

There's research in a bag of hybrid seed corn

LANCASTER — Agricultural research and the results of that research — are vital to the success of every farmer in America, although most farmers aren't familiar with the "behind-the-product" activities.

There's more money, manpower and effort behind an improved product when it hits the market than most would guess. For example, the total effort behind the search for better hybrid seed is large and complex.

At last count, there were hundreds of seed companies marketing hybrids and varieties of various crops. The American Seed Trade Association has well over 700 companies registered as members. Not all companies conduct research, but the effort is still impressively large.

The largest effort comes from DeKalb AgResearch, Inc., which employs hundreds of people, who are involved in one way or another in the search for better hybrids. The number of people on the DeKalb payroll last year in the corn research department, alone, was nearly 1000.

According to Charles Krull, vice president of corn research at DeKalb, employee numbers are

not the only means of measuring research efforts.

"There are three basic ways to measure a research effort. There's the number of people, the amount of money and then, there is the effort itself — or what a company is actually doing to search for better hybrids."

The corn research department conducts actual breeding work and testing at 15 major locations across the country, but the marketing, production and foundation seed departments, not to mention farmers, are all running additional research and test plots that number into the thousands.

To give you an idea of size, try these numbers on. The firm planted nearly 135,000 nursery rows of test corn last year. Regardless of how long those rows are, if they were in 30-inch rows those nursery rows would cover a field 64 miles wide. Nearly two-thirds of these rows are pollinated by hand, plant by plant.

In addition to that effort, they operate over 200,000 replicated research plots from which detailed notes on percentage of root lodging, stalk lodging, yield, silk date, ear drop, tassel date and moisture are taken.

In total, that's more than one-third of a million plots of corn that researchers at just one seed company are studying. Selection procedures are so intense and the business is so competitive that only about one of every one thousand hybrid looked at each year is good enough to be advanced to even the next phase of testing.

It can take up to 12 years for farmers to have seed available to them from the time the original crosses are made. Seed companies can take steps to speed up that process by two to three years—like taking the seed to Hawaii or Florida, where breeders can utilize long growing seasons to produce two crops instead of one.

DeKalb, for instance, has two of these locations—one in Hawaii and one in Florida, where yet an additional 25,000 nursery rows are studied.

As large as these efforts seem, the story is not yet complete. At least a handful of the major companies and nearly all major land grant colleges have a complete set of complementary specialists.

Krull says, "We operate all of these programs as do a few other companies. We have pathology,

physiology, entomology, germplasm resources, nutrition and data processing."

While the company's total research efforts are aimed at providing farmer's with higher yielding hybrids, many of the contributions came from complementary programs. Improved resistance to disease, insect and drought are some of these contributions.

For instance, hybrids with drought tolerance are well on their way to being marketed, a direct contribution of the physiology program.


A new race of northern corn leaf blight was discovered and resistance found before it did any significant damage; part of a pathologists job. The germplasm resources group conducts a worldwide search for new and different germplasm — and then screens for the better ones. Nutritionists are

searching for protein quantity, amino acid balance and other factors figure into nutritional quality.

Entomologists strive to keep pests away from corn fields by providing more bred-in resistance. And naturally, with all this to accomplish, you need a computer or two and a scattering of statisticians — that's where data processing gets into the act.

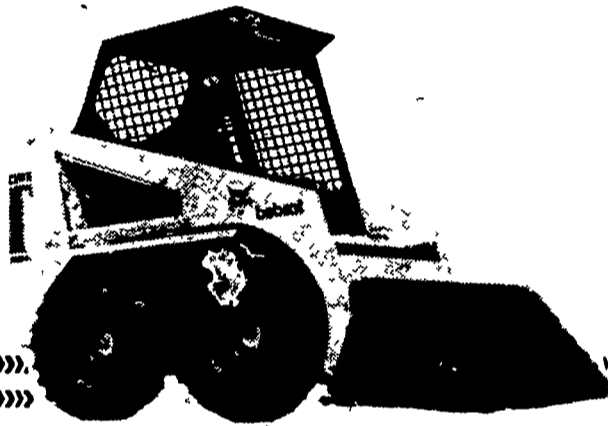
Proven techniques? A good program? Well, it seems to be working. Corn yields have increased from 25 bushels per acre back in the '30s to 109 bushels in 1979 — an impressive track record considering about half of that increase can be attributed to genetics or research.

That's a good indication agricultural research is paying off where it's needed most — down on the farm.

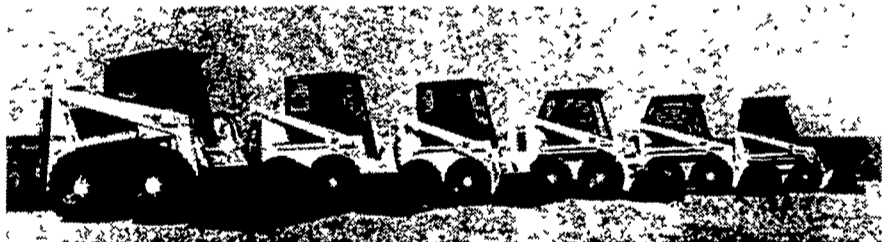


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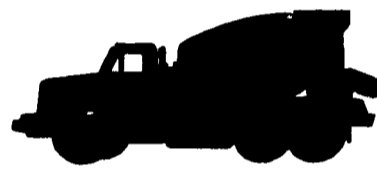
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