Potato Improvement for the Northern Plains

Asunta (Susie) L. Thompson, Ph.D.
Dr. Juan (Jose) Rodriguez La Torre and Mr. Richard Nilles
Department of Plant Sciences
NDSU 7670
P.O. Box 6050
370F Loftsgard Hall
North Dakota State University
Fargo, North Dakota 58108-6050
asunta.thompson@ndsu.edu
701.231.8160 (office)

Northern Plains Potato Growers Association Field Day
August 20, 2015

Potatoes are grown on about 31,970 ha (about 79,000 acres, 2014) in ND, with a farmgate value of more than $221.9 mil. About 60% of potatoes produced in ND and the northern plains are for processing (French fries/frozen and chip), with the remainder used for tablestock and certified seed. Potato research has been conducted at North Dakota State University (NDSU) since the late 1800s. Early research focused primarily on production practices, such as plant population and planting depth. The NDSU) potato breeding program has been an active and integral part of the North Dakota Agricultural Experiment Station (NDAES) for more than 85 years. Since 1930, 26 cultivars have been named and released by the NDAES, most recently Dakota Ruby. NDSU potato cultivar releases have been widely adapted, impacting production in North Dakota, Minnesota, and beyond. Producers in North Dakota, Minnesota, and the Northern Plains require early maturing cultivars not available from most public potato breeding programs. Stringent quality standards exist for each market class. To gain acceptance, a new cultivar must meet desired yield potential in the production area, conform to market specifications resulting in price incentives, and possess resistance to common defects, diseases and other pests, and stress related disorders (Love et al 2003). Improved potato cultivars possessing resistance to pests and environmental stresses and enhanced quality attributes, may reduce input costs for producers, provide high quality raw material for chip and frozen/French fry processing, and provide healthy and flavorful choices for consumers. Potato research trials are conducted at NDAES-NDSU Research Extension Centers, but primarily in grower-cooperator fields, under irrigated and non-irrigated conditions.

The NDSU potato improvement team emphasizes disease, insect pest, and stress resistance, including late blight, cold-sweetening, Colorado potato beetle, *Verticillium* wilt, pink rot and *Pythium* leak, sugar end, PVY, silver scurf, and *Fusarium* dry rot resistance breeding. Breeding efforts include germplasm enhancement, incorporating resistance and improved quality attributes through the use of wild species, wild species hybrids, and the use of released cultivars and advanced germplasm from around the globe, in developing durable long-term host-plant resistance to these pests and stresses,. The improvement team's interdisciplinary efforts, in cooperation with the North Dakota State Seed Department (NDSSD), the Minnesota Department of Agriculture (MDA), and with potato producers, research and industry personnel in ND, MN, and around the globe, result in successful breeding, evaluation and screening efforts, leading to improved cultivars.

The following research objectives have been established in order to help meet the needs of our producers and the potato industry:

1. Identify and release potato (*Solanum tuberosum* Group Tuberosum L.) cultivars adapted to North Dakota and the Northern Plains, possessing superior yield, disease/pest resistance, and quality characteristics.
2. Identify and introgress into adapted potato germplasm, resistance to major and emerging abiotic and biotic stressors, causing economic loss and limiting potato production in North Dakota and the Northern Plains.
3. Identify and develop improved germplasm with enhanced quality attributes for adoption by potato producers, industry, and consumers.

In 2015, the North Dakota State University Potato Breeding Project is conducting field research and producing certified seed potatoes at locations across North Dakota and western Minnesota. Research trials are grown at eight sites, and seed production takes place at two. Field trials and seed production efforts are summarized here:

Non-irrigated sites include Crystal, Hoople and Grand Forks, ND. The fresh market trials are planted on the farm of Dave and Andy Moquist (O.C. Schultz), just north and east of **Crystal**. Trials include the North Central Regional Potato Variety Trial (NCRPVT) focusing on fresh market types. The NDSU entries include ND6961B-21PY, ND7818-1Y, ND7834-2P, ND7882b-7Russ, ND7982-1R, and ND113300-3RSY. The Fresh Trial includes 30 entries, 17 advanced selections and 13 cultivar checks, including some KWS cultivars. The Preliminary Fresh Market Trial has 80 entries, 67 selections (primarily red skinned and white fleshed) compared to 13 industry standards. The trials at **Hoople, ND**, focus on chip processing and are hosted by Lloyd, Steve and Jamie Oberg. Trials include the Chip Trial (14 promising selections compared to 9 chip industry standards), the Preliminary Chip Processing Trial (82 entries), in addition to the National Chip Processing Trials (NCPT), which include 102 unreplicated selections and 61 replicated entries from US potato breeding programs. The NCPT has goals of rapidly identifying replacements for Snowden with long-term chip processing potential, and Atlantic, primarily to address its susceptibility to internal heat necrosis, while providing high yield potential and high specific gravity, and that can withstand production environments in the south. Two defoliation trials focusing on Colorado Potato Beetle (CPB) resistance breeding efforts are planted at the NPPGA Research Farm south of **Grand Forks**. Forty-three seedling families and more than 200 genotypes with CPB resistance breeding will be evaluated for defoliation levels. A second year of the trial addressing vine kill options using dessicant rate and timing to achieve optimum skin set for Dakota Ruby (ND8555-8R) is being conducted by Dr. Jose Rodriguez (last year's was abandoned due to drown out of many plots). Additionally, Steffen Falde, masters student, has a field trial looking at the potential to use remote sensing in evaluating PVY infection of potato fields. This project is funded through the North Dakota Department of Agriculture's Specialty Crops Block Grant Program.

