

# Picking of a hybrid-from 42,000 down to 8

DE KALB, II. — Selecting a new hybrid is serious business at DeKalb-Pfizer Genetics. In fact, it's so serious that researchers spend approximately five or six years testing a hybrid before it receives commercial status and is ready for sale to farmers.

By the time a bag of DeKalb-Pfizer hybrid seed corn reaches your planter, it has been tested at least 218 times.

Approximately 42,000 hybrids are introduced into DeKalb-Pfizer's rigorous testing program each year. From these 42,000 hybrids, an average of five to eight new hybrids will be chosen for commercial market entry. Those that aren't selected are discarded along the way.

"After we have discarded a hybrid, it's gone forever," says Marvin Boerboom, Research Station Manager in Olivia, Minn. "After it's been rejected, we don't want to see it again. There's no need, because we constantly are developing new hybrids to test."

The corn hybrids that DeKalb-Pfizer researchers introduce commercially endure varying environmental conditions, plant populations at least twice those farmers use, extremely early planting dates, varying seed depths, disease inoculum and assorted fertility rates, says Rick Batty, DeKalb-Pfizer Senior Research Station Manager, Madison, Wis.

"Standability, drydown and yield probably are some of the most important factors in our research programs," says Gary

Stangland, DeKalb-Pfizer Station Manager in North Liberty, Iowa. "If a plant has good standability and drydown, farmers don't have to hurry to get into the field, and let's face it, no farmer's going to buy a product again that falls over in the field before it is harvested."

Hybrids advanced for testing are sent to more test locations each year. This process evolves in the following manner:

—Researchers introduce 42,000 hybrids that are tested at three DEKALB-PFIZER test locations.

—The next year, five test locations are chosen to retest the 5,000 hybrids that survive the previous year's elimination process.

—Researchers choose 600 hybrids of those 5,000 hybrids to be tested in 30 test locations.

—Ninety hybrids are chosen from this grouping.

They will be tested at 40 test sites.

—The group is narrowed to 30 hybrids. And, once hybrids reach this level in the hybrid testing program, they are assigned an experimental hybrid number and are tested in 40 research plots and 100 Field Analysis Comparison Trial (FACT) plots. FACT incorporates the use of tester hybrids or varieties to identify variations within a plot. And from this testing, five to eight hybrids are chosen from commercial market entry.

"The great thing about our research program is the size and diversity," says Stangland. "With the large number of researchers

we have, you come up with a bunch of different approaches and concepts in testing for the same things. While I may develop a hybrid that does well in my testing

situation, someone else in another research location may test the same traits in another way and find a fault, or vice versa."

"That hybrid has to do exactly

what we say it is going to do in every applicable situation," says Batty. "If it doesn't, that farmer is never going to buy our product again. That is why we concentrate so much on research."

## Controlling triazine-resistant weeds

CHICAGO — Farmers who think atrazine isn't delivering the weed control that it used to may be right.

More than 20 weed species in the U.S. and Canada have developed a resistance to atrazine and other members of the triazine herbicide family, according to Dr. Frank Sobotka, a Velsicol Chemical Corporation weed scientist headquartered in Canton, Ohio.

Dr. Sobotka has been researching triazine resistance in North America and several European countries. Researchers worldwide have identified as many as 40 triazine-resistant species.

Dr. Sobotka says the problem is becoming widespread in southern Ontario, and in the Mid-Atlantic, Northeast and Great Lakes states.

Dr. E. Scott Hagood, Extension weed control specialist at Virginia Polytechnic Institute and State University, attributes the spread of triazine resistance to use of triazine herbicides year-after-year in continuous corn. The problem has grown with the increase in no-till and reduced tillage practices.

"The residue in no-till and minimum tillage reduces herbicide soil contact. That makes it harder to control species like pigweed. We have a lot of no-till

corn in Virginia, and triazine-resistant pigweed is the number one broadleaf problem in corn in our state," he says.

Data collected by Dr. Sobotka show that smooth pigweed, redroot pigweed and green pigweed have all developed triazine resistant strains in the U.S. and southern Canada. Smooth pigweed is the predominant triazine-resistant species in the Mid Atlantic states, infesting an estimated 123,500 acres of cropland in Maryland alone.

Pigweed and other triazine-resistant species, including common ragweed and common lambsquarters, infest nearly 600,000 acres (240,000 hectares) in southern Ontario - about 20 percent of the country's corn land.

According to Dr. Ron Ritter, University of Maryland Extension Weed Scientist, velvetleaf is also showing resistance to triazines. "Our research on triazine-resistant velvetleaf isn't complete, but we have been seeing velvetleaf withstand several times the labeled rate of triazine herbicides. For all practical purposes, it is developing triazine resistance."

Dr. Ritter adds that triazine-resistant barnyardgrass and giant

foxtail have also been showing up in the northeastern United States.

Research shows that some resistant weed species may withstand 10 to 30 times recommended triazine application rates.

### Control still possible

Dr. Ritter says prevention is the key to stopping the spread of triazine resistance.

Resistant weeds often first appear in end rows and along edges of a field. From there they spread to other areas of the farm or field by harvest equipment, spreading manure and seed reproduction. Sanitation is important and machinery should be cleaned between fields to avoid spreading seed. Farmers should avoid spreading contaminated manure in clean fields, he adds.

"Farmers should also rotate crops and herbicides," he says. "Herbicides from the same family shouldn't be used every year, and escape weeds should be controlled with cultivation and early postemergence herbicides with a different mode of action than the triazines."

He says that translocating herbicides, such as Banvel, offer economical control.

Virginia's Hagood agrees, adding his research shows that the best control can be achieved by using an acetanilide such as Dual, for preemergence control of grasses, followed by an overlay of Banvel herbicide or Banvel plus Dual for controlling triazine-resistant pigweed. The Banvel overlay will also help control other annual broadleaves and perennial broadleaf seedlings.

"Since cultivation isn't really an option in no-till or minimum tillage, the early postemergence herbicide application is especially important," adds Dr. Hagood.

Dr. Sobotka says Banvel is labeled for up to one pint per acre applied as an overlay to a grass herbicide when corn is from spike to five inches tall. In Canada, up to 1.5 liters can be applied to corn from the time of emergence until it is 15 centimeters tall. Rates may vary for specific soil types and the amount of crop residue or organic matter on the surface. It can also be combined with Dual to broaden the spectrum of control.

Dr. Ritter emphasizes that rotating herbicides within the triazine family won't work. "Research shows that when a weed develops a resistance to one member of the triazine family, it is resistant to all of them," he says.

Triazines include: atrazine (Aatrex, Atranex, Griffex), simazine (Princep, Simanex), cyanazine (Bladex) and the asymmetrical triazine metribuzin (Sencor, Lexone).

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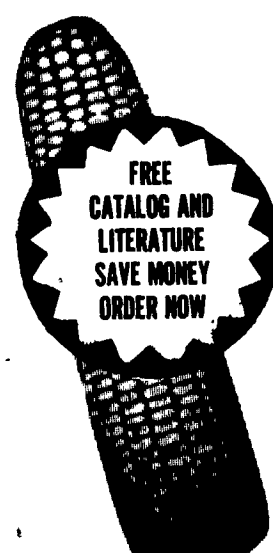


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