

Growers team up with UA Extension agents to demonstrate best local crop varieties

Variety demonstration plots help farmers keep up to date with the best-yielding varieties of crops for local conditions.

For example, most barley growers in the Safford-Thatcher area were growing Arivat or Briggs varieties in the mid-1970s. In a comparative variety demonstration on Jim Alder's farm there in 1977, those two varieties each yielded less grain than any of the other five planted. A new variety of barley called Gus beat them by more than 20 percent. Most local growers soon switched to Gus or another variety that performed well in the demonstration.

"Briggs and Arivat are practically obsolete here," Graham County Agricultural Agent Ron Cluff said this season. "Growers are now getting some 8,000 pound-per-acre yields that were unheard of in the past." Each extra thousand pounds is worth about \$50 to the farmer this year.

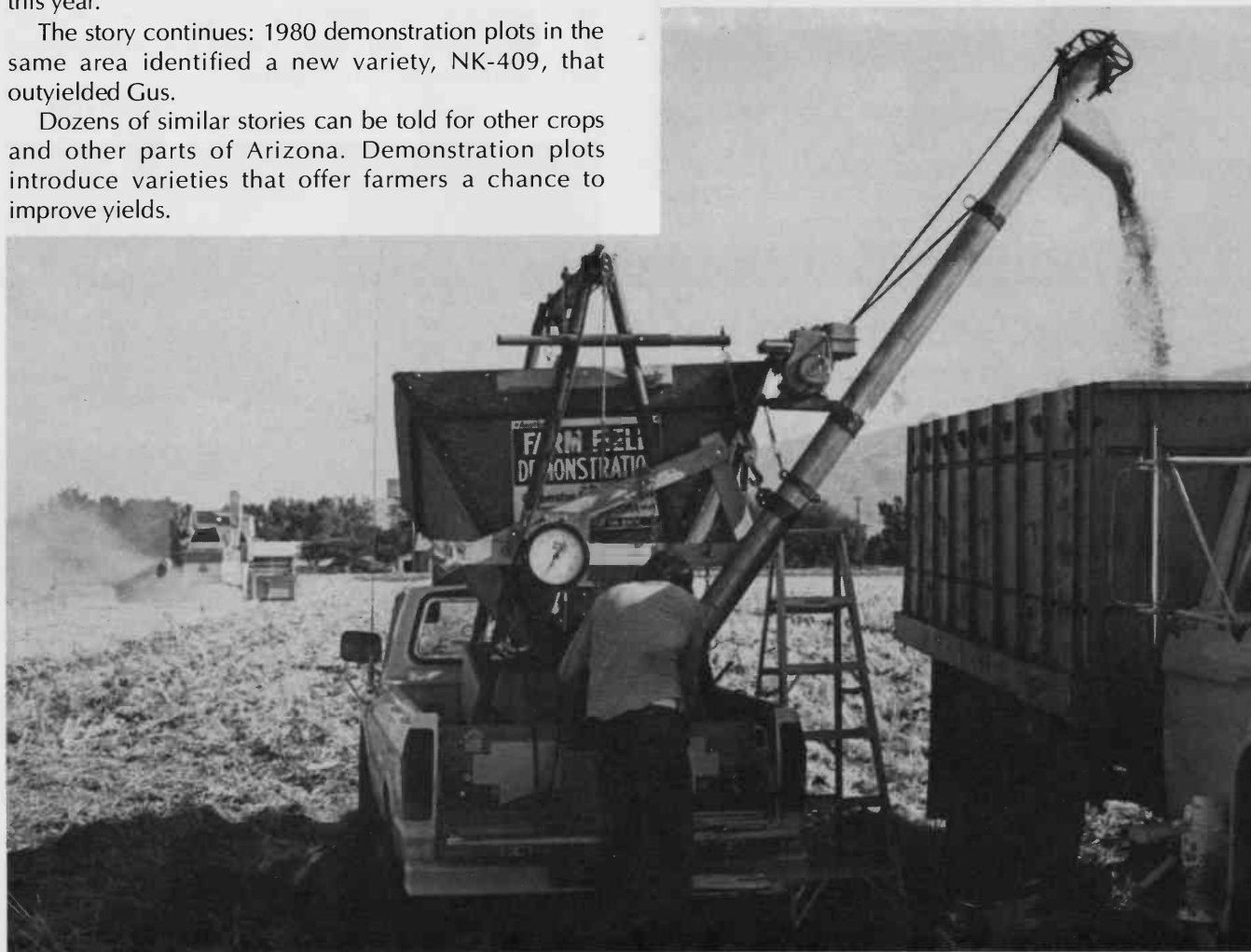
The story continues: 1980 demonstration plots in the same area identified a new variety, NK-409, that outyielded Gus.

