

Potato Breeding, Selection and Cultivar Development
North Dakota State University

The potato breeding and cultivar development program at North Dakota State University (NDSU) has a history of more than 75 years. While potato research had been ongoing at NDSU for many years, the breeding program was initiated in 1930 as part of the North Dakota Agricultural Experiment Station. Since its inception, there have been five breeders, including Dr. A.F. Yeager, H. Mattson, Dr. R.H. Johansen (1948), Dr. R.G. Novy (1995), and Dr. A.L. Thompson (2001). We strive to establish priorities for research in response to potato industry needs and challenges. Our primary focus is the industry in North Dakota and the Northern Plains, although we hope that our research will serve the industry throughout North America and perhaps beyond.

The objectives of our program are to:

- Develop and release cultivars that are genetically superior for yield, disease and pest resistance, marketing, processing ability, consumer appeal, and that are adapted to North Dakota and the Northern Plains.
- Develop enhanced germplasm with improved disease, pest and stress resistance, and improved quality attributes by using wild potato species germplasm.
- Utilize sensory evaluation to identify material with improved

culinary quality that consumers and the potato industry may adopt for novel end uses.

The breeding program has been very successful in releasing economically important cultivars throughout its history. To date, 23 cultivars have been named and released.

Cultivar	Year Released
Nordak	1957
Norgleam	1957
Norland	1957
Snowflake	1961
Viking	1963
Norgold Russet	1964
Norchip	1968
Norchief	1968
Bison	1974
Dakchip	1979
Crystal	1980
Redsen	1983
NorKing Russet	1985
Russet Norkotah	1987
Goldrush	1992
Norqueen	1992
NorDonna	1995
NorValley	1997
Dakota Pearl	1999
Dakota Rose	2000
Dakota Jewel	2004
Dakota Crisp	2005
Dakota Diamond	2005



Currently, several promising dual-purpose russets, superior chipping, red-skinned, and specialty selections are progressing through the program. Breeding efforts focus on late blight, Colorado potato beetle, aphid, cold sweetening, sugar end, and silver scurf resistance, in addition to pink rot (*Phytophthora erythroseptica*) and leak (*Pythium ultimum*) resistance. We work closely with potato projects in Plant Sciences, Plant Pathology, Entomology, and Ag and Biosystems Engineering at NDSU as part of the potato improvement team, and have developed strong collaborations with potato research programs in Minnesota, Michigan, Wisconsin, Idaho, and Texas, in addition to USDA-ARS programs and many others.

Our successes are due to the team effort of the potato research projects at NDSU, cooperation with research programs around the globe, and the involvement of potato producers and industry personnel. We are very grateful for the comments, cooperation, support, donations of time, land and other resources, and for funding. We are passionate about serving the potato industry, and are thankful for the opportunity to work with you...