Irrigated trials are grown at Inkster, Larimore, Oakes, and Williston, ND, and at Park Rapids, MN. The **Larimore** site is hosted by Carl, Michael and Casey Hoverson at Hoverson Farms and includes the Processing Trial (24 selections, cultivars and industry standards), the preliminary processing trial (68 entries), maintenance of out-of-state selections, and out-of-state seedlings. The National French Fry Processing trial (NFPT), supported by the USPB, is conducted at this location, with the goal of identifying russet selections with French Fry processing potential with low acrylamide levels. Additionally in 2015, the irrigated NCRPVT fresh market trial (30 entries including the NDSU lines listed above) and the irrigated Chip Processing Trial (17 advancing selections and seven industry checks) are planted at this site. Trials at **Inkster**, at the Forest River Colony, include a replicated screening trial for Verticillium wilt resistance, conducted in collaboration with Dr. Neil Gudmestad's program. Twenty-one clones across market types are being evaluated. Additionally, in collaboration with Dr. Harlene Hatterman-Valenti and Collin Auwarter, we also have a metribuzin sensitivity screening trial, evaluating 16 cultivars and selections. Information from these two trials is important for developing cultivar management information for new and potential cultivar releases. The processing trial at **Oakes** is conducted at the Oakes Research Extension Center. There are 18 entries including nine advancing NDSU dual-purpose russet selections and nine industry standards. An irrigated processing trial is grown in cooperation with Dr. Jerry Bergman and Tyler Tjelde at the Nesson Valley Irrigation Research Site, east of **Williston**. There are 18 entries including, nine

advancing NDSU dual-purpose russet selections and nine industry standards. In 2015, a processing trial with 18 entries and a scab evaluation trial with 95 entries are planted at **Park Rapids** on the RDO Farm.

In 2015 seed production is occurring at **Langdon** at the Langdon Research Extension Center. The seedling nursery is coordinated with the help of Dr. Randy Mehloff and his staff. The materials, representing 167 families, are entered for certification with the North Dakota State Seed Department (NDSSD). We anticipate selection at this nursery after Labor Day, in early to mid September. Seed maintenance and increase lots are planted at **Baker, MN**, on the James F. Thompson Farm. The lots are entered for certification with the Minnesota Department of Agriculture. Seed produced is used for maintenance, for trials, and is shared with research collaborators at NDSU and with research and potato industry collaborators in North Dakota, Minnesota, and across North America. Additionally, selections identified as having resistance to late blight via the detached leaf assay are fast-tracked for agronomic evaluation.

Entries in many of our advanced trials are summarized in the following tables, with high and low daytime temperatures, precipitation, and growing degrees summarized for the site following each. We anticipate harvest beginning in our seedling nursery at Langdon on September 8. Commercial trials will be harvested beginning approximately September 12.

North Dakota State Processing Trial, Larimore – 2015

	Parentage					
Entry	**Female**	**Male**	**Maturity**	**Yield Potential**	**Use**	**Comments**
AND97279-5Russ	A92001-2	Ranger Russet	Late	Medium to high	Dual-purpose	
ND8068-5Russ	ND2667-9Russ	ND4233-1Russ	Very early	Medium	Dual-purpose	Sugar end resistance
ND039194AB-1Russ	ND8216-6	P2-3	Late	Medium to high	Dual-purpose	Aphid, LB, CPB, resistance breeding
ND049251B-9Russ	AOND92475-2Russ	Dakota Trailblazer	Medium to late	Medium to high	Dual-purpose	Late blight resistance breeding
ND049546b-10Russ	Dakota Russet	Dakota Trailblazer	Medium	Medium to high	Dual-purpose	
ND060761B-3Russ	ND8444-2Russ	Dakota Trailblazer	Medium	Medium to high	Dual-purpose	Late blight resistance breeding
ND081764B-4Russ	ND049547b-7Russ	ND049545B-8Russ	Medium	Medium to high	Dual-purpose	Late blight resistance breeding
ND091933ABCR-7Russ	PA99N2-1	ND049474ABC-1Russ	Medium-late	Medium	Dual-purpose	Aphid, LB, CPB, corky ringspot res. breeding
ND091938BR-2Russ	PA99N82-4	Dakota Trailblazer	Medium-late	Medium to high	Dual-purpose	LB and CR resistance breeding
ND102647-3Russ	Dakota Russet	M7	Medium	Medium to high	Dual-purpose	
ND102719B-1Russ	ND049546b-27Russ	M7	Medium to late	High	Dual-purpose	Late blight resistance breeding
ND113100-1Russ	Russet Norkotah	M7	Medium	Medium to high	Dual-purpose	
ND113174B-2Russ	M7	Dakota Trailblazer	Medium to late	Medium to high	Dual-purpose	
WND8624-2Russ	W2699-1rus	B1004-8rus	Medium	Medium to high	Dual-purpose	
WND8625-2Russ	W2699-1rus	Silverton Russet	Medium	Medium to high	Dual-purpose	
Alpine Russet	A8343-12	A85103-3	Medium to late	High	Processing	High protein
Bannock Russet	A75175-1	A75188-3	Late	High	Dual-purpose	Resistant to early dying
Dakota Russet	Marcy	AH66-4	Medium to late	Medium to high	Dual-purpose	Sugar end and Vert. resistance
Dakota Trailblazer	A89163-3LS	A8914-4	Late	Medium to high	Dual-purpose	Sugar end & Vert. resistance, low input
Ranger Russet	Butte	A6595-3	Medium to late	Medium to high	Dual-purpose	Resistant to internal & external defects
Russet Burbank	Sport of Burbank		Late	Medium to high	Dual-purpose	Industry standard
Russet Norkotah	ND9526-4Russ	ND9787-5Russ	Early	High	Tablestock	Industry standard (fresh)
Shepody	Bake-King	F58050	Medium	Medium to high	Processing	Industry standard
Umatilla Russet	Butte	A77268-4	Late	High	Dual-purpose	Resistant to early dying, sugar ends

