The tough life of a new corn hybrid

LANCASTER — Know any corn grower who'd eagerly plant 40,000 acres of corn every year, then be content to harvest only five or six acres in the fall? That's comparable to planting a field nearly eight miles square, and settling for the proceeds from a patch the size of a football stadium!

"The example may be a little extreme, but the proportions are the same as those in our new hybrid development program," says Kent R. Schulze, vice president, sales and marketing at DeKalb-Pfizer Genetics.

As the world's largest seed research organization, the company is no stranger to staggering numbers. "Every year, we begin testing about 40,000 promising new hybrids as part of our ongoing new product development program," explains Forrest Troyer, vice president for research and development.

Not Good Enough

"And each year, as the culmination of several previous years' rigorous testing and experimentation, only about five or six new hybrids are judged good enough to meet our standards," he says. "Those are the ones released to our customers for commercial production."

But only a half dozen new releases a year out of 40,000 hybrids initially tested? Only one or two out of about 6,500? What happened to all the others?

"All the others were discarded along the way," explains Charles F. Krull, DeKalb-Pfizer Genetics vice president, temperate corn research. "They simply weren't up to the performance standards we demanded of them."

Why be Picky

When you realize the sheer size and quality of DeKalb Pfizer Genetics' corn research program, it's easy to see why researchers can be so choosy selecting new hybrids for release.

And it makes sense that these flashy, but tough, new "recruits" are sure to respond well to good corn-growing management.

Why? Just take a quick look at some of the numbers:

- Each year, corn breeding staffs under Krull and Troyer, introduce about 42,000 new hybrids into first-year testing.
- At year's end, 36,000 to 37,000 of those have been discarded, having failed rigorous preliminary screening for yield, standability, dry-down or insect and disease resistance.
- That means perhaps 5,000 to 6,000 new hybrids will have shown enough promise to merit a second year's testing.
- By the third year, the 400 to 450 new hybrids still showing enough promise to remain on test will prove their mettle in 100 to 120 locations coast to coast.

"Our philosophy is to involve a lot of locations," Troyer explains. "We're looking for hybrids that do well in Nebraska and also Ohio, and vice versa. In fact, we really try to avoid having 'eastern' hybrids and 'western' hybrids."

Ranks get Smaller

- In the fourth year, the ranks have dwindled to perhaps 30 to 35 "survivor-types," now being tested in an even wider range of soil types and weather conditions. Some limited production may begin for exceptionally strong performers.
- At this point, some outstanding performers also may be offered for limited commercial sales. Others may be retained for another year, or even two more years, of rigorous final evaluation before they're available for planting on your farm. In this final stage, the top hybrids, along with notable competitive hybrids and established DeKalb Pfizer Genetics hybrids are tested in hundreds of on-farm comparison trials across the country.

"What we're seeking is just the right tempo of release," explains Krull. "It's aggressive enough to get good new hybrids out in a timely manner, but not so aggressive that we don't have enough information on each new number before we turn it loose commercially."

But with hundreds of test plots, thousands of new hybrids each year and untold millions of bits of performance data, how does even a Ph.D. research specialist channel such a statistical blizzard into orderly, effective action?

"People can give you some very complicated answers," notes Troyer. "But, very simply, what we want is our hybrids to out-yield and out-stand competitive hybrids."

Reliable Supply

"What we're after are products that make the most money for our customers, and are relatively easy for us to produce to ensure a reliable supply," Troyer adds. "It doesn't really do the farmer any good to have a hybrid unless he can count on a good, reliable supply of it each year."

Krull strongly agrees. "Basically, with a hybrid release policy, if you have enough good information on the hybrid, any 12-year-old kid can tell you which is the best new variety." he maintains.

"But if you don't have enough information, even the Good Lord Himself probably couldn't tell you which way to go with your program."

Here, DeKalb Pfizer Genetics customers are at a big advantage, as Troyer sees it. "Being the largest corn research organization anywhere, to me, translates into better performance for the corn grower. That's because of the huge number of inbreds and hybrids we're able to develop every year, and the high-quality, exhaustive evaluation of them."

Proper buffer feeding

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potassium, such as a ration that contains large amounts of brewer's grains. Otherwise, the extra potassium may cuase sodium-potassium imbalance," he explains.

A feed ingredient that is commonly called a buffer is magnesium oxide, although scientists are unsure about its exact mode of action in the digestive system. University of Michigan research indicates that magnesium oxide aids in the mammary glands' absorption of fatty acids needed to produce milk fat. It may also increase the rate at which feedstuffs pass through the digestive system, thus producing less acid.

Magnesium oxide may be fed at .4 to .6 percent of the total ration dry matter. Research indicates that magnesium oxide may be more beneficial when fed in combination with sodium becarbonate. Davis recommends a 1:3 ratio of magnesium oxide and bicarb, fed at 1 percent of the total ration.

Another commonly used feed ingredient is calcium carbonate or highly reactive limestone, although Davis says its benefit in dairy rations is limited.

"The only response to buffering with limestone has been with extremely high levels of grain—where 75 percent or more of the ration dry matter is concentrate," Davis says.

When introducing buffers to cattle, some dairymen prefer to feed 1/3 the recommended level for the first week, 2/3 the recommended level the second week and then up to the full level the third week to minimize the possibility of cows backing off feed. Recent research at the University of Kentucky shows that this might not be necessary when feeding sodium bicarbonate, however.

Dairy researchers compared this three-step feeding program with a ration that included the full amount of bicarb the first week. They used a ration without bicarb as a control.

Results of the trial showed no significant differences in dry matter intake between the feeding programs, although all cows fed bicarb did seem to take longer to consume the grain.

"It shouldn't be necessary to introduce a buffer gradually, unless an extremely high level is being used," Davis concludes.

Wenger hails Clean/Green change

HARRISBURG — Sen. Noah W. Wenger, R-36, hailed the Senate's passage of an important amendment to the state's "Clean and Green Act" as good news for farmers who want to use part of their land for farm-related commercial activities.

The bill, of which Wenger is a co-sponsor, would apply only to landowners who have enrolled a tract of land in the preferential assessment program. Under provisions of the measure, a maximum of two acres of this tract can be split off for related commercial ventures without subjecting the entire tract to rollback taxes.

Wenger said that Senate Bill 380 offers a one-time opportunity to farmers who are in a position to diversity their traditional farming operations. "They can become involved in direct retail sales or take on some other related commercial project without being socked with a big tax penalty," he added.