Do Your Soils Need a Health Check?

Manage Fertility Wisely in 2015

Get Up-to-Date Tax Preparation Tips
COVER STORY

Back to the Basics: Details Matter for Productive Soils

Illinois soils vary across the state. Farmers must figure out what works best in their own soils. Some principles most farmers can apply are starting with a soil test and ending with patience.

ANIMAL AGRICULTURE

What’s in Manure?

Livestock and poultry create complete fertilizer packages. Manure can be used by soybean farmers to replenish soil micronutrients and increase organic matter. But what’s in that manure can vary by species, and farmers should get the background and the analysis prior to use.

YIELD, COMPOSITION & PROFITABILITY

Prepare for New Era of Increased Nutrient Efficiency

New nutrient management technologies and philosophies can guide soybean farmers toward increased nutrient efficiency. Thanks to data generated by soil tests, yield maps and satellite application maps, there’s no shortage of information. Find out how to weed through it.

TRANSPORTATION

Economic Development Leader Sees Ag’s Value

Railroads, trucking and waterway facilities have grown from investments in Illinois. Read how agriculture, and partnering with Illinois soybean farmers, has become a significant part of the Will County economic development strategy to increase the tax base and county wealth.

MANAGEMENT MATTERS MYTHBUSTER

Keep Phosphorus in the Soybean Yield Equation

High-yielding soybeans need a different approach to maximizing potential. Farmers looking to boost yields may want to evaluate how they manage phosphorus to ensure it’s available when soybeans need it. Doing so may boost profits and reduce off-site nutrient movement.

YIELD, QUALITY, PROFITABILITY

Successfully Navigate the Tax Season

Farmers will soon be filing 2014 tax returns. Consider the tips from one agribusiness and cooperatives expert to uncover the best farm tax practices for the 2014 season.
Put Fertility High on Your Spring Priorities List

With spring just around the corner, farmers are making final plans for the 2015 production season. If you haven’t planned your fertility program yet, you may want to make it a priority.

We’ve been sharing information the last couple of years from University of Illinois crop scientist Fred Belows “Six Secrets of Soybean Success” research funded by the checkoff. The number two soybean production success secret on that list, behind weather, is fertility.

Below found that improved soil fertility through balanced crop nutrition and fertilizer placement technologies is critical to maximizing production. Yet, soil fertility is often the most overlooked component of managing soybeans for high yield. Phosphorus (P) is particularly quickly immobilized in soil. It might not be available in sufficient quantities for modern soybeans.

Below’s research confirmed with corn that spring placement of phosphorus in a band four to six inches beneath the row improves early plant growth and vigor. He anticipated a similar response for soybeans using the same management approach.

If you ask Dan Arkels what made the difference in his production of 100-plus-bushel soybeans in 2014, he will tell you fertility was one of the factors. The Peru, Ill., soybean farmer documented 104 bushels per acre on his 30-acre ISA Yield Challenge Plot last year.

From Arkels’ experience with previous yield contests, he knew a preplant application of potash and phosphorus would promote higher yields. He also used a foliar application of nitrogen, zinc, manganese, iron and sulfur applied at the V3-V4 soybean growth stages, and he applied additional slow-release nitrogen and micronutrients throughout the season as needed.

Clearly fertility matters. Illinois farmers voluntarily adopt best management practices to feed valuable nutrients to plants. We have devoted this issue of Illinois Field & Bean to soil health and fertility topics to provide even more guidance. Read how to improve soil health, understand nutrient value of manure, review effective nutrient application tips and more.

If you have still have questions or comments about fertility, I encourage you to join the forum found on ILSoyAdvisor.com. The online management resources may provide just the information you need to get your crop started off on the right path this season.

Have a safe and productive 2015. ■

BILL RABEN
ISA Chairman

Illinois Soybean Association
1605 Commerce Parkway
Bloomington, IL 61704
Phone: 217-877-1662
Fax: 217-398-6147
Email: info@ilsoy.org
Website: www.ilsoy.org

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Checkoff FACT:
Get More Management Information at Soybean Summit
ISA will host its second 2015 Soybean Summit, March 6, at the Peoria Civic Center in Peoria, Ill. The event, which is funded in part by the Illinois soybean checkoff, will encourage participants to examine and explore various soybean management techniques that can lead to higher yields and greater profitability. The Soybean Summit is free to Illinois farmers. Online registration is available at ilsoy.org/summit or by calling 888-826-4011.

ILLINOIS FARM BUREAU
PHOTO BY KEN KASHIAN, ILLINOIS FARM BUREAU

PERSPECTIVE

Get More Management Information at Soybean Summit
ISA will host its second 2015 Soybean Summit, March 6, at the Peoria Civic Center in Peoria, Ill. The event, which is funded in part by the Illinois soybean checkoff, will encourage participants to examine and explore various soybean management techniques that can lead to higher yields and greater profitability. The Soybean Summit is free to Illinois farmers. Online registration is available at ilsoy.org/summit or by calling 888-826-4011.
I hear folks talk about extra maintenance fertilization as a means to ensure a storehouse of soil nutrients. I am concerned how this relates to the current discussion about soil health.

I define routine nutrient management as managing the "checking account" of your soil, balancing nutrient withdrawals with credits. Most farmers use relatively simple tools like soil tests to stay ahead of debits with proper credits in their seasonal nutrient checking accounts. Smart people set up this system a long time ago.