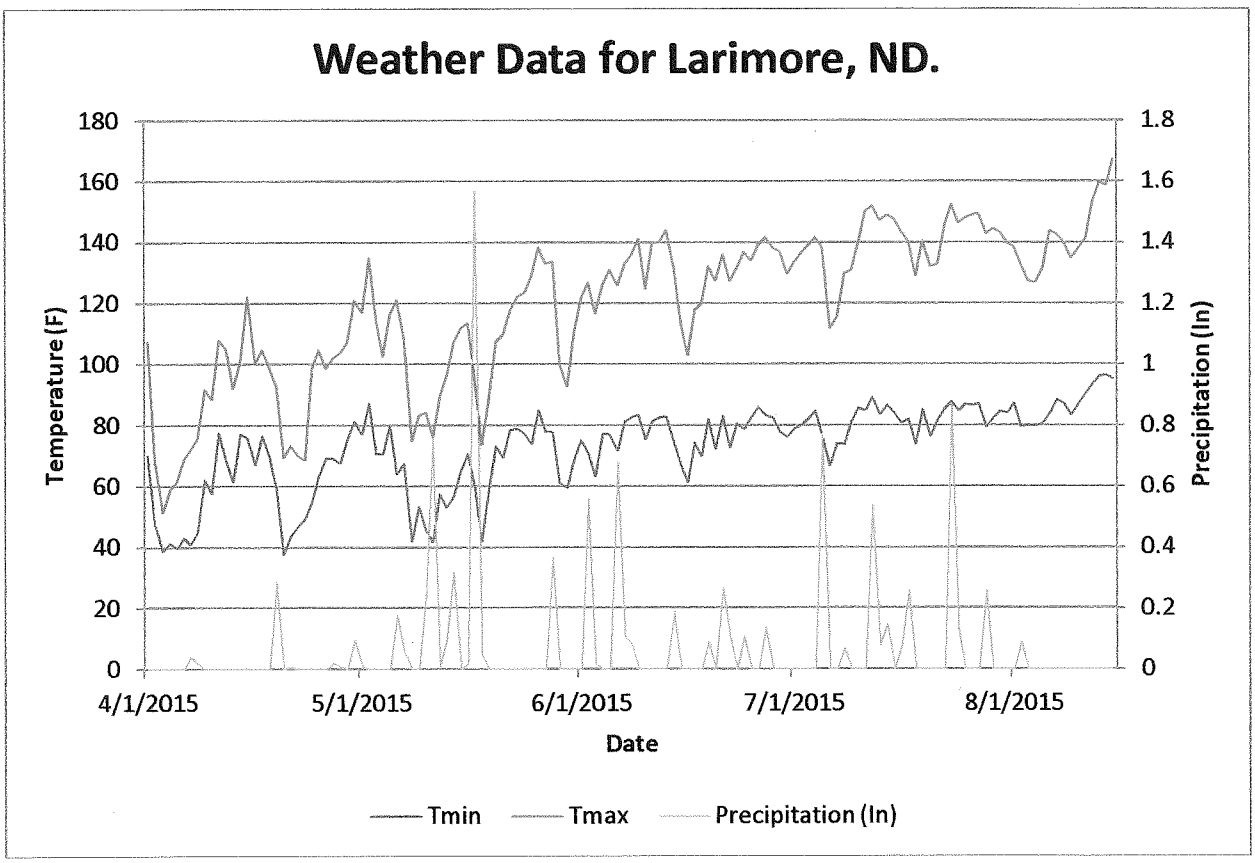
Planting Date: April 25, 2015
Hills/Plot: 20
Seed Piece Treatment: NuBark MZ
Seed Piece Spacing: 12 inches
Row Spacing: 36 inches
Planting Configuration: 1 guard plant, 20 plot, 1 guard plant, 5 skips, repeat. Guard is Dakota Jewel.
Agronomic practices: Hilling done by cooperator. Pre-plant applications, in-season fertilizer, herbicide, and fungicides applied by cooperator
Thanks to: Carl, Mike, and Casey Hoverson and all at Hoverson Farms, Northern Plains Potato Growers Association, MN Area II Potato Research & Promotion Council, RD Offutt Co. Farm Division, and Enander Seed Potato Farm.

