Beans have been cultivated in the U.S. for millennia and are a popular, nutritious food choice; however, the average national bean yield is low compared to other crops. Drought, diseases, poor soil quality, and short growing seasons reduce bean productivity in many growing environments. Yield losses can range from 10% to 90%. Using fungicides to fight diseases can increase production costs and result in environmental and human health hazards if improperly used. To address these challenges, a multistate research group, W-2150, is helping breed better bean varieties. Multistate collaboration makes it easier to share the data, tools, laboratories, greenhouses, and genetic materials needed for bean research and breeding.

The group’s research has developed more effective methods for detecting and treating bean diseases and developed new bean varieties. New bean varieties help reduce production costs, increase the yield and competitiveness of U.S. bean growers, and sustain production for domestic consumption and export.

New Bean Varieties & Benefits

**GROWING IN TOUGH CLIMATES**

Drought tolerant breeding lines will improve the productivity and profitability of beans for producers in areas often affected by drought.

Heat tolerant bean varieties improve yields under high temperatures, benefitting US growers and expanding bean growing regions in other countries.

**INCREASING YIELDS & PROFITS**

New varieties are easier to harvest and have higher, more consistent yields. These varieties reduce production costs, provide greater, steadier grower income.

If the area planted with new bean varieties increases by just 10%, the value of yield increases could exceed $250 million each year.

Coyne great northern bean variety is highly resistant to common bacterial blight and bean rust. Farmers growing these beans will have direct cost savings of $450,000 per year because of reduced use of chemicals.

New upright black bean varieties allow growers in Michigan to direct harvest the crop and reduce production costs.

Using a double-row arrangement, pinto bean growers should be able to increase yield and maintain desirable seed size.

**IMPROVING NUTRITION**

Beans with modified sugar content are more suitable for people with certain dietary needs and restrictions.

Beans with increased zinc concentration provide an essential mineral for human health.

Black bean varieties with superior canning quality offer a stronger revenue stream to bean processors and producers.

**INCREASING CONSUMPTION**

New bean-based snacks and convenience foods could increase bean consumption and competitiveness with other foods.

**IMPROVING ENVIRONMENTAL HEALTH**

Adoption of new varieties nationwide may reduce fungicide use by 25% or more resulting in a cleaner environment and savings for producers.

W-2150 has been supported, in part, through USDA’s National Institute of Food and Agriculture by the Multistate Research Fund established in 1998 by the Agricultural Research, Extension, and Education Reform Act, which encourages and enhances multistate, multidisciplinary research on critical issues that have a national or regional priority. Additional funds have been provided by grants and contracts to participating scientists. W-2150 has been renewed through 2020 as W-3150.

For more information on the Multistate Research Program or the Impact Writing Initiative, visit http://www.multistateresearchimpacts.org/.

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**PARTICIPATING INSTITUTIONS**

- University of Alaska, Fairbanks
- University of California, Davis
- University of California, Riverside
- Colorado State University
- Cornell University
- University of Georgia
- University of Idaho
- Iowa State University
- Michigan State University
- Mississippi State University
- University of Nebraska
- North Dakota State University
- Oregon State University
- University of Puerto Rico
- Washington State University
- University of Wisconsin
- University of Wyoming