These checking account tools are fairly reliable, but barely touch on maintenance or savings. Maintenance management is more about building something larger in reserve, analogous to a savings account. The problem with the maintenance idea, environmental scientists bristle, is that it could suggest over-fertilizing.

In the world of soil health, what your soil holds in reserve is even more than a savings account. It's a fund. The rules are simple. If you avoid destructive soil behavior and provide sufficient food — organic matter such as crop residues and roots — the fund grows.

My soil laboratory has found that every transaction made with nitrogen, phosphorus and sulfur is mirrored by activity in the fund. In poor years, the fund bolsters yields. In good years, it accumulates. That may seem like maintenance, but in biology terms, accumulation goes to healthy functioning. You can't have too much of that.

With the fund, we are talking about a trove of nutrients associated with soil biology and organic matter. There's an entire organization of supportive processes contributed by living organisms looking out for themselves and cooperating in nutritional exchanges.

"The rules are simple. If you avoid destructive soil behavior and provide sufficient food – organic matter such as crop residues and roots – the fund grows."

William F. Brinton, Ph.D., is the founder and owner of Woods End Soil Labs in Mt. Vernon, Maine, and the inventor of the Solvita soil test. He runs a 25-acre research farm and is a faculty associate at the University of Maine, Orono.
Details Matter for Productive Soils

> BY AMY ROADY

When it comes to soil health, you might have to dig a little deeper, look at things from a different angle or make sure everything balances out to improve your dirt’s fertility.

Certain things are known about Illinois soils, most importantly that they vary across the state. The key is to figure out what works best in your situation. And although soils vary, there are a few principles that most farmers can apply. All start with a soil test and end with patience.

“Illinois soybean farmers have a variety of options that can help improve their soil,” says Roger Windhorn, resource soil scientist for Illinois Natural Resources Conservation Services (NRCS).

SOIL TESTS PAY DIVIDENDS

Right now, with crop prices down and high input costs, farmers will really need to look at soil tests a lot closer for the next two crop years, says Chris Behl of Bloomington-based Pro-Ag Consulting LLC.

“For farmers whose soils tests are recent, it’s a huge advantage,” he says. “You know exactly what shape your soils are in, which ones are out of balance, which ones have acute shortages and where you can prioritize your dollars to achieve a profit.”

Soil tests are especially important on new ground. “You miss a lot just by windshielding it,” Behl says.

“Information acquired from a soil test can be used to decide which crop and varieties to plant, which fertilizers to use, and what kind of tillage practices to implement.”

“The key to soil testing is how you use it. You have to follow up,” says Don Guinnip, soybean farmer from Marshall, Ill., and Illinois Soybean Association (ISA) Production Committee chair.
Soil testing can be done at various times of the year, but Behl prefers right after planting. Soil conditions are ideal, farmers have time to get data analyzed and have more options for fall. As crops get taller in the summer, it is more difficult to sample. Post-harvest sampling is limited by weather and turnaround time. Either way, the key is establishing and working from a base. “At the end of the day, people want answers before spring,” says Behl, whose company provides soil and agronomy testing for Illinois farmers. “Everything else is predicated after that.”

**BALANCE PH**

The most important thing to improving soil is to get the pH right and to balance the elements that contribute to pH, says Kelly Robertson, a farmer and owner of Precision Crop Services, in Benton, Ill. Soil pH is most important for nutrient availability and is the easiest and cheapest to correct, adds Behl. “It’s a building block you should look at very closely,” he says.

Soil pH varies across Illinois. Prairie areas with dark-colored soils generally have a higher pH because of nutrient cycling of calcium by the grass roots. Timber areas with light-colored soils generally have a lower, more acidic pH because of the presence of organic acids in the leaf litter that cause greater leaching of the soil, says Windhorn.

Applying limestone is necessary to adjust soil pH, and lime quality matters. So does application. Robertson finds that the cheapest lime may be coarse or not apply well due to an inconsistent grind. This also leads to a lime not breaking down well in the soil. Robertson says all lime is different, so invest the time to find the best one for your situation.

**ORGANIC MATTER MATTERS**

“One of the best things any Illinois farmer can do is to add or protect organic matter in their soil,” Windhorn says. Since residue quantities are minimal in soybeans, it is very important to keep what is there. This is one reason Guinnip likes double-crop soybeans and cover crops. His timber soils are low in organic matter and high in clay.

The winter wheat and cover crops he plants improve the root systems for other crops, hold nutrients in place, stop erosion and increase the organic matter. “It’s a lot of little things that add up and pay for the expense to plant the crop,” he says.

A good, healthy soil has a lot of organic residues that are breaking down and converting to organic matter, Robertson says. If farmers have access to manure, applying it can increase organic matter and add nutrients.

Large amounts of surface residue do not equal a large increase in soil organic matter. Building organic matter takes time, lots of time, Robertson notes. He says farmers can’t just plant a cover for a couple years and expect an increase in soil organic matter from two to three percent.

Organic matter, which is higher in Prairie soils, helps serve as a shock absorber, too. Low organic matter clay timber soils in southern Illinois tend to stick together more.

According to the Illinois Soil Testing Association, a soil test is only as good as the sample provided to the testing lab. Generally, a subsample should be taken from the layer of the soil from the surface to seven inches deep. Three to five subsamples should be collected from three to 10 acres. Because of soil variations, taking too few samples by subsampling too large an area may not give an accurate fertility map of the field. Remember, sampling is the most critical part of soil testing.

