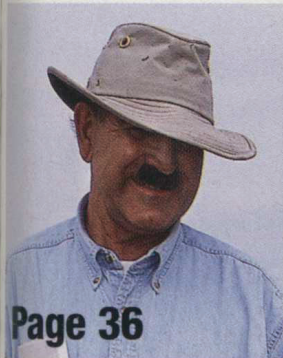


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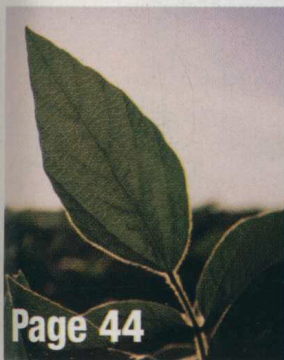
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Your Place In the Sun



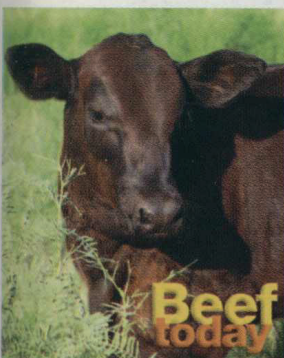
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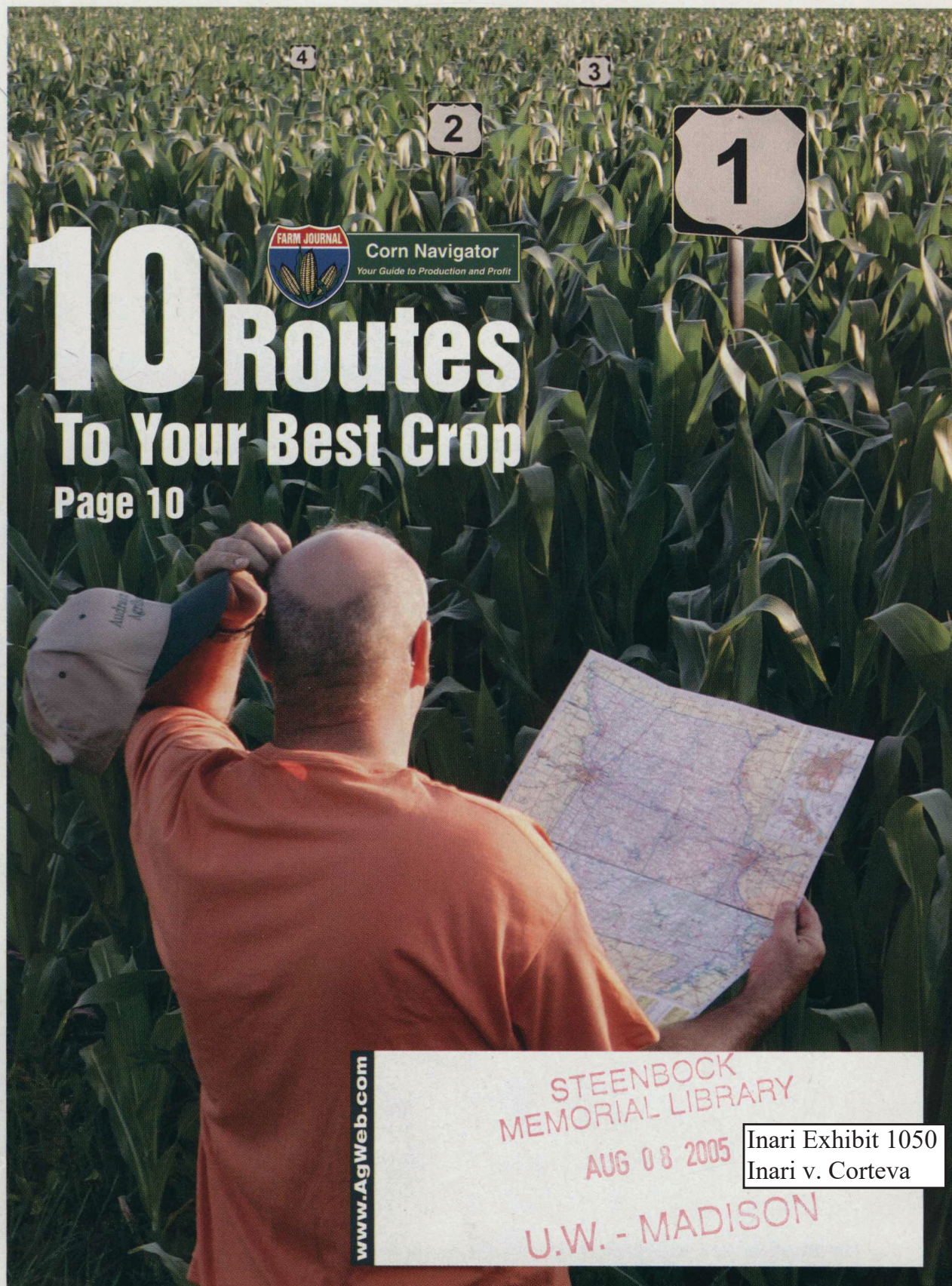


