Over 75 Years, UI Breeding Efforts Leave Mark of Quality on Nation’s Beans

In the mid 1920s, just 10 years after the first bean seed was grown in Idaho’s Magic Valley, the UI College of Agriculture broke ground in bean research at Kimberly.

Now, 75 years later, virtually all of the nation’s pintos, great northerns, and reds trace their roots to the UI’s breeding efforts. Since its inception, the program has released 42 dry and 10 garden bean cultivars.

The first release, great northern No. 1 provided one of two genes needed to make Idaho’s commercial varieties resistant to Bean Common Mosaic Virus (BCMV) in 1930. Crossed with disease-prone red Mexican varieties, UI No. 1, gave rise to a pair of mosaic- and curly top-resistant reds, UI 3 and UI 34. In turn, crossed with common pinto, UI 34 produced UI 111—a common ancestor in almost all U.S. pinto beans.

“It has been the nation’s premier bean-breeding program,” says K. Akagi, chairman of the Idaho Bean Commission. “It is alive and well, and we can be proud of what we have here.”

Other UI beans were resistant to rust, root rots, or a new strain of BCMV. Or, they were exceptional yielders, exceptionally early, or exceptional bush types. Two products of the program—the pinto UI 114 and the small red UI 259—are among the industry’s top-quality canning beans.

A half-century ago, North America’s Cooperative Dry Bean Nursery—now in 25 locations throughout the U.S. and Canada—also was founded at Kimberly.

While the history of Idaho bean breeding has been directly linked to overcoming disease threats, the Gem State’s dry bean industry now faces possibly its biggest challenge—a profit-killing combination of low prices, high production costs, and fierce worldwide competition.

“Our costs are too high,” says Shree Singh, the UI’s eighth Kimberly bean breeder and a veteran of several decades of bean breeding in Latin America. “Even with our high yields and absolutely the best-quality beans on the face of this earth, our U.S. growers are not making money. Our competitors can sell their beans at cheaper rates because their production costs are lower.”

But just as in the past, Singh believes genetics may provide solutions. In the past several years, his breeding team has evaluated 297 U.S. and Canadian varieties, selecting 50 pintos and great northerns for further examination. Besides looking for yield, seed quality, and growth habit, Singh is searching for multiple disease resistance and tolerance to both drought and nutrient-deficient soils—in other words, for beans that thrive with fewer inputs of water and chemicals. The UI’s new greenhouse-laboratory (scheduled to begin operating this spring) allows the breeding team to accelerate variety development, screening three generations annually.

Other scientists at the UI and the USDA Agricultural Research Service are conducting studies in bean pathology, integrated weed management, soil mineral deficiencies, water-use efficiency, and biological control.

The results can’t come soon enough. “If we can lower our production costs, maximize input-use efficiency, and maintain product quality, our producers can have a higher profit margin and compete with other growers around the world,” Singh says.

For more information, call 208/885-6681 or see the college web site at http://www.uidaho.edu/ag/ and for other AgKnowledges, see http://info.ag.uidaho.edu/