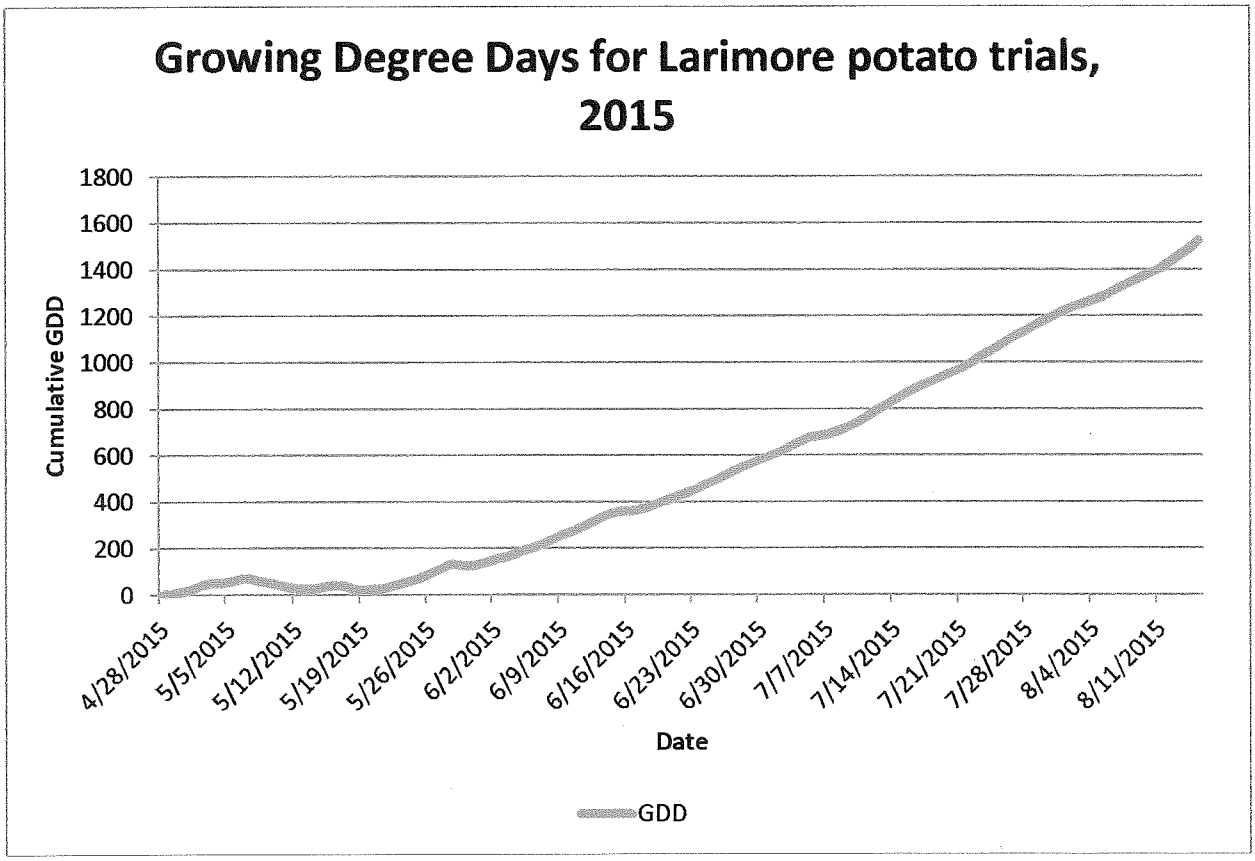
North Dakota Chip Processing Trial, Larimore – 2015

	Parentage					
Entry	Female	Male	Maturity	Yield Potential	Utilization	Comments
ND7519-1	ND3828-15	W1353	Medium	Medium	Chip processing	Cold chips
ND7799c-1	Dakota Pearl	Dakota Diamond	Medium	Medium to high	Chip processing	Cold chips
ND7818-1Y	Morene	Marcy	Medium	Medium	Chip processing	Yellow fleshed specialty, cold chips
ND8304-2	ND860-2	ND7083-1	Medium early	Medium to high	Chip processing	Cold chips
ND8305-1	ND2471-8	White Pearl	Medium	Medium to high	Chip processing	Cold chips
ND8331Cb-2	Dakota Diamond	Tollocan	Medium	Medium	Chip processing	CPB resistance breeding, cold chips
ND059804C-13	ND2858-1	King Harry	Medium to late	High	Chip processing	CPB resistance breeding
ND092018C-1	ND2858-1	King Harry	Medium	Very high	Chip processing	CPB resistance breeding
ND092018C-3	ND2858-1	King Harry	Medium	High	Chip processing	CPB resistance breeding
ND092049C-1	ND5978C-2	King Harry	Medium	Very high	Chip processing	CPB resistance breeding
ND102814CAB-1	ND060476CAb-6	King Harry	Medium	Medium	Chip processing	CPB, aphid & LB resistance breeding
ND102921C-3	ND060835C-4	Dakota Pearl	Medium to late	Medium to high	Chip processing	CPB resistance breeding
ND113266C-3	ND5873-53	ND7192-1	Medium to late	High	Chip processing	CPB resistance breeding
ND113307C-3	ND7799c-1	ND7519-1	Medium to late	High	Chip processing	CPB resistance breeding
ND113307C-4	ND7799c-1	ND7519-1	Medium	Medium	Chip processing	CPB resistance breeding
NDJL21C-1	ND5374-9B	Q115-24	Medium	Very high	Chip processing	CPB resistance breeding
NDJL23C-1	ND5455-3B	N140-201	Medium to late	High	Chip processing	CPB resistance breeding
Atlantic	Lenape	Wauseon	Medium	High	Chip processing	Industry standard
Dakota Crisp	Yankee Chipper	Norchip	Medium	High	Chip processing	Uniform tubers
Dakota Pearl	ND1118-1	ND944-6	Medium	Medium	Chip processing	Consistent cold chipper, industry standard
Ivory Crisp	ND292-1	A77268-4	Medium	High	Chip processing	Industry standard, long-term storage
Lamoka	NY120	NY115	Medium to late	High	Chip processing	Tested as NY139; common scab resistance
NorValley	Norchip	ND860-2	Medium	Medium	Chip processing	Industry standard
Snowden	Lenape	Wischip	Medium	High	Chip processing	Industry standard; long term storage