**Checkoff FACT:**

More Information is Available

For more soil insights from Roger Windhorn, resource soil scientist for Illinois Natural Resources Conservation Services (NRCS), visit ilsoyadvisor.com, the Illinois soybean checkoff management site that offers current tips and information to enhance profitability.
SOIL STRUCTURE IS FOUNDATION

Remember seeing soybeans standing in water last year? Odds are those beans took a yield hit.

Behl says when corn or beans don’t get off to a good start, it’s hard to come back from a high rainfall unless farmers get rid of the excess water.

Soil structure destroyed this year will contribute to yields next year, confirms Robertson. “Farmers want to make sure they don’t do anything to restrict root growth,” he says.

Good soil structure develops over long periods of time with freezing and thawing, wetting and drying, and is influenced by plant roots and microbes.

“We can and do alter structure, usually in a bad way, with over tillage, lack of cover crops, hard pan development and compaction,” Windhorn says.

Sometimes farmers can’t change the soil, but they can manage it by understanding it, Behl says. One practice that can help soil health and drainage is to have a plan to build and not destroy soil structure. Write the plan down and follow it. Know what fields flood, which tend to stay wet, how they should be tilled, which direction they should be planted and even where trucks should park during harvest, adds Robertson. Don’t do anything that would destroy good soil structure.

FERTILITY COUNTS

From a fertility standpoint, farmers really must monitor potash in southern Illinois, advises Robertson. Potash levels are easier to lose than gain. And in a soil testing program, potash may not change from year to year, even when potash is applied at higher rates.

This doesn’t mean farmers should ignore potash. “The tendency is to think that I can’t build it so I won’t put it on,” says Robertson. “But if you quit, test levels will go down faster than they come in.”

“As the economy changes and margins tighten, it is more important than ever to put the fertilizer investment where plants need it,” Guinnip says.

So if you haven’t had a soil test in four or five years, it’s probably time for a checkup. “Look at the crop removal each year,” Behl explains. “We had an exceptional crop in 2014, but we haven’t seen the huge nutrient removal rates we thought were out there.”

Illinois farmers have seen a lot of variable rainfall the past few years, from droughts to floods, which Robertson says makes predicting nutrient removal rates challenging to predict.

INVEST THE TIME

Investment in improving soil fertility, soil structure and soil health is a long-term commitment. Farmers are pressed for time but a lot of things they are dealing with, such as fertility, structure, organic matter and water, are things that previous generations of farmers also managed, only perhaps on a smaller scale, Robertson says.

Now we have technology that makes it easier to manage things like cover crops, Guinnip says.

“We all have to keep in mind, though, that because the soil is highly buffered, it slowly resists changes and sometimes a significant period of time is necessary before improvements become noticeable,” Windhorn says. “Patience is the key word.”

NRCS JOINS GROUPS ACROSS THE WORLD to celebrate the International Year of Soils in 2015. The 68th session of the United Nations General Assembly designated 2015 for the yearlong soils celebration as a way to increase understanding of the importance of soil for food security and essential ecosystem functions.

For more information, visit fao.org/soils-2015
Livestock and poultry create fertilizer packages — packages that can meet nitrogen (N), phosphorus (P) and potassium (K) requirements, replenish soil micronutrients and increase organic matter. Manure delivers these benefits, regardless of the animals producing it. But what’s in that manure can vary by species and affect its use.

“Livestock manure or poultry litter contain nutrients that aren’t digested and absorbed by the animal,” says Morgan Hayes, University of Illinois assistant professor and Extension specialist. “Diets have become more efficient and balanced over time, so that animals are fed exactly what they need for health and optimum production.” Hayes confirms their “leftovers” still provide valuable nutrients for crop production that vary between types of animals — the most valuable of which is whatever is close to your fields. Livestock production systems, especially housing, dictate the form manure takes. Deep pits and lagoons provide liquid manure, common for hog farms and dairies, while bedded facilities supply solid manure from beef cattle. Poultry litter also is solid.

Midwest university research sets general expectations for these different manures. “A number of factors influence exact nutrient content of manure,” Hayes says, adding that she recommends manure always be sampled and analyzed before application.

Regardless of state, once manure is in the soil, it delivers basic N, P and K and many micronutrients, including calcium, magnesium, sodium and zinc. All forms of manure add organic matter to soil, and bedding material increases organic matter content.

“An accurate understanding of what manure contains allows appropriate N- or P-limiting applications,” she says. “Organic matter improves soil tilth and water-holding capacity. Although all manure adds some organic matter, the amount is one of the larger variables between livestock species.”
ISA Provides Manure Value Materials

ISA has developed several tools that promote the value and use of manure in crop production. In addition, ISA’s Monetizing Manure project developed last year has helped build awareness and educate Illinois soybean farmers about the benefits of adding livestock, including the value of manure and income for the next generation to farm. For more information, visit ilsoy.org/animalag.

CROP-LIVESTOCK CYCLE PROVIDES NATURAL RECYCLING

Using manure fertilizer completes a natural recycling system. Crops need N, P, K and other nutrients to grow, and crops produce the protein (soybean meal) and carbohydrates animals need to grow. Livestock produce N, P, K and other nutrients that go back into the soil for crops. Byproducts from the system include soybean oil and meat, milk and eggs that provide food, fuel and more.