Dozens of similar stories can be told for other crops and other parts of Arizona. Demonstration plots introduce varieties that offer farmers a chance to improve yields.

"With improved plant-breeding techniques, seed companies are coming up with new varieties and selections each year for many crops," said Cluff. "A grower can't afford to plant a field with some new variety when he doesn't really know if it's going to do well under his local conditions."

The demonstration plots arranged by the Cooperative Extension Service offer farmers a side-by-side comparison of new varieties and established varieties that have yielded well in the past. The Extension Service provides the seed, usually donated by seed companies. The cooperating grower provides land for the plots. The county agricultural agent and the state Extension specialist lay out and help plant the plots. They also help with the harvesting, when they measure the yield of each plot.

Harvesting of many plots, while checking the yield of



Dennis Layton harvests wheat variety plots on his farm, carrying each plot's yield to a portable scale.

each, takes several times longer than harvesting the same total area of a uniform crop. To speed up the process for small-grain demonstrations, Extension field testing specialist David K. Parsons built a portable scale for weighing the yield from each plot with minimum interruption of the harvesting. The device, mounted on a pickup truck, cuts demonstration-plot harvesting time by about 50 percent compared to earlier methods for small-grain variety tests.

With the scale this year, Parsons weighed yields of eight variety demonstrations for wheat or barley in Yuma, Mohave, Maricopa, Greenlee and Graham counties.

Even with the field scale, harvesting of variety demonstration plots is time-consuming. Each variety is planted in three or four replications, and each replicated plot must be harvested separately to permit statistical analysis of the results.

Thatcher-area farmer Dennis Layton has cooperated with Extension variety demonstrations for wheat, milo, both long- and short-staple cotton, and sudangrass hay. He said this summer that the delays in planting and harvesting are the biggest cost to a grower-cooperator. They tie up equipment just when it is needed most.

"But these demonstrations are really beneficial to growers," said Layton.

County Agent Cluff emphasizes that cooperators like Layton "are really doing a community service. The results benefit all of their neighbors."

An alfalfa variety comparison on Lea Hunt's farm near Thatcher involved 20 varieties, with four replications of each. The plots were cut about seven times a year in 1976, '77 and '78. The Lahonton variety that had been popular locally rated 19th out of the 20 varieties in yield per acre, more than a ton a year behind several others. with alfalfa prices around \$100 per ton, that difference amounts to \$10,000 a year for a 100-acre field, Cluff pointed out. Alfalfa growers there are not planting much Lahonton any more.

Yield comparisons are the primary objective of most Extension variety demonstrations. Harvest quality factors are often reported, too.

Sometimes, extra variables such as fertilizer rates or herbicide types are added to variety comparisons. For example, responses to six herbicide treatments were recorded in a 1979 demonstration comparing nine wheat varieties on the Cuming and Sons Yuma County farm. More often, Extension demonstrations of herbicide types and other production variables use a single crop variety.

The value of variety demonstrations depends on how well the results are made known. Parsons described three ways the information is circulated: field days, annual meetings and published "Agri-File" summaries.

Field days are a chance for growers to observe the demonstration plots before harvest. Cooperator Layton commented: "There's a lot you can see looking at the plants as they grow that you can't see on a data sheet at the end of the year."



Dave Parsons checks the weight of a fixed volume of wheat in order to compute per-bushel weight. He also measures the total yield and moisture content for each variety at harvesting.

The annual Forage and Grain Symposium in September at the University of Arizona includes reports on demonstrations all around the state, plus other information. The reports given at the symposium are also collected into printed booklets available without charge. Results of cotton demonstrations are included in the annual UA Cotton Report in February.

In addition to these meetings and publications, Extension agents in some counties arrange one-day "Farmers' Day" or "Ag Day" programs that include reports about demonstrations in that county.

The "Agri-File" data sheets about individual demonstrations give details of the locations and growing practices for the demonstration plots. Cluff distributes these in Graham County before planting time each year. The sheets give him and other county agricultural agents the backup data to make recommendations about which varieties to plant.

"The same variety is not going to be number one in yield every year, but it's reasonable to expect that the bottom of the list one year will not be at the top the next year," said Parsons. "The secret of a successful variety is that it may not always be the very top, but that it will consistently be in the top 10 or 20 percent."