

40 Years Of Research And Still Going Strong

By Jim Ruen, Contributing Editor

Fred Below has dedicated 40 years to studying crop physiology and sharing his knowledge with Illinois farmers. Now in his early 70s, the University of Illinois Crop Sciences professor isn't in any hurry to retire.

Below is excited about the changes in crop production he expects to see in the coming years. They're changes he wants to be a part of, as he has with so many changes over the past four decades.

"The actual yields we're seeing today are something I never expected to see when I started in research, whether actual on-farm or in yield contests," says Below. "A 200-bushel yield would once have been reason for celebration, and now for some producers, it's a crop failure."

Below admits he thought precision agriculture would be adopted more widely than it has been. That said, he mentioned short corn hybrids as one change he expects to see take off in the near term.

"Corn is the last major crop to be dwarfed," says Below. "I think it's going to be a game-changer."

He once believed that growing bigger corn was necessary for higher yields. For many years, research on short corn using growth regulators failed to show a value. His views have now changed.

"What we overlooked was the way corn expends its energy," says Below. "If we shorten the internodes below the ear, we put less energy into the stalk and more into yield. It's a physiological advantage."

Below points out that short corn is tailor-made for higher-density populations and narrower rows. It lets more light reach the leaves, and increased planting density may help with weed control.

One change he expects in the coming years is increased focus on root structure.

"The root zone is really the last unexplored horizon," says Below.

He suggests that most farmers would be shocked by the variation in root architecture among current hybrids. They differ in surface area, which affects the amount of soil contact. They also vary in weight, which is determined by the amount of energy invested in them.

"I think in the future, we'll see much more attention paid to better understanding our fields," says Below.

Another significant change on the horizon is planting soybeans ahead of corn. He expects a 100% shift in the next five years.

"When you plant early, you get an extra node, and that means more pods," says Below. "That can mean a 15-bushel-per-acre yield boost without increased fertilizer. In fact, early-planted soybeans should be planted in the lowest-fertility fields first. They grow slower, extending the nutrient demand until the soil has warmed up."

Below admits that many old crop production rules are no longer valid due to advances in genetics, seed treatments, equipment and seed quality. These improvements are expected to continue.

One long-term forecast Below offers deals with using bacteria to fix nitrogen in corn.

"We now have technology bringing that closer," says Below. "My guess, looking 40 years down the road, is that this technology will be supplying more of the nitrogen."



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Sleeves Shore Up Rotted Posts

The Pro Barn Saver offers a quick, low-cost fix for rotting posts in a pole barn. Custom-made, heavy steel sleeves slip over the deteriorating poles and attach to solid wood above and below the rot.

"The wooden poles rot at the ground and for a foot or two below ground," says Charley Bush, Pro Barn Saver. "That's

where the bacteria and other organisms live and attack the wood."

The sleeves are made from 10-gal. corrugated galvanized steel, and installation requires no excavation. After fabrication, the installation crew travels to the barn site with their driver.

"We worked with a fabricator who builds

machines designed to drive guardrail posts into the ground," says Bush. "He designed it for our sleeves. It vibrates them into the ground."

Built-in uplift anchors connect to the still solid part of the post below ground. Above the surface, the sleeve is bolted to the upright. "Installing our sleeves can take the 'smile' out of a sagging roof," says Bush.

He points out that the issue isn't limited to old barns, adding that pressure treatments are less effective than they used to be. He recommends that pole barn owners inspect posts that are 10 years old or older.

"Use a spade to remove dirt close to a post and a foot or two below the surface," says Bush. "If you have a pole barn that's 15 years old, you're lucky if there isn't rot starting."

Bush has been marketing the post-saving system for about 18 mos. His installation crew has already restored posts on pole barns from Virginia to New York and from New Jersey to Ohio and Michigan.

Although he runs ads, he says it's the sight of the sleeves in place that attracts customers. When they see the sleeves at a farm show or while a neighbor is having them installed, they understand.

"An ad doesn't communicate the sleeves

like seeing them in person," says Bush. "Our standard size is 6 ft. long and weighs 90 lbs. We'll soon have powder-coated sleeves as well. We expect our sleeves to last from 50 to 100 years."

Bush adds that sleeves are custom-made for each job and can be longer or shorter than 6 ft. He recommends that potential customers contact the company for advice on accurately measuring the post. Photos and videos are also encouraged.

"Our head installer is very good at helping people measure their posts accurately," says Bush.

Installation prices vary depending on travel distance and time, the length and size of the sleeve, and current steel prices.

"Each job is different," says Bush. "Typically, if not driving too far, the price is around \$475 per sleeve. It's fun to see farmers realize they can fix the barn for a fraction of replacing the posts, much less building a new pole barn."

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Double Header Reduces Field Passes

The family-owned agricultural equipment manufacturer, Bish Enterprises of Nebraska, is offering grain farmers something out of the ordinary during their harvest season: double the efficiency benefits from their combine header.

The Bish Dual-Bed Pickup Header is the only dual-bed pickup header available in North America. This unique header harvests two windrows simultaneously, rather than just one, which reduces the number of passes needed and lowers fuel, labor and machine wear. It's designed to work with various crops, including cereals, pulses, legumes, grass seeds and oilseeds, and fits several major combine brands and models.

"Our goal is to help farmers make every pass through the field count," says company COO Andrew Bish. "We understand that resources are stretched thin, and we designed the Dual-Bed Pickup Header to offer a simple yet effective solution that enhances and improves without complicating the process."

The double header features an advanced floating suspension system that adapts to uneven ground, is designed to reduce seed loss, and combines cylinder loading to lower

threshing losses in low-biomass crops.

The unit is easily adaptable, with simple tension and clearance adjustments and multiple down-pressure settings.

"There are real-world savings," Bish says.

"Producers immediately benefit from reduced field passes, which means lower fuel and labor costs, less soil compaction, and increased long-term ROI. The header minimizes seed loss and increases combine efficiency across multiple crops, from turf grasses to soybeans and canola. Its design reduces downtime and simplifies adjustments, allowing farmers to harvest faster, more cleanly, with less field loss, and at lower operating cost per acre."

The innovative header is available with independent 12-ft. or 15-ft. pickup beds and can be customized to widths of up to 60 ft., making it highly versatile. Unlike brand-specific headers, it uses widely available components that farmers can source locally, ensuring easy maintenance.

The Dual-Bed Pickup Header is manufactured in Nebraska using American-made steel and as many domestically sourced parts as possible. It's distributed across North America through its dealer network and



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direct sales.

Cost varies depending on size and customization. Standard models typically range from \$55,000 to \$120,000, with larger custom builds at the higher end.

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