“Our hogs produce manure that enriches our soil to grow crops that we send to the local elevator,” says John Hagenbuch, soybean farmer from Utica, Ill., and ISA director. “We buy our hog feed from two local elevators. The feed grows our hogs. They produce manure that goes back into the ground, and we keep that cycle going.”

MANAGE NUTRIENT AVAILABILITY THROUGH MANURE APPLICATION

Research and practice confirm getting both liquid and solid manure into the soil keeps nutrients in place. And injecting liquid manure or incorporating broadcast liquids or solids within 24 hours makes available nitrogen less volatile and more likely to stay put.

“Research shows only five percent of nitrogen from manure is lost when injected in cool, dry soils,” says Laura Pepple, University of Illinois Extension livestock specialist.

Manure contains both organic and inorganic forms of nitrogen. Crops only can take up inorganic N from the soil, note Hayes and Pepple. Most manure application rates are based on this plant-available percentage of N.

“Organic N sits in the soil. Over time, the natural process of mineralization breaks this N down into the plant-available form,” says Hayes. “Manure with higher amounts of organic N will provide additional plant-available N for the field in subsequent years, compared to manure with little organic N.”

She notes slow release of plant-available N from organic N supports long-term soil fertility. These forms of N are less prone to leaching and runoff.
Efforts to improve environmental stewardship, such as those being evaluated in this soil section located in the Indian Creek Watershed, need to focus on MOM — minimizing environmental impact, optimizing farm yield and maximizing farm profitability.

PREPARE FOR NEW ERA OF INCREASED NUTRIENT EFFICIENCY

> BY ALISSA KIEDROWSKI

A new focus on the 4Rs of nutrient management — right place, right time, right source and right amount — is transforming how farmers will want to think about plant nutrient use. Fresh technologies and philosophies can guide soybean farmers toward increased nutrient efficiency.

“Farmers have always been conservation-minded. There’s always been a philosophy of needing to protect and preserve soil and water,” says Harold Reetz, owner of Reetz Agronomics, LLC. “But we’re definitely being more efficient in our use of fertilizers. We’ve learned so much from an environmental standpoint in terms of best practices regarding fertilizer timing and placement.”

Reetz observes a trend toward greater awareness about how small decisions contribute to the bigger environmental picture. He sees farmers working harder to ensure their management decisions are not contributing to larger environmental concerns. Farmers can use the Illinois Nutrient Loss Reduction Strategy (NLRS), which is under review, and other strategies to voluntarily adopt best management practices that help keep nutrients in place for efficient crop use.

Dan Schaefer, CPAg, certified crop adviser (CCA) and Illinois Council on Best Management Practices (C-BMP) director of nutrient stewardship, agrees the way farmers approach nutrient use, particularly nitrogen, has changed significantly in the past 10 years.

“In 2008, when we saw large nitrogen losses due to weather conditions, farmers decided it was time to change,” he says. “Farmers started to spread their risk by switching to multiple applications, helping to keep nutrients available for the crop.”

As farmers tweak applications, Howard Brown, director of nutrient management and environmental stewardship for GROWMARK, finds farm profitability has become an essential part of the equation.

“All of these efforts to improve environmental stewardship need to include farmer profitability,” he stresses. “That’s why we focus on MOM – minimizing environmental impact, optimizing farm yield and maximizing farm profitability.”
MORE INFORMATION, MORE ACCURATE PICTURE

A number of technologies are coming more into play to provide farmers with essential information about efficient crop nutrient use. For example, soil tests allow farmers to manage nutrients on a more precise basis.

“With more intensive, more frequent sampling, farmers have better information on what nutrients are needed,” says Reetz.

To make soil sample collection easier, an automated soil sampling machine was recently introduced by Falcon Soil, Monroe, N.C. Satellite navigation guidance systems also allow farmers new opportunities to manage placement of fertilizer relative to crop rows.

“Although more commonly used with nitrogen in corn, some farmers use satellite guidance to manage placement of phosphorus (P), potassium (K) and micronutrients,” says Reetz.

Still, one of the most important tools is the yield monitor, as Reetz notes yield is the ultimate measure of a management program. “Yield integrates all of the management decisions during the crop year and is the best way to compare relative success of different decisions,” he says.

MORE INFORMATION, BETTER DECISIONS

Thanks to copious amounts of data generated by soil tests, yield maps and satellite application maps, there’s no shortage of information for farmers to manage nutrient efficiency.

“Farmers today have better information for making decisions; how to select the right rate, when to put it on, best products to use, and how to apply so it’s available when needed,” says Reetz.

Schaefer adds that even simple changes in application decisions can improve both farm profits and water quality. “Some farmers are moving away from applying all of the P and K ahead of the corn crop,” he explains. “They split the application and put on only what corn needs ahead of corn and then apply what soybeans need ahead of the soybean crop.”

KEEP A CLOSER WATCH ON NITROGEN

Among the tools available to help farmers learn more about efficient nutrient use is N-WATCH, a program offered through local FS member cooperatives or that can be licensed through C-BMP. Howard Brown, director of nutrient management and environmental stewardship for GROWMARK, says the program helps farmers inventory, track and verify plant-available N in the soil profile.

“It’s not a metric, as much as it is a management tool,” he says. “It gives farmers a means of watching the dynamics of plant-available nitrogen in the soil over time at a point in the field.”

One GROWMARK member cooperative has set up a series of 12 sentinel sites where farmers have granted permission to post N-WATCH report information online.