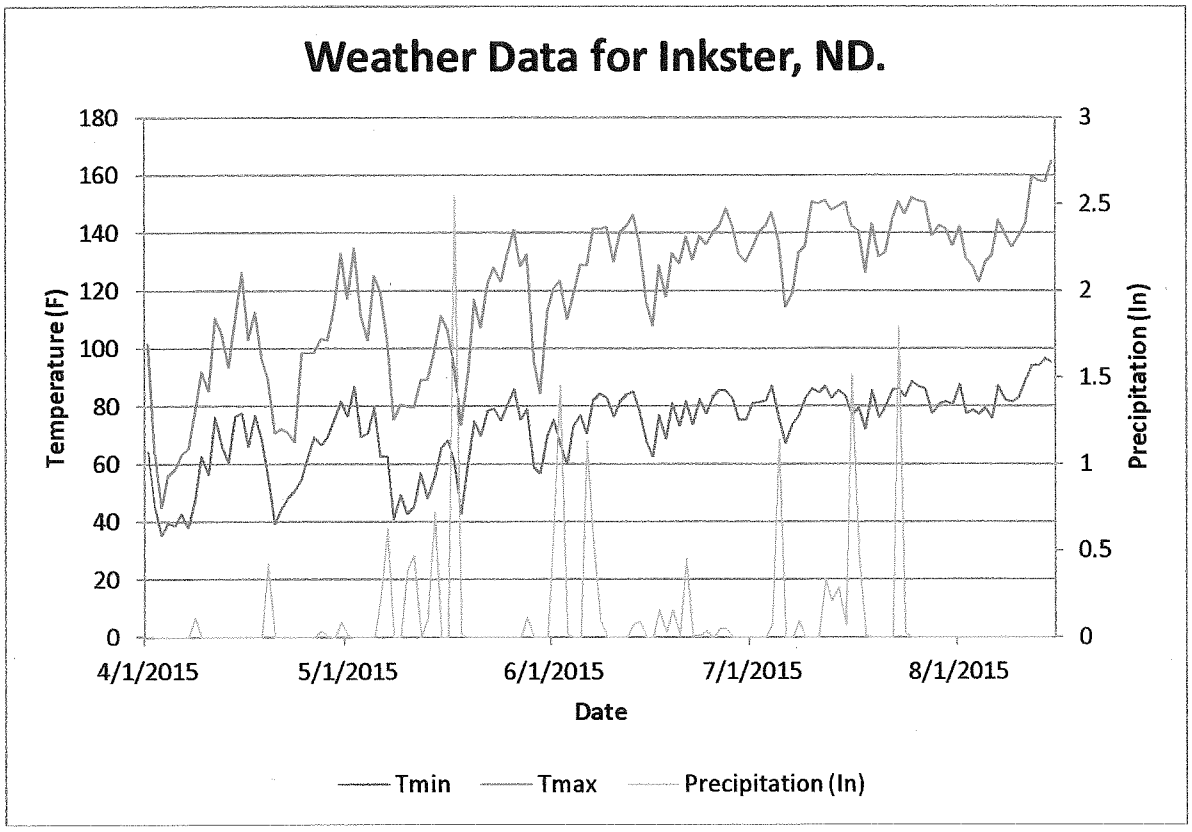
Planting Date: April 28, 2015
Hills/Plot: 20
Seed Piece Treatment: NuBark MZ
Seed Piece Spacing: 12
Row Spacing: 36”
Thanks To: Carl, Casey and Michael Hoverson, Northern Plains Potato Growers Association, and the Minnesota Area II Potato Research and Promotion Council.

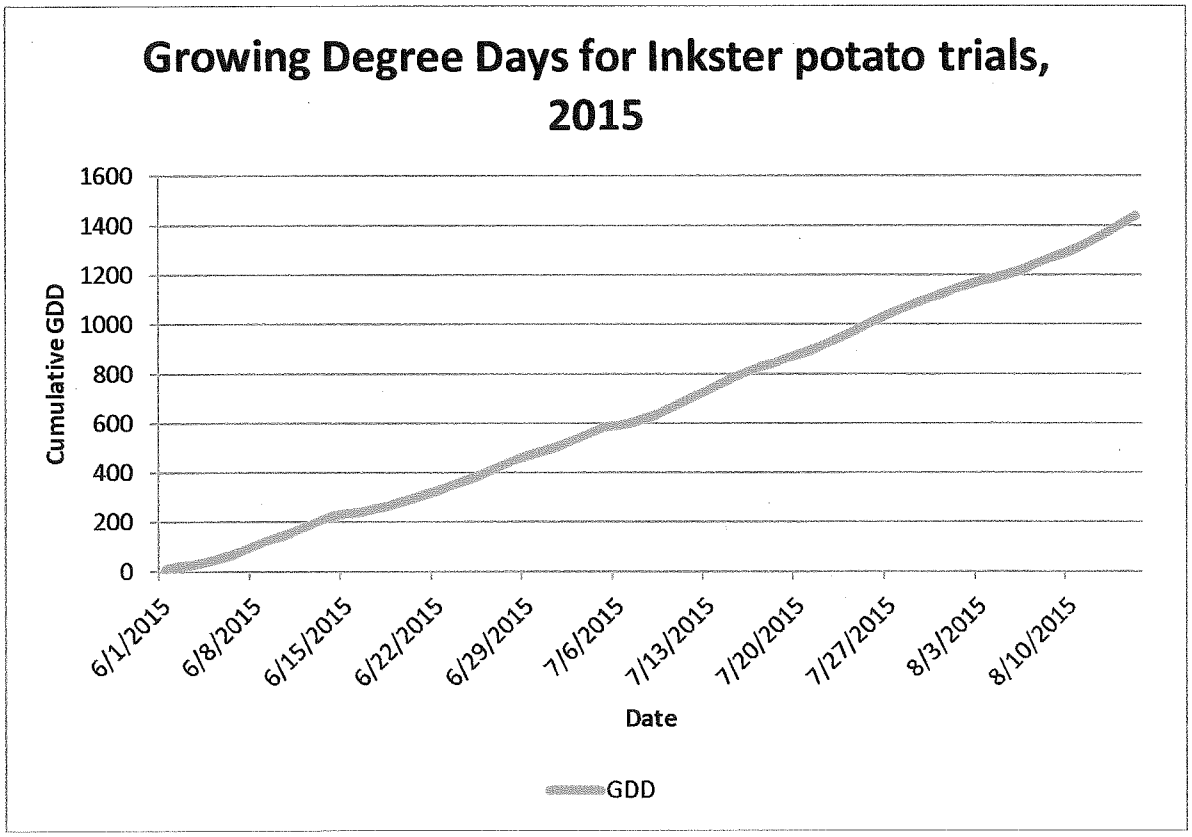
Temperature, precipitation and growing degree days for Larimore, ND, 2015.





