A. **Significant departmental achievements in research, teaching and outreach during the past year**
   a. **Teaching**
      Plans were finalized and paperwork was submitted to update the Horticulture undergraduate program. Changes included consolidation of the Sports and Urban Turfgrass Management (SUTM) undergraduate program as an option under the Horticulture major beginning fall 2016. Enrollment in the Crop and Weed Sciences undergraduate program reached a new record enrollment in fall 2015. The Food Science undergraduate program was ranked as the “Best Value Food Science Degree” by College Values online.

   b. **Research/Scholarly/Creative Activities**
      In 2015, 51% of the potato acres eligible for certification by the North Dakota State Seed Department were planted to cultivars developed by the NDSU potato breeding program with an annual crop value of $22 million. North Dakota is the second largest producer of seed potatoes, second only to Idaho.

      Wheat variety surveys are done annually by the USDA-NASS. In their 2015 survey, varieties developed by this project were seeded on over 50% of ND’s 6.3 million acres of hard red spring wheat (HRSW). Three recent releases from NDSU, Barlow, Elgin, and Prosper were sown on 12.6%, 10.8%, and 10.5% of ND’s HRSW acres.

      The NDSU Woody Plant Breeding program has introduced 55 superior woody plants for production and sale with increased disease tolerance and winter hardiness for landscapes throughout the Northern Great Plains. Furthermore, woody plant introductions from the program are currently being propagated for sale by commercial wholesale firms in Australia, Canada, and England. Two new introductions, Lavaburst™ Ohio Buckeye and September Flare™ Sugar Maple were released in 2015.

   | Peer Reviewed Publications (published or accepted) | 107 |
   | National or International Invited Presentations | 108 |
   | Research Grants and Contracts (number that are active) | 159 |
   | Cumulative Amount (total value of active grants and contracts): | $6,799,407.21 |

   c. **Extension/Outreach**
      Based on data provided by NDSU Extension, 88% of ND seed potato growers indicated they changed the way they manage seed potato production to prevent glyphosate damage. Changes made include communicating with neighbors and pesticide applicators, using a dedicated sprayer for use on potatoes only, and planting border crops.
The newly developed NDSU Dry Bean weed control program uses micro herbicide rates to control annual weeds, which has increased yields up to 42% and resulted in an increased income of $95 million to regional growers.

d. Service
Dr. Chiwon Lee was the recipient of the Open Door Award at the NDSU Ag Week. Dr. Michael Christoffers was the recipient of the NDSU Academic Advising Award. Dr. Andy Robinson was the recipient of the Spudman Emerging Leader Award. Drs. Tom Peters, Andy Robinson, and Richard Zollinger were part of a group from NDSU that were recipients of the 2015 Extension and Education Committee Award for Newsletter - North Dakota State University Cop and Pest Report.

B. Department goals and priorities for the past year, including narrative about progress toward those goals.

New teaching lab. Construction is progressing with the users of the space having major input on the design of the new classroom. Teaching in the lab will begin in the 2016 fall semester. The new teaching lab in Loftsgard will provide our students with the same new teaching technologies available in the STEM building and access to greenhouse space in Waldron Hall that is connected by a skywalk.

C. Department challenges for the past year, including narrative on how those are being addressed.

Harris Hall. The research and teaching facilities in Harris Hall are in disrepair and it is not cost-effective to make most repairs or renovations. A new durum wheat mill was purchased, but it cannot be moved into the building without dismantling a doorframe and wall. Ash and odor from the ash ovens are taken up by the ventilation system and deposited throughout the building. Water-flow into some labs has not worked since 2002, making the labs unusable. Additionally, piping is not present to carry distilled water to labs, so it is delivered with buckets from the still in the 3rd-floor men’s restroom.

D. Department goals and priorities for the coming year

Complete the process of eliminating Sports and Urban Turfgrass Management as a stand-alone major. Work with the breeding and genetics group in the department to update the curriculum and teaching assignments. Currently, we have no one assigned to teach cytogenetics and population genetics, and we have a new faculty member starting in July 2016 that does not have an assigned course to teach.