“With this approach, even farmers who don’t participate in N-WATCH can get a feel for how nitrate and ammonium are interacting in the soil throughout the season,” he says.

Complex interactions between N and the soil environment make a program like N-WATCH necessary. “We can’t predict with any consistency what nitrogen will do in the soil due to unpredictable changes in weather. But we can get as close to real-time estimates of plant-available N as we can, which is valuable for helping us make the next management decision,” he says.

For more information on the N-WATCH program, visit your local FS member cooperative or www.illinoiscbmp.org.

MORE INFORMATION, MORE ACCURATE PICTURE

As part of ISA’s support for C-BMP infographics, such as that on page 10, have been developed and posted to C-BMP’s Nutrient Loss Reduction Strategy page (illinoiscbmp.org/nutrientstrategy/conservationbythenumbers) and to the ilsoy.org sustainability page. The infographics highlight key successes Illinois farmers have made in reducing environmental impact on water.

Photography by Harold Reetz

“We’re definitely being more efficient in our use of fertilizers. We’ve learned so much from an environmental standpoint in terms of best practices regarding fertilizer timing and placement,” says Harold Reetz, owner of Reetz Agronomics, LLC., Monticello, Ill.
On a recent drive from Joliet south to Champaign, Ill., John Greuling took note of the grain bins, farm fields and elevators along the way. Even though he has worked across the state for more than 40 years in community development, agriculture was not always on his radar.

But about 14 years ago, he became president and CEO of the Will County Center for Economic Development. Since then, a key factor in that county’s phenomenal growth is tied to agriculture.

“I have learned the value of the ag economy,” confirms Greuling, who leads business attraction, expansion and retention in the Will County area. “Farms are some of the biggest manufacturers in the state, creating food and fiber for the world. Agriculture has become a significant part of our economic development strategy to increase the tax base and wealth of the county.”

Will County has two intermodal facilities near Elwood and Joliet, Ill., which since 2002, have allowed rail lines coming from the West Coast to Chicago to reduce the time it takes to unload. Trains previously traveled three days on Union Pacific and BNSF rail lines from Long Beach, Calif., to the City of Chicago. But it took another four or five days for the containers to be unloaded. Modern equipment allows more immediate unloading in Will County.

“We had no idea in 2002 how big this business would be. At the time, Will County had 55 million square feet of industrial space. That has grown to 145 million square feet,” he says.

Greuling had to do some research about what to do with empty containers once they were unloaded at the rail facilities. Containers were generally stored or were railed back empty to the West Coast. Some contained recycled paper and were shipped back to China.

“We looked to other inland ports for some ideas on how to handle the containers. Then the need for animal protein in China began to grow, along with ethanol production. Dried distillers grains and soybean meal began to fill the empty containers to be shipped back to Asia,” he says.

The intermodal facilities handle about three million containers annually. Greuling says the railroads won’t say what is in the containers, but more than 80 percent leaving the county now have...
something in them. One container holds about 1,000 bushels, and a train holds more than 240 containers. Greuling says $100 million worth of grain was shipped from Will County to the coast in 2013.

While similar transportation infrastructure potential exists in locations like Omaha, St. Louis and Memphis, Greuling believes Will County has unique qualifications. “We have created an ag business climate. Will County has become an inland port for international companies, and we are the largest in North America,” he says. “We are working on waterways expansion and a third Chicago area airport. We hope to attract ag technology here to help meet global demand.”

Duane Dahlman, soybean farmer from Marengo, Ill., and ISA director representing Will County, attributes growth partly to Greuling’s collaborative strength in working with others, like ISA.

“Major railroads, trucking and waterway facilities have grown from investments in Illinois,” says Dahlman. “John and his staff work with state officials, and have developed the case for increasingly leveraging the workforce, location and assets in the region.”

Greuling says the growth can expand, too. “We see high ag volume through Illinois. We need to look at transportation interconnects in places like Decatur, Peoria, St. Louis and Lawrenceville, and find ways to pump up those local economies,” he says. “We need to inventory what we have to see where Illinois infrastructure can connect economically and critical mass can grow.”

He encourages farmers to participate in greater economic development by making sure local officials understand the importance of the ag economy in their own backyards.

“Farmers should be at the table to see proper investment is made in infrastructure,” he says.

Will County has two intermodal facilities near Elwood and Joliet, Ill., which since 2002, have allowed rail lines coming from the West Coast to Chicago to reduce the time it takes to unload. The intermodal facilities handle about three million containers annually.

“Major railroads, trucking and waterway facilities have grown from investments in Illinois.”

DUANE DAHLMAN, soybean farmer from Marengo, Ill., and ISA director representing Will County.

Checkoff FACT:

Transportation a Major Funding Priority

The Illinois economy depends on the state’s road, water and railway infrastructure to move soybeans and other goods to final destinations. Learn how ISA is addressing key infrastructure issues and seeking collaborative solutions to infrastructure challenges at ilsoy.org/transportation.
YIELD, COMPOSITION & PROFITABILITY

TRUE or FALSE?
Keep Phosphorus in the Soybean Yield Equation

TRUE: Research shows high-yielding soybeans often require a different approach to maximize the genetic potential of those modern varieties. Farmers looking to boost yields in 2015 may want to reconsider how they manage phosphorus to ensure it’s available when soybeans need it. Doing so may boost on-farm profits and reduce off-site movement of valuable nutrients.

Here’s some of the latest thinking from agronomy experts regarding phosphorus in soybeans.

■ Soybeans need phosphorus all season long.
TRUE: Fred Below, Ph.D., professor of plant physiology at the University of Illinois, believes pre-season phosphorus applications offer benefits throughout the season. Phosphorus is critical for root development and also for seed development and growth.

“Soybean plants need high amounts of phosphate when they’re growing vegetatively early in the season, but almost half of that phosphorus is actually accumulated during pod fill,” he says. “Phosphorus is highly concentrated within the seeds, but to reach that point, phosphorus needs to be available throughout the course of the season.”

■ Adding phosphorus once per corn/soybean rotation is adequate.
FALSE: Farmers can save on application costs by fertilizing once per corn/soybean crop rotation. However, University of Illinois crop sciences graduate student Ross Bender says nutrients that are left over from the corn crop may not be enough for the soybean crop.

“When a farmer fertilizes with phosphate before corn, that is 18–20 months before the soybean crop needs it,” he says. “After a two-year cycle, beans often end up mining soil for nutrients.”

Below adds fertilizing both corn and soybeans based on soil tests and crop removal rates could pay through better yield. “In the Six Secrets of Soybean Success, we see a four- to five-bushel yield advantage from soybean fertilization with phosphorus over a range of soil types,” he says. “It’s been one of the largest factors to increase yield in our Six Secrets approach to date.”

■ Phosphorus losses occur through soil erosion and runoff.
TRUE: Phosphorus tends to bond with soil particles, so the primary means of loss are soil erosion and surface runoff. “Phosphorus on the surface will attach to soil particles, which makes it susceptible to such loss,” says Bender. “Phosphorus is essential to raising high-yielding soybeans, but farmers must be diligent in managing it to ensure it is available for the crop.”

■ Maintenance phosphorus requirements are low for soybeans.
FALSE: Although some phosphorus remains in the soil after harvest, the level is minimal with soybeans. Below says the average soybean plant removes 80 percent of the phosphate it takes up — the highest of any single mineral nutrient — leaving only 20 percent returned to the soil.

To gauge soybean nutrient removal rates, Below recommends farmers consider yield potential of their varieties. “The soybean plant typically removes 0.59 lbs phosphorous per bushel,” he says. “But the higher the yield level, the greater the nutrient removal rate.”

Checkoff FACT:
Management Matters Series Addresses Production Issues
ISA’s Management Matters series offers Illinois soybean farmers an opportunity to learn more about particular production management issues. Key takeaways and audio discussion from a variety of subject experts, including Fred Below, can be accessed at ilsoy.org/profitability/management-matters.
Can farmers defer crop insurance payments?

A big misconception is that farmers can defer crop insurance proceeds, but it isn’t that simple. When farmers receive 2014 crop insurance proceeds, they only can defer that income to 2015 if they normally sell more than 50 percent of their crop the following year. Additionally, the crop insurance proceeds must be due to yield-related damage caused by hail, drought, wind, flood or other disasters. Any proceeds from revenue protection crop insurance cannot be deferred.

Can farmers defer income to the following year?

Many people think if they don’t deposit a check in the bank, it isn’t considered income. That is false. Simply having the check or the right to it means that it is income for the current year, even if it is not deposited into the bank until the next year. If farmers want to defer that income into the next year, holding a check until January won’t work. Instead, they need to enter into a deferred payment contract with the cooperative or company where the grain was delivered and sold. By having deferred payment contracts for grain that was delivered and sold prior to year end, farmers can have flexibility to choose which year to report the grain sold and delivered.

What should farmers consider in planning 2015 input costs?

It is common practice to prepay fertilizers, chemicals, seeds and other inputs. Because farm net incomes are projected to be lower in 2014, people will probably prepay some expenses to reduce their current year income to even out taxable income for 2014 and 2015. However, farmers need to keep in mind that the federal income tax code for cash basis taxpayers only allows a deduction for prepay expenses up to 50 percent of their annual inputs.

How can farmer prepare better for filing spring taxes?

Here’s my number one tip: Do income tax projections early to determine the 2014 taxable income desired. Income projections are especially important now as commodity prices are falling and farmers want to ensure profits in 2015 and 2016. By doing projections, farmers can start working with their accountants on breakeven points to ensure profits and start working on income projections for 2015 and 2016.

What additional steps can farmers take in 2015?

Prepare annual accrual basis financial statements with an accrual basis balance sheet and income statement. The only way farmers can know, understand and present their financial position to their bankers is with accrual basis financial statements. Accrual basis financial statements also provide farmers with the necessary information to prepare breakeven analyses for future crop years. Preparing these analyses for future years and updating them as information changes gives farmers an educated estimate of the price needed per bushel for their crops, which is helpful for forward marketing. This will become even more important as profit margins get tighter.

For more tips on farm profitability, listen to ISA’s Management Matters: Focus on Profitability series at ilsoy.org/profitability/management-matters.
By the **Numbers**

**As much as 60 percent**

of crop yields are dependent on soil fertility.


**6-12**

the number of different plants that should be grown in the soil for optimal diversity.

Source: Illinois NRCS

**FERTILE SOIL HAS A pH ranging from 5.5 TO 6.2**

Source: www.ecochem.com

**SOILS HAVE 5 COMPONENTS:**

1. mineral particles
2. organic materials
3. water
4. air
5. bacteria

For farming systems to be sustainable, soil organic matter levels must be maintained at a minimum 3%.