Temperature, precipitation and growing degree days for Inkster, ND, 2015.





North Dakota Fresh Market Trial, Crystal – 2015

Entry	Parentage		Maturity	Yield Potential	Utilization	Comments
	Female	Male				
ATND99331-2PintoY	Inca Gold	COA94019-5R	Early	Medium	Specialty	Dk. yellow flesh, excellent flavor
ND4659-5R	NorDonna	ND2842-3R	Medium	Medium	Tablestock	
ND6002-1R	NorDonna	Bison	Medium	Medium	Tablestock	
ND7132-1R	ND5002-3R	ND5438-1R	Medium to late	Medium	Tablestock	
ND7982-1R	MN17572	ND5256-7R	Medium	Medium	Tablestock	High set
ND081571-2R	ND4659-5R	Dakota Ruby	Medium early	Medium	Tablestock	
ND081571-3R	ND4659-5R	Dakota Ruby	Very early	Medium	Tablestock	
ND081577-1R	ND6126-4R	Dakota Ruby	Medium to late	Medium to high	Tablestock	
ND102573B-3R	ND4659-5R	ND059734-4R	Medium to late	Very high	Tablestock	Late blight resistance breeding
ND102663B-3R	Dakota Ruby	Patagonia	Medium	High	Tablestock	Late blight resistance breeding
ND102990B-2R	ND071007B-2R	Dakota Ruby	Medium to late	High	Tablestock	LB resistance breeding, high set
ND102990B-3R	ND071007B-2R	Dakota Ruby	Medium to late	High	Tablestock	Late blight resistance breeding
ND113089B-2RY	Romanze	T10-12	Medium to late	Very high	Tablestock	LB, GN, & PVY resistance breeding
ND113091B-2RY	Romanze	Dakota Ruby	Medium	Very high	Tablestock	LB, GN, & PVY resistance breeding
ND113203-2R	T10-12	AND00272-1R	Medium to late	Medium to high	Tablestock	
ND113207-1R	T10-12	Dakota Ruby	Medium to late	Very high	Tablestock	
ND113338C-3R	Dakota Ruby	ND7779C-3R	Late	Medium to high	Tablestock	CPB resistance breeding, high set
Abby			Medium-early		Tablestock	Early in evaluation; yellow flesh
All Blue			Medium to late	Medium to high	Specialty	Specialty standard
Camel	Rosara	RZ-97-6139	Medium		Tablestock	Yellow flesh; PCN resistance
Dakota Jewel	ND2223-8R	ND649-4R	Medium to late	Medium	Tablestock	Excellent color, long dormancy
Dakota Rose	ND1196-2R	NorDonna	Medium	Medium	Tablestock	
Dakota Ruby	ND7188-4R	ND5256-7R	Medium	Medium	Tablestock	Evaluated as ND8555-8R
Mondeo	Maradonna	VE 7445	Medium	High	Tablestock	Yellow flesh; PCN Ro1 resistance
Red LaSoda	Sport of LaSoda		Medium to late	High	Tablestock	Check, widely adapted
Red Norland	Sport of Norland		Early	Medium	Tablestock	Check, widely adapted
Sangre	Viking	A6356-9	Medium	Medium to high	Tablestock	Check, widely adapted
Viking	Redskin	Nodak	Medium-late	Medium to high	Tablestock	
Vitabella	VR 95-98	Miriam	Medium-early	Medium to high	Tablestock	Organic potential; PCN Ro1 res.
Yukon Gold	W5279-4	Norgleam	Medium	Medium to high	Specialty	Check, widely adapted

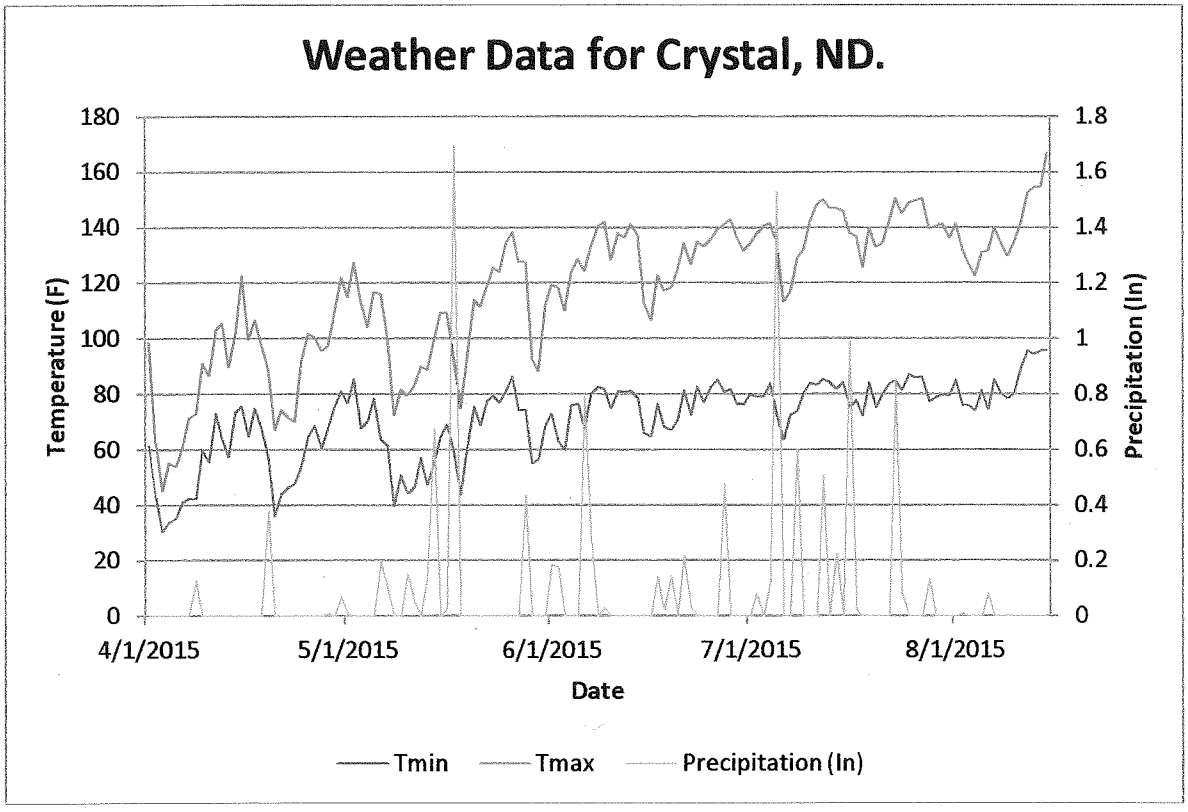
Planting Date: May 20, 2015
Hills/Plot: 20
Seed Piece Treatment: NuBark MZ
Seed Piece Spacing: 12 inches
Row Spacing: 36 inches
Thanks to: Dave and Andy Moquist (O.C. Schulz), Northern Plains Potato Growers Association, MN Area II Potato Research and Promotion Council, KWS and Duane Bernhardson.