Continue to develop a plan to update the Plant Sciences Learning Center. The Plant Sciences Learning Center is the only space on campus that is specifically set up for a department’s undergraduate students to work and study either in groups or individually for multiple classes.
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<th>PI</th>
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<th>Participants</th>
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<td>Identification and Characterization of Host Resistance Genes from Wheat-Related Species for Fusarium Head Blight, Stem Rust, and Hessian Fly</td>
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<td>Evaluating Overwintering Systems for Floricane Blackberries in North Dakota</td>
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<td>Defining Glyphosate and Dicamba Drift Thresholds in Dry Beans, Field Peas, and Potatoes</td>
<td>Ostlie, M., Endres, G., Zollinger, R., Robinson, A., Hatterman-Valenti, H., Jenks, B.</td>
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**Helms, Ted**

- **Visual Ratings for Iron-Deficiency Chlorosis**
  - Helms, T.
  - ND Soybean Council
  - 7/1/2015 to 6/30/2016
  - $86,749.00

- **Breeding of Glyphosate-Resistant Soybean Cultivars**
  - Helms, T.
  - ND Soybean Council
  - 7/1/2015 to 6/30/2016
  - $126,631.00

- **Breeding of Improved Non-GMO Cultivars and Germplasm**
  - Helms, T.
  - ND Soybean Council
  - 7/1/2015 to 6/30/2016
  - $224,671.00

- **Increasing Awareness of Soybean Cyst Nematode in ND: 2015**
  - Markell, S., Helms, T.
  - ND Soybean Council
  - 7/1/2015 to 6/30/2016
  - $6,500 (Shared $85,975)

**Horsley, Richard**

- **Developing 6- and 2-rowed malting barley cultivars with enhanced FHB resistance and reduced DON accumulation**
  - Horsley, R.
  - USDA-ARS/USWBSI
  - 5/3/2015 to 5/2/2016
  - $185,705.00

- **Development of Two-Rowed Malting Barley Cultivars**
  - Horsley, R., Brueggeman, R., Schwarz, P.
  - ND Barley Council
  - 4/1/2015 to 3/31/2016
  - $97,925.00

- **Acquisition of Goods and Services**
  - Horsley, R.
  - USDA-ARS
  - 7/1/2015 to 6/30/2016
  - $38,163.26

- **Breeding and Genetics of Six- and Two-Rowed Malting Barley**
  - Horsley, R.
  - American Malting Barley Association
  - 7/1/2015 to 6/30/2016
  - $78,250.00

- **Acquisition of Goods and Services**
  - Horsley, R.
  - USDA-ARS
  - 6/1/2015 to 12/31/2015
  - $9,630.50

- **Acquisition of Goods and Services**
  - Horsley, R.
  - USDA-ARS
  - 7/1/2015 to 6/30/2016
  - $20,394.00

- **Acquisition of Goods and Services**
  - Horsley, R.
  - USDA-ARS
  - 7/1/2015 to 6/30/2016
  - $58,674.00

- **Hard Red Spring Wheat Breeding**
  - Mergoum, M.
  - ND Wheat Commission
  - 7/1/2015 to 10/31/2016
  - $90,000.00

- **Developing Specialty Spring Wheat Germplasm/Cultivars with Insect Resistance and Adapted to ND**
  - Mergoum, M.
  - ND Wheat Commission
  - 7/1/2015 to 10/31/2016
  - $30,000.00