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Beef
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PRODUCTION • POLICY • TECHNOLOGY

Summer 2005



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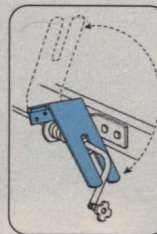
Beef Producers

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Shop Journal and \$100 Ideas 46

Step inside the Eastlund brothers' farm shop to learn why it's "the best building we ever built." At right, a door hinge rescues our \$100 Idea winner from stopping to adjust tines on his hay rake.



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COTTON JOURNAL

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On Our Cover

How to get to the next corn yield level can be puzzling. Our new series, Corn Navigator, maps out directions for you to follow.
 Photo: Charlie Palek, Softlight Photography

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Make Seed Traits Count

Weigh costs and benefits of tech-loaded hybrids **BY ANDREW BURCHETT**

Like any successful trip, the road to corn profits begins with good planning. As corn traits become more popular, you need to plan sooner to be sure your seed dollars aren't spent on traits that take you down the wrong road. At the same time, avoiding traits just because of up-front costs can be a detour away from the road to a better bottom line.



Corn Navigator

Your Guide to Production and Profit

Traits can account for a large chunk of seed corn costs. Doug Robinson, Golden Harvest head of national brand communications, says there can be a

price difference of \$100 per bag between a conventional hybrid and the same hybrid with a

triple stack of traits. Similar price ranges are found in any seed brand lineup that offers both conventional and triple-trait hybrids. Individual cost components of that total might range from less than \$20 per bag for glyphosate tolerance to about \$50 per bag for rootworm resistance.

Of the three traits that make up its triple-stack offering, Monsanto Company estimates that the Roundup Ready trait has the potential to provide benefits to farmers on 50 million corn acres in the United States; YieldGard Corn Borer on 30 million to 40 million acres; and YieldGard Rootworm on 15 million to 20 million acres. Exactly where these traits fit and where they overlap is up to farmers to decide as they buy seed.

Insect resistance. Crop rotation, region and historic insect pressure drive the value of insect-resistant corn traits. Mike Cooseman, who farms near Pittsburg, Kan., says most years Bt hybrids that resist corn borers aren't worth the extra money on his fields. He doesn't grow continuous corn or need to use granular insecticide, so rootworm-resistant traits aren't worth much to him, either.

Atalissa, Iowa, farmer

10 Routes to a Supercharged Crop

Our Corn Navigator series will run in FARM JOURNAL for the next several issues. Each article focuses on one of the routes listed here to help you supercharge your crop yields.

- 1 Stop, look and listen
- 2 Make seed traits count
- 3 Populate for perfection
- 4 Stay in step with crop stages
- 5 Wrestle residue to the ground
- 6 Make a no-fault seedbed
- 7 Plant seed on the mark
- 8 Fertilize on demand
- 9 Balance inputs to needs
- 10 Scout early, scout often



PHOTO BY THE AUTHOR

Replacing grain sorghum with Roundup Ready corn helped Mike Cooseman clean up a field plagued with shattercane. However, the insect-resistant seed traits don't pencil out for the Pittsburg, Kan., farmer.

Bryan Regennitter is at the other end of the spectrum. In 2005, he completed the switch from a corn-soybean rotation to 100% corn. Corn is more profitable than soybeans, and the traits help manage the risks of corn on corn, explains Regennitter. "We planted hybrids with YieldGard Plus stacked with Roundup Ready on one-third of our acres." Outside of the 20% non-Bt acres required by the insect resistance management rule, all acres have insect resistance traits.

"We sat down and figured insecticide and application costs and the traits are definitely cheaper," says Regennitter, who saw double-digit yield increases with YieldGard Plus hybrids

over conventional corn last year. "They are more effective and safer than insecticides, and we save a lot of time."

For farmers who fall between these two ends of the trait value spectrum, the call on traits isn't so clear. "Genetics should be your starting point," says Kyle Whitaker, Pioneer Hi-Bred International technology launch manager for corn traits. "From there, when you look at trait mix, begin with your herbicide program—do you want glyphosate or Liberty tolerance?"

If insect protection is needed, Whitaker suggests comparing traits with traditional insecticide and seed treatment, and then evaluate the options on performance, cost per acre, application equipment requirements and how many trips across the field are needed for each.

"Seed isn't sold on a per-acre basis but per bag," says Whitaker. "Be sure to take planting rates into account."

On the herbicide-tolerance front, rapid adoption is underway for Roundup Ready corn, says David Rhylander, traits lead for Monsanto in the U.S. He reports a steep sales increase of 36% more in 2005 than in 2004. Monsanto's trait was planted on slightly more than 23 million acres this year.

Cooseman doesn't customarily plant Roundup Ready corn, but he will for specific weed problems. "I planted Roundup Ready corn to clean up shattercane in a field where I planted grain sorghum before," he says.

Choices keep coming. Watch for another brand of glyphosate-tolerant corn in seed catalogs this fall. Jack Bernens, Syngenta's head of Agrisure traits, says the company sold a few hundred thousand acres worth of its glyphosate-tolerant corn trait, Agrisure GT, in 2005. "We will have a full launch of Agrisure GT and the Bt11 [corn borer resistance] trait branded as Agrisure CB in 2006. About 50

seed companies in addition to our own brands will offer introductory quantities of the two traits."

Liberty herbicide tolerance is also on the rise, thanks to wider availability of Herculex I insect-resistant corn hybrids and Syngenta licensing Agrisure CB to more seed companies. Both traits come standard with resistance to Liberty.

Dow AgroSciences and Pioneer Hi-Bred expect final approval of their jointly developed Herculex RW trait for rootworm resistance in time to sell seed for 2006 planting. After that, the companies expect registration of

Herculex XTRA (a stack of the new trait with Herculex I) and Herculex XTRA plus Roundup Ready (a four-way stack of the two insect traits plus glyphosate and glufosinate resistance.)

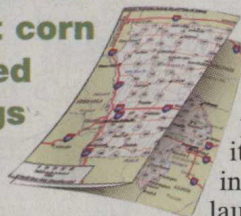
Syngenta expects approval for its rootworm trait in time for a 2007 launch and possibly just before 2006 planting.

Farmers may have to switch hybrids and companies to get a different technology supplier, but with more competition, shopping may pay off.

How much will it all cost? Since farmers do not pay technology fees directly to biotech companies, it's difficult to nail down the exact cost of individual traits. The royalties charged to seed companies are part of confidential agreements that can't legally be disclosed. But farmers can get a pretty good idea from comparing prices in the seed catalog.

Another way to put a number on trait cost is through insurance and rebate programs. Monsanto's Roundup Rewards program lists values for traits the company will pay for in the event of replant or crop loss. Syngenta offers a technology reinvestment fee of up to \$7 per acre for its Agrisure GT trait if farmers purchase certain herbicides in its AgriEdge corn program. Bernens says this is not always the exact amount a farmer paid for the technology because the seed companies set the actual

Watch for another brand of glyphosate-tolerant corn in seed catalogs this fall



Corn Trait Options for 2006

Herbicide (H) Resistant

Agrisure GT
Liberty Link
Roundup Ready
Roundup Ready 2

Corn Borer (CB) Resistant

Agrisure CB**
Herculex I**
YieldGard Corn Borer

Corn Rootworm (CRW) Resistant

Herculex RW* **
YieldGard Rootworm

CB+CRW Resistant

Herculex XTRA* **
YieldGard Plus

CB+H Resistant

Agrisure CB**
Agrisure CB/GT**
Herculex I**
Herculex I** + Roundup Ready
YieldGard Corn Borer + Roundup Ready
YieldGard Corn Borer + Roundup Ready 2

CRW+H Resistant

Herculex RW* **
Herculex RW* ** + Roundup Ready 2
YieldGard Rootworm + Roundup Ready 2

CRW+CB+H Resistant

Herculex XTRA* **
Herculex XTRA* ** + Roundup Ready 2
YieldGard Plus + Roundup Ready 2

*Registration expected in time for 2006 launch.

**Trait includes resistance to Liberty herbicide.

Several different traits and trait combinations will be available for 2006. The number of choices will grow if Syngenta receives last-minute registration for its rootworm-resistant corn.



PHOTO: CHARLES JOHNSON



Maximum Insect Protection



Planting Refuges, Preserving Technology

Before opening a bag of seed, be sure to read and understand the stewardship requirements, **including applicable refuge requirements for insect resistance management**, for the biotechnology traits expressed in the seed as set forth in the Monsanto Technology Agreement that you sign. By opening and using a bag of seed, you are reaffirming your obligation to comply with those stewardship requirements.



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price—but it is usually close.

Monsanto's Roundup Rewards program for 2005 valued the Roundup Ready Corn 2 trait at \$18 per bag, YieldGard Corn Borer at \$24 and YieldGard Rootworm at \$45. In 2005, Syngenta offered a \$7-per-acre rebate for Agrisure GT if farmers used full rates of Syngenta's pre-emergence weed control.

Cover all the bases. Once a farmer figures out price, it's time to compare alternatives. Paula Davis, Pioneer Hi-Bred's global manager for insect and disease traits, offers guidance. "We tend to do cost comparisons on traits and chemicals. But it's more accurate to use a partial budget approach to figure out costs of the system shift," she explains. Management time, reduced tillage, and different equipment costs should be considered.

Beck's Hybrids compared different trait combinations for the same or similar hybrids based on average costs and planting rates.

"We were a little surprised to see how much value the Roundup Ready corn trait offers," says Scott Beck, vice president of Beck's Hybrids. According to Beck's numbers, Roundup Ready corn was cheaper from an input standpoint than the conventional hybrid or any other combination of traits. Beck says he encourages farmers to try different technology combinations to see how they impact yields and profitability in addition to the convenience and time-saving factors.

It pays to make calculations early to make sure you can get just what you want. "We have customers who buy hybrids with corn borer resistance and the Roundup Ready trait and don't



Corn traits that seem to be similar may not be in reality. Take a close look at what each trait promises, especially regarding insect control.

spray glyphosate," explains Golden Harvest's Robinson. "But they're willing to do it because they want the hybrid and that's how it's available."

Be mindful that even similar traits have potentially important differences. For example, Herculex I controls western bean cutworm, but YieldGard Corn Borer and Agrisure CB don't. In the western Corn Belt that could be significant.

Also consider grain marketing.

The Roundup Ready Corn 2 trait has European food and feed approval (as a single trait only), but Agrisure GT and the original Roundup Ready trait do not—an important factor if grain buyers and processors have European customers that import whole grain versus processed feedstuffs. **FJ**



Corn Navigator

Your Guide to Production and Profit

Inside Our Next Issue of Corn Navigator

Look for more ways to navigate your way to better corn yields in the next issue of FARM JOURNAL. We'll tackle Route 3—finding the optimum population for your fields—and Route 4—staying in step with crop stages and how to manage each one. To contact us regarding the Corn Navigator series, send an e-mail to Karen Freiberg at kfreiberg@farmjournal.com.