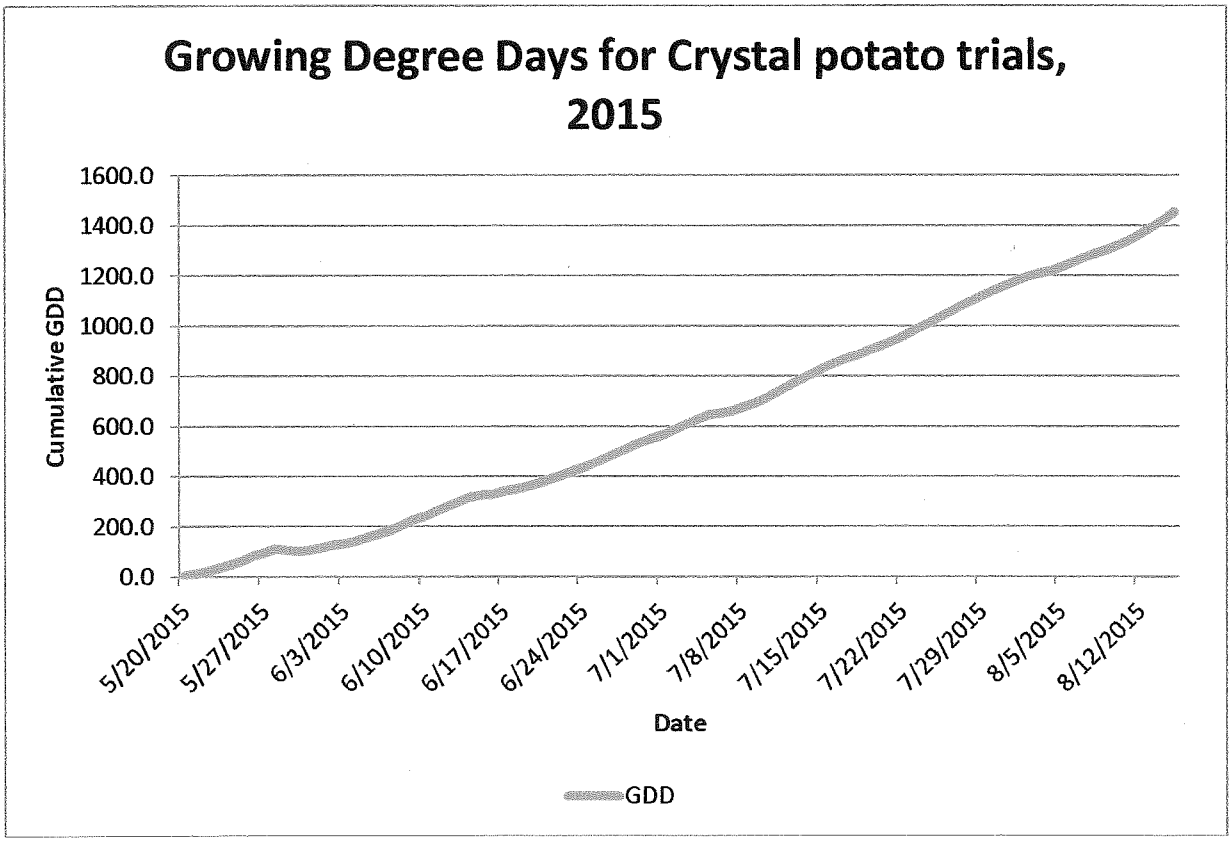
North Dakota Chip Processing Trial, Hoople – 2015