- **White and Specialty Spring Wheat Breeding Technician**
  - Mergoum, M.
  - ND Wheat Commission
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**Howatt, Kirk**
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<td>A Computing Server for Large-Scale Genomic Data Storage and Analysis on Wheat at NDSU</td>
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<td>Use of Recurrent Mass Selection to Pre-Breed Hard Red Winter Wheat</td>
<td>Marais, F.</td>
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<td>Transfer of FHB Resistance to NDSU Hard Red Winter Wheat Breeding Material</td>
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<td>Iron Deficiency Chlorosis: Getting to the Root of the Problem</td>
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<td>Identification of Root-Resilience Traits in Dry Bean Genotypes for Increased Productivity</td>
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<td>Host Preference and Phenology of Spotted Wing Drosophila</td>
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<td>Expanding Local Specialty Crop Opportunities in ND through Season Extension Using High Tunnels</td>
<td>Splichal, K., Hatterman-Valenti, H., Gold, A., Muske, G., Mawby, H., McGinnis, E.</td>
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<td>Development of Oat Varieties with Improved Milling Quality and Unique Nutritional Characteristics to Consumers</td>
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<td>Characterization and Validation of Two Distinct Mechanism</td>
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<td>Weed Management in Soybean Contributes to a Field-Based Weed Control Strategy</td>
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<td>Herbicide Mode of Action and Sugarbeet Injury Symptoms; updating the 1994 technical bulletins</td>
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<td><strong>Development New Canola Germplasm for Increased Oil Per Acre Adapted in the North Central Region</strong></td>
<td>Rahman, M., McClean, P.</td>
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<td>Corn Production Optimization with Distiller's Grains as a Phosphorus Fertilizer Source</td>
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<td>Continuation of the Optimum Seeding Rates for Diverse HRSW Varieties Project</td>
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<td>Strategies for Meeting N Requirements of Wheat with New Fertilizers and Fertilizer Additives</td>
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<td>Technical Support for a Revised Corn Hybrid Testing Program</td>
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<td>Improving the Profitability of N Use in Corn with Distiller Grains and N Fertilizer Extenders</td>
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<td>Defining Glyphosate and Dicamba Drift Thresholds in Dry Beans, Field Peas, and Potatoes</td>
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<td>Advancing Value Added North Dakota Export of Specialty Dry Bean by Bioactive Enrichment for Health</td>
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<td>Thompson, S., Gudmestad, N., Secor, G., Hatterman-Valenti, H., Robinson, A., Voldseth, D.</td>
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<td>Dicamba Rotational Crop Safety</td>
<td>Zollinger, R.</td>
<td>Monsanto</td>
<td>4/1/2015</td>
</tr>
<tr>
<td></td>
<td>Defining Glyphosate and Dicamba Drift Thresholds in Dry Beans, Field Peas, and Potatoes</td>
<td>Ostlie, M., Endres, G., Zollinger, R., Robinson, A., Hatterman-Valenti, H., Jenks, B.</td>
<td>ND Specialty Crop Block Grant</td>
<td>10/1/2015</td>
</tr>
</tbody>
</table>

**Total Grant Amount:** $6,799,407.21
II. Publications and presentations

1. Refereed Journal Articles

Berti


Cai

Carena


Chen

Deckard
My contributions to these manuscripts were not huge, involving discussion regarding methods and interpretation of results.


Elias


Gramig


Hall

Hatterman-Valenti


Helms

Horsley


Howatt

Johnson
Kandel


Lee


Li, Deying

Li, X.


Lym


Manthey


**Marais**


**McClean**


**McGinnis**


**Osorno**


**Rahman**


**Ransom**


**Robinson**


**Schwarz**


**Shetty**


**Simsek**


Thompson

West
West T.P. and N.J. Jahnke. 2015. Micropropagation of ‘Blue Moon’ wisteria. Propagation of Ornamental Plants 15(1):28-33. This manuscript is from an undergraduate research project which Nathan presented a research poster at the 2014 annual American Society for Horticultural Science meeting and won 1st place for undergraduate research poster competition.

Zollinger
2. Abstracts

**Cai**


**Elias**


**Gramig**


**Hatterman-Valenti**


**Howatt**


**Johnson**


Kandel


Manthey


McClean


McGinnis

Osorno


Peters


Rahman M. 2015. Nine years canola breeding from scratch at North Dakota State University. An abstract for 14th International Rapeseed Congress, July 5-9, 2015, at Saskatoon, Canada (Poster).