Source: Food and Agriculture Organization of the United Nations

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At ILSoyAdvisor.com, you’ll find management and production tips, the latest research, market information, weather forecasts and more. It’s always relevant and from local experts—and it’s all within a click of a button. Visit ILSoyAdvisor.com today for the tools to help increase your yields.
Three Commodity Groups Come Together for Donation

Illinois pork, corn and soybean groups donate funds to purchase pork for the Midwest Food Bank. Pictured left to right are Brad Steidinger, Steidinger Foods; Mike Haag, Illinois Pork Producers Association; Lou Lamoreux, Illinois Corn Marketing Board; Mike Hoffman, Midwest Food Bank; and Jered Hooker, ISA.

The Illinois Soybean Association, Illinois Pork Producers Association and Illinois Corn Marketing Board came together during the holidays to give a $9,500 donation to the Midwest Food Bank in Bloomington, Ill. The donation helped provide the food bank with 10,000 pounds of ground pork. The donation also was made possible with help from Steidinger Foods in Fairbury, Ill., who processed the pigs and delivered the pork to the food bank. The donation was part of the Pork Power Program, which has helped provide more than 16 million pork servings to families in Illinois since 2008. Pork is the top consumer of Illinois soybean meal.

USSEC Discusses Soy Imports with China

The U.S. Soybean Export Council (USSEC) recently participated in the China-U.S. soybean market outlook roundtable and signing ceremony held at the Union League Club in Chicago. The event was attended by nine Chinese soybean buying companies representing about one-third of all the soy imported by China.

The roundtable discussion included talk about the future of the soy market in China and potential threats to the U.S. soy export market. Despite a larger projected harvest from South America this year, the Chinese are expected to increasingly import soybeans from the U.S., given the growing middle class there is demanding more protein.

USB Farmer Leader Appointed to USFRA Board

Nancy Kavazanjian, a United Soybean Board (USB) director and farmer from Beaver Dam, Wis., was recently appointed chairperson of the U.S. Farmers and Ranchers Alliance (USFRA). Kavazanjian currently is in her fourth year serving on USB, and was vice president for USFRA last year. ISA provides support to USFRA, an organization of more than 80 farmer- and rancher-led organizations and partners from across the agriculture industry. The purpose of USFRA is to engage in dialogue with consumers who have questions about how today’s food is grown and raised.

National Biodiesel Conference Celebrates Industry's Future

The 12th annual National Biodiesel Conference and Expo was held in Fort Worth, Texas, last month to celebrate the biodiesel industry and its future. The National Biodiesel Board (NBB) each year brings together industry, government and academia leaders from across the nation to discuss sustainable biodiesel industry growth. The theme of this year’s conference was “certainty in shifting markets.” Topics addressed included harnessing solar energy, policy updates and ask-the-expert sessions. Several ISA directors attended to share strategy and updates about the Illinois biodiesel industry.

Calendar of Events

- National Farm Machinery Show  
  > February 11-14 · Louisville
- Grain and Feed Association of Illinois Meeting  
  > February 15 · Springfield
- Commodity Classic  
  > February 22-27 · Phoenix
- ISA Soybean Summit  
  > March 6 · Peoria

For more information, visit www.ilsoy.org.
Issues to Watch

Illinois Soybean Growers (ISG) keeps a finger on the pulse of key issues in Washington, D.C., and Springfield, and mobilizes whenever a response is needed. Here are a few issues ISG is monitoring:

- **CUBA** – Discussions continue with the 114th U.S. Congress following the President’s move in December to loosen some trade restrictions with Cuba. Business with this country, home to 11 million consumers, could increase soybean, soybean meal and meat exports. ISG has been working toward a solution like this for several years, and encourages Congress to take the next step and remove the 50-year-old embargo. In January, ISG joined the U.S. Agriculture Coalition for Cuba (USACC) to help further the desire to advance trade relations.

- **WATERS OF THE UNITED STATES (WOTUS)** – While the $1.1 trillion federal spending bill passed in December and carried a measure to block WOTUS, the Environmental Protection Agency (EPA) is not giving up. EPA Administrator Gina McCarthy says the agency plans to move forward with the proposed rule by spring, after reviewing thousands of comments submitted last fall. ISG will take action if necessary to protect farmers’ freedom to operate.

- **TTIP/TPP TRADE NEGOTIATIONS** – U.S. officials remain in talks with leaders from several countries to finalize broad trade partnerships. European leaders are calling for Transatlantic Trade and Investment Partnership (TTIP) negotiations to be finalized by the end of 2015. Meanwhile, negotiators on all sides of the Trans-Pacific Partnership (TPP) have been traveling between countries to try to conclude the agreement. TPP will not move forward without Congress passing the trade promotion authority (TPA). TPA defines U.S. negotiating terms and sets requirements for the President to follow during negotiations. Under TPA, Congress gets the final “yes or no” vote in any trade agreements but cannot amend the negotiations.

- **GMO LABELING** – Conversations about GMO labeling will heat up in 2015. Rep. Mike Pompeo, R-Kan., continues to push his Safe and Accurate Food Labeling Act. The bill contains a voluntary GMO labeling rule at the national level — something ISG supports since individual state labeling laws could raise grocery prices.

- **NEW ILLINOIS GOVERNOR** – Governor Bruce Rauner strongly supports agriculture in Illinois and has said the state needs an agriculture sector that is “booming.” ISG looks forward to working with farmers he selected to be on ag committees and in the Department of Agriculture. In his “vision for agriculture” rolled out during his campaign, Gov. Rauner promised to prioritize modernization of Illinois’ lock-and-dam system, freeze property taxes and advocate for continued biofuels development. ISG is building a relationship with Gov. Rauner and will continue to monitor and act on state issues that affect Illinois soybean farmers.

Information on these issues and more issues is found at www.VoiceforSoy.org.

Yield the Most Opportunity from the Farm Bill

For the first time since 1986, USDA’s Farm Service Agency (FSA) is offering new information to update program payment yields. The agency says this will help farmers choose which 2014 Farm Bill protection program better suits individual needs – Agricultural Risk Coverage (ARC) or Price Loss Coverage (PLC). Farmers will need to move fast. Updating yield history is only available until Feb. 27, 2015. Check with local FSA offices to see what data is available and learn more to help make the best decisions.

ISA Corporate Partners

**EXECUTIVE**
- > ADM
- > Monsanto BioAg

**PRINCIPAL**
- > Beck’s Hybrids
- > Cargill
- > Dow AgroSciences
- > DuPont Pioneer

**CORE**
- > Bunge
- > Monsanto/Asgrow

**ASSOCIATE**
- > Consolidated Grain & Barge Co.

**AFFILIATE**
- > Rumbold & Kuhn
- > Syngenta

**SUPPORT**
- > Akron Services
- > Big River Resources LLC
- > Helena
- > Stoller USA
- > The Andersons Inc.
- > URSA Farmers Co-op

To learn more information about ISA’s Corporate Partner’s Program visit ilsoygrowers.com
ISA Director Tackles Global Food Security

Stan Born, Dunlap, Ill.

“In 2009, I became a full-time farmer. I realized at age 55 there were probably more years behind than in front of me, and I wanted to dedicate my time to things like volunteering. Now I work on that goal.”

Stan Born, farmer and volunteer, Dunlap, Ill.

With a degree in chemical engineering, a career as director of social responsibility at Caterpillar, and now a full-time job as a farmer in his back pocket, ISA director Stan Born’s next project is tackling global food security.

WHAT IS YOUR BACKGROUND?
I grew up on a quintessential 1970s farm. We had corn, soybeans, alfalfa, chicken, pigs and cattle. I went away to school and decided to study chemical engineering. I already knew about agriculture and wanted to try something new. I wanted to go back to farming after graduation, but it wasn’t the best time. I got a job at Caterpillar and worked in different departments for 33 years. In 2009, I became a full-time farmer. I realized at age 55 there were probably more years behind than in front of me, and I wanted to dedicate my time to things like volunteering. Now I work on that goal.

WHAT LED YOU FROM CORPORATE TO MISSION WORK?
All the opportunities I had working in global leadership at Caterpillar were gifts. I worked in engineering, sales, marketing, manufacturing, was a corporate staff director for environmental sustainability and then a project manager for global sustainability. I visited 36 countries and learned many valuable skills about travel and food security. I felt an obligation after leaving Caterpillar to not let those skills go stagnant, and to use them in other areas where I could make a difference.

WHY DID YOU DECIDE TO FOCUS ON GLOBAL FOOD SECURITY?
My career at Caterpillar led me to travel a lot. I started taking mission trips with my daughter. When I traveled for work, I was not exposed to the kind of places that you see on mission trips. My first mission trip was to Guatemala to put stoves in homes. I really got a poignant look at hunger in other countries and struggles that are different than in America. You see their lack of commercial infrastructure and refrigeration; things we take for granted here that really matter. I also decided that I wanted to have a positive impact on the agriculture community because farmers are a minority.

GLOBAL FOOD SECURITY IS A BIG ISSUE – WHERE DO YOU FIT IN?
After a trip to Cambodia where I saw underweight kids who had virtually no protein in their diet, I decided to focus on soybeans. I believe with their amino acid and protein balance, soybeans offer a cost-effective and environmentally efficient source of protein for many parts of the world. I came home from that trip and partnered with VisionTrust, a mission organization. I met with their CEO and asked if I could work with them to use soy in helping address nutrition needs. We put together a team of experts — nurses, nutritionists, feed experts — and identified three geographies for pilot projects to come up with sustainable solutions. We chose the Dominican Republic, India and Liberia.

WHAT PROGRESS HAVE YOU SEEN SO FAR?
We decided not to try and fix all food problems, but to just focus on protein and making sure we provide 30-35 percent of the daily requirement. We put together solution sets they can manage. We don’t have missionaries that are expats. We use people from the country who want to be leaders. We come in and engage leaders from the ag community to better understand the situation. We need them to buy in and own it.

One thing I’ve learned about nutrition and responses to change is that you have to be really patient. Many challenges are structural, cultural and generational. It’s going to be a long pull, but I think we are well on our way.
LIBERTY

It feels good to hear other farmers talking about how clean our fields are this season.

It’s more than just a good looking field. We’ve done side-by-side comparisons and the performance is there too.

Before Beck’s LibertyLink® beans we had a bad waterhemp problem. Now that we are 100% Liberty, we have some of the best beans we’ve ever seen.

Cole Bailey
Bailey Family Farms

Zach Bailey
Bailey Family Farms

Watch the interview at www.BecksHybrids.com/BaileyFamilyFarms