust properly. Replace any that look worn.
- Hydraulic Lines – The best way to test the hydraulic systems is to pressurize them and look for leaks. However, beware that not all leaks will create a telltale puddle.
- Batteries – Does the battery hold a charge? If not, replace.
- Engine and Steering – Making sure the area is clear, start the engine, let fast idle for 3 minutes. Check to make sure if any fuel, air, or oil filters need to be replaced or tightened. Also, ensure steering and exhaust systems are in working order.
- Safety Equipment – Make sure all shields and guards are in place and in good working order.
- Yield Monitors, GPS, and gauges – Adjust and calibrate these tools to ensure they are providing accurate information.
- Document all work done – Keep track of everything done to the equipment – this will help cut repair costs

## *4. Do a final walk around*

- Check to make sure all lights are in working order – headlights, taillights, and turn signals. Replace as needed.
- Make sure Slow-Moving-Vehicle signs are still reflective and visible from behind vehicle.

## *5. Reflect on Last Year's Harvest*

- Try to think if there was anything that needs to be changed or updated.
- This can be hired personnel, loading/unloading of grain, lunch breaks, start times.
- The goal should be to have a safe and successful harvest



## SUPPLEMENTING CONVENTIONAL FERTILIZER OPTIONS

Excellent season-long plant health and nutrition is the goal for every growing season. Outstanding season-long plant nutrition while facing record fertilizer prices and supply chain disruptions has created a whole new set of challenges as we try to push yields to the next level in 2022 and begin to plan for 2023. This has left many growers seeking alternative fertilizer options that are both cost effective and will add to the bottom line when yields roll across the scales in the fall. Let's face it, there were bound to be hurdles while trying to take advantage of \$7.00+ corn and \$16.00+ soybean prices throughout the 2022 growing season. While we still rely on traditional fertilizer options to do the heavy lifting, in-season nutrient supplements have increased in popularity because of their ability to provide specific nutrients at the right time, with the flexibility to be used in existing passes through the field.

In recent years, foliar feeding has proven to be one of the most effective ways to supply both macro and micronutrients in a highly efficient way during critical crop growth stages. This gives us the ability to apply essential plant nutrients through existing passes across the field, such as herbicide and fungicide applications. Foliar fertilizers are unique because they are designed to be directly applied to the leaves of the plant with little to no crop response or injury when used properly, while also working to minimize stress shortly after application. By utilizing nutrient supplements in the mix, it allows them to be directly absorbed by the plants when they need them most. Timing is critical as always, but in-season applications allow us to achieve direct nutrient uptake into the plant via foliar applications, with the intentions of increasing our yield potential and late-season plant health.

When we think about corn and soybean management, Nitrogen, Phosphorus, and Potassium fertilizers generally get most of the attention. As we continue into uncharted waters with both supply challenges and many difficult price discussions, why not explore the benefits of applying Nitrogen, Phosphorus or Potassium early to mid-season when they are needed most, while also introducing a selection of micronutrients? Fortunately, product technology has made huge strides over the past decade that allows various products to incorporate an assortment of nutrients that can work together, accomplishing the "1 + 1 = 3" synergistic effect.

Sulfur additives have certainly gotten more attention over the last five years. But what about lesser-known micronutrients like Boron, Zinc, Manganese or Molybdenum? These can be a mouthful to say, but what value do they bring? Collectively, many of these nutrients that most growers have not historically managed for provide benefits like:

- Improved stalk strength and plant integrity in corn
- Increased pod set and retention in soybeans
- Boost nitrogen uptake and utilization
- Enhance the plant's ability to manage in-season stress
- Build up stronger disease tolerance

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As an example, utilizing a foliar fertilizer that incorporates both Boron and Potassium in the early reproductive stages of both corn and soybeans, can accomplish some of that synergistic effect. A main function of a micronutrient like Boron is to solidify cell wall structure. Potassium, which is a key nutrient primarily taken up through the soil, works to regulate water and sugar movement throughout the plant. When used together and applied at the same time, Boron works to keep more phloem cells intact in the plant which allows an extra boost of Potassium to translocate additional water and sugars that are produced during photosynthesis in the leaves, to the ear of corn or into the pods of the soybean plant. This is referred to as “source to sink” movement, where the goal is to move more sugars to the developing kernels or pods of the plant. With more sugar movement, there will likely be less kernel and pod abortion during the reproductive stages.

It is important to understand that many of these next generation foliar treatments are not meant to replace traditional fertilizer applications. However, they can be used to supplement crops in-season which can promote higher uptake and greater efficiency of the nutrients corn and soybean plants will need. With many advancements in product carrier technology today, we can easily incorporate both primary and micronutrients as a part of our seasonal nutrient plan. A crop’s nutritional needs will vary from year to year depending on the exact growing conditions. Don’t be afraid to use a multi-faceted approach to unlock the next level of success!

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