**Thompson**  

Sabba, RP, AL Thompson, JS Pasche, R Taylor, and NC Gudmestad. 2015. Adoption of a real-time PCR-based strategy for the quantification of Verticillium dahliae in potato stems for the breeding of Verticillium wilt resistance at North Dakota State University. 98th Annual Meeting of the Potato Association of America, Spokane, WA. Am J Potato Res 92:205. (Abstract).


**West**  


**Zhang**  


**Zollinger**  


**3. Proceedings/papers**

**Berti**  

**Kandel**  
Lee


Peters


Robinson


Robinson, Andrew P. Residual effects of Rejuvenate on potato seed for stem management. Potato Expo. 7-9 Jan 2015. Orlando, FL.

4. National or International Invited Presentations/Other Presentations

Berti


Johnson, B.L., B.K. Hanson, A. Hermann, M.T. Berti, and P.J. Petersen. Screening industrial hemp (Cannabis sativa L.) varieties for adaptation in North Dakota. 27th Annual Meeting of the Association for the Advancement of Industrial Crops (AAIC), Lubbock, TX, 18-22 Oct. 2015.


Cai
Genetic engineering for crop improvement (invited), Huazhong Agricultural University, China, May 31, 2015.

Carena
Carena, M.J. 2015. Developing the Next Generation of Short-Season Products and Methods. April 13, 2015 (Invitation by Director of Business and Relationships at Foundation of Arable Research, New Zealand).

Christoffers


Deckard


Introduction to College Teaching. NDSU College of Engineering (invited), March 26, 2015.

Agriculture Issues in United States. Henan Institute of Science and Technology, Xinxiang City, China, June 30, 2015.

Agricultural Research in United States. Institute of Cotton Research of CAAS, Anyang, China, July 2, 2015.

World Agriculture/Food Security. Ten two-hour lectures to 300 undergraduate students at China Agriculture University, Beijing, China, July 4 to July 10. 2015.

North Dakota Agriculture. Presentation to new International Students, Department of Communication (invited), July 21. 2014.

Gramig


Hall

Poster


Hatterman-Valenti
January, Effects of hail on mid-season and late-season potatoes, NCIS, Morton, MN invited.

January, Weed science research update for high-value crops, Wild World of Weeds, Fargo, ND invited.

February, Grape growing for the novice North Dakota Grape and Wine Association annual meeting, Bismarck, ND invited.

February, Glyphosate drift to Red Norland potatoes: a producer and seed grower perspective, NPPGA and MN Area II Reporting Conference, Grand Forks, ND invited.

March, The Northern Grape Project, Nebraska Grape and Wine Association Meeting, Omaha, NE invited.

April, Growing large-diameter onion, Spring Fever Extension Video-conference, Fargo, ND invited.

April, Grape growing for the novice, Garden Saturday, Bismarck, ND invited.

July, Small fruit field research update, NDSU Horticulture field day, Fargo, ND invited.

September, High-value crops field research update, NDSU Horticulture field day, Absaraka, ND invited.

August, How to implement balanced pruning in grapes, ND Horticulture Society annual meeting, Absaraka, ND invited.

September, Understanding grape quality parameters for winegrapes, NDGWA Vine to Dine, Bismarck, ND invited.

October, North Dakota small fruit and grape research, NC222 annual meeting, Auburn, AL invited.

November, North Dakota NE1020 variety trial update and other grape research, Rapid City, SD invited.

November, Results and implications of an eight-year study of grape production in North Dakota, Vitinord: International Cold Climate Viticulture Meeting, Nebraska City, NE invited.

Helms
I spoke at the Casselton Agronomy Seed Farm field day on July 13, 2015 as an invited speaker.