	Parentage					
Entry	**Female**	**Male**	**Maturity**	**Yield Potential**	**Utilization**	**Comments**
ND7519-1	ND3828-15	W1353	Medium	Medium	Chip processing	Cold chips
ND7818-1Y	Morene	Marcy	Medium	Medium	Multi-purpose	Cold chips
ND7799c-1	Dakota Pearl	Dakota Diamond	Medium	Medium to high	Chip processing	Cold chips
ND8304-2	ND860-2	ND7083-1	Medium early	Medium to high	Chip processing	Cold chips
ND8305-1	ND2471-8	White Pearl	Medium	Medium to high	Chip processing	Cold chips
ND8331Cb-2	Dakota Diamond	Tollocan	Medium	Medium	Chip processing	Cold chips
ND092018C-3	ND2858-1	King Harry	Medium	High	Chip processing	CPB resistance breeding
ND102822CAB-1	ND060476CAB-15	King Harry	Medium to high	High	Chip processing	CPB, aphid & LB resistance breeding
ND102858CB-2	ND060618CB-5	Ivory Crisp	Medium	High	Chip processing	CPB and late blight resistance breeding
ND113060-1	Ivory Crisp	ND7519-1	Medium	Medium to high	Chip processing	
ND113289C-1	ND7519-1	ND7799c-1	Medium	Medium	Chip processing	CPB resistance breeding
ND113307C-3	ND7799c-1	ND7519-1	Medium to high	Medium to high	Chip processing	CPB resistance breeding
NDJL21C-1	ND5374-9B	Q115-24	Medium	Very high	Chip processing	CPB resistance breeding
NDJL23C-1	ND5455-3B	N140-201	Medium to late	High	Chip processing	CPB resistance breeding
Atlantic	Lenape	Wauseon	Medium	High	Chip processing	Industry standard
Dakota Crisp	Yankee Chipper	Norchip	Medium	High	Chip processing	Uniform tubers
Dakota Diamond	ND4104-2	Dakota Pearl	Late	High	Chip processing	High yield, CPB resistance
Dakota Pearl	ND1118-1	ND944-6	Medium	Medium	Chip processing	Consistent cold chipper, industry standard
Ivory Crisp	ND292-1	A77268-4	Medium	High	Chip processing	Industry standard, long-term storage
Lamoka	NY120	NY115	Medium to late	High	Chip processing	Tested as NY139; common scab resistance
NorValley	Norchip	ND860-2	Medium	Medium	Chip processing	Industry standard
Pike	Allegany	Atlantic	Medium	High	Chip processing	Industry standard
Snowden	Lenape	Wischip	Medium	High	Chip processing	Industry standard, long-term storage

Planting Date: May 21, 2015
Hills/Plot: 20
Seed Piece Treatment: NuBark MZ
Seed Piece Spacing: 12
Row Spacing: 36"
Thanks To: Lloyd, Steve and Jamie Oberg, Northern Plains Potato Growers Association, Minnesota Area II Potato Research and Promotion Council, and Black Gold Farms.

Temperature, precipitation and growing degree days for Crystal, ND, 2015.



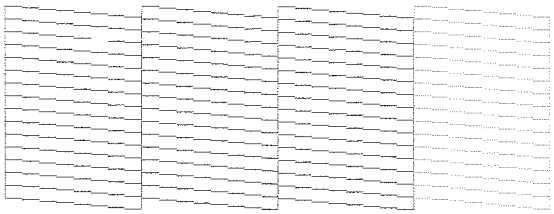


North Dakota State Processing Trial, Oakes – 2015

	Parentage					
Entry	**Female**	**Male**	**Maturity**	**Yield Potential**	**Use**	**Comments**
ND8068-5Russ	ND2667-9Russ	ND4233-1Russ	Very early	Medium	Dual-purpose	Sugar end resistance
ND113477C-2Russ	ND060564C-3Russ	AND01804-3Russ	Medium to late	High	Dual-purpose	CPB resistance breeding
ND113495C-3Russ	ND060742C-1Russ	M7	Early	High	Dual-purpose	CPB resistance breeding
ND113497B-1Russ	ND060761B-3Russ	Ranger Russet	Early	High	Dual-purpose	Late blight resistance breeding
ND113502AB-2Russ	ND060796Ab-1Russ	M7	Medium to late	High	Dual-purpose	Aphid and late blight res. breeding
ND113503AB-3Russ	ND060796Ab-1Russ	ND071302B-1Russ	Early	High	Dual-purpose	Aphid and late blight res. breeding
ND113174B-1Russ	M7	Dakota Trailblazer	Late	High	Dual-purpose	Late blight resistance breeding
ND113224C-3Russ	ND2858-1	Ranger Russet	Medium to late	High	Dual-purpose	CPB resistance breeding
ND113243ABC-2Russ	ND4382-19	ND039194AB-1Russ	Medium to late	High	Dual-purpose	Aphid, CPB, & late blight res. breeding
Alpine Russet	A8343-12	A85103-3	Medium to late	High	Processing	High protein
Bannock Russet	A75175-1	A75188-3	Late	High	Dual-purpose	Resistant to early dying
Dakota Russet	Marcy	AH66-4	Medium to late	High	Dual-purpose	Sugar end and Vert. resistance
Dakota Trailblazer	A89163-3LS	A8914-4	Late	High	Dual-purpose	Sugar end & Vert. resistance, low input
Ranger Russet	Butte	A6595-3	Medium to late	High	Dual-purpose	Resistant to internal & external defects
Russet Burbank	Sport of Burbank		Late	High	Dual-purpose	Industry standard
Russet Norkotah	ND9526-4Russ	ND9787-5Russ	Early	High	Tablestock	Industry standard (fresh)
Shepody	Bake-King	F58050	Medium	Medium to high	Processing	Industry standard
Umatilla Russet	Butte	A77268-4	Late	High	Dual-purpose	Resistant to early dying, sugar ends

Cutting Date: April 29, 2015
Planting Date: April 29, 2015
Hills/Plot: 20
Seed Piece Treatment: NuBark MZ 6%
Seed Piece Spacing: 12 inches
Row Spacing: 36 inches
Planting Configuration: 1 guard plant, 20 plot, 1 guard plant, 5 skips, repeat. Guard plants = All Blue
Agronomic practices: In-furrow treatment – Belay (12 oz./acre). Hilling done by cooperator. Pre-plant applications, in-season fertilizer, herbicide, and fungicides applied by cooperator.

Thanks to: Blaine Schatz, Leonard Besseman, Heidi Eslinger, Kelly Cooper, Northern Plains Potato Growers Association, MN Area II Potato Research & Promotion Council, RD Offutt Co., Hoverson Farms, and Enander Seed.



KR29D3 QP120A49