Howatt
January 10. Control of troublesome weeds in soybean. Crop Advisor Workshop. Fargo, ND. invited
March 19. Weed control in North Dakota and Minnesota, panel discussion. Central Crop Consultants. Fargo, ND. invited
March 27. Science careers in agriculture. School visit day. Hunter, ND. invited
July 16. Weed science update and new herbicide discussion. Field Day. Langdon, ND. invited
September 15. New seed technologies and troublesome weeds in soybean. Unity Seeds, Fargo, ND. invited

Johnson
Johnson, B.L. 2015. Industrial hemp research in North Dakota. NDSU Fall Extension Workshop. Bismarck, ND. (invited)
Johnson, B.L. 2015. Industrial hemp trials. Langdon REC field day July 16, 2015. (invited)
Johnson, B.L. 2015. Campus plot tour of continuous wheat and flax plots and hail research in conjunction with New Agronomy Greenhouse and Horticultural Garden tours for the Pioneer Hi-Bred Northern Division Research Associates. This tour was hosted by Julie Hochhalter on Aug. 26, 2015.

Kalb
March 23, 24, 30 and 31. Spring Fever Garden Forums. This educator hosted 15 presentations on a wide range of gardening topics. On March 30, this educator presented Japanese Beetle in North Dakota. Presentations were delivered to 44 Extension offices and online across the state.
April 9. How to Destroy Bugs in the Garden. Kidder County Women’s Agriculture Night. Steele.
April 17, 18. Dakota Garden Expo. This educator hosted 35 presentations on a wide range of gardening topics. Presentations were made by this educator on Getting Started With Square-Foot Gardening, Growing Tomatoes in North Dakota, Growing Apples and Pears in North Dakota, Innovative Strategies to Kill Bugs and Diseases, Trapping Japanese Beetles and Pruning Shrubs. Bismarck.

Kandel
-Alternative Specialty Oil Crop Production Update. Central Dakota Ag Day, Carrington REC, December 17, 11-11:30 a.m. [37].
-Soybean Research and Production Update. Extension Annual Fall conference. October 14, 3:30-4 p.m. [16].
-Subsurface water management. Extension Annual Fall conference. October 13, 8:30-9 a.m. [22].
-Subsurface drainage and its potential to be used as an alternative or in addition to water management practices involving flood protection for Fargo. Ellingson Drainage 45th anniversary celebration, Harwood. October 2, 1:15-1:45 p.m. [45].
-Soybean variety selection. Steele County plot tour. September 21, 5:30-6: p.m. [17].
-Soybean production update and Variety Selection with emphasis on SCN. Richland County SCN plot Tour Hankinson. September 11, 10:30-10:50 a.m. [21].
-Soybean production update and Variety Selection with emphasis on SCN. Trail County SCN plot Tour Galesburg. September 9, 10:30-10:50 a.m. [17].
-Soybean production update. Corn and Soybean Plot tour, Ransom County Crop Improvement Association, Sept 8, 5:30-6 p.m. [31].
-Soybean production update and Variety Selection with emphasis on SCN. Cass County SCN plot Tour Absaraka. September 4, 10:30-10:50 a.m. [26].
-Selection of Soybean Varieties. Carrington Row Crop Tour. September 3, 5-5:15 and 6:30-6:45p.m. [64].
-Estimating Sunflower Yield. Hands on training in the field. Carrington REC. September 3, 2:30-3 p.m. [17].
-Bolts and Nuts about the 2015 Sunflower Survey. NSA training session at Carrington REC September 3, 12:30-1 p.m. [17].
- Soybean production update. Corn and Soybean Plot tour, Richland County Crop Improvement Association, Sept 2, 5-5:40 p.m. [31].
- Agronomic Benefits of Tile Drainage. Groundwater management workshop for county extension agents, Langdon REC, August 26, 11:10-12 noon. [12].
- Soybean production update. Corn and Soybean Plot tour, Sargent County Crop Improvement Association, August 25, 5-5:40 p.m. [23].
- Broad Leaf Crops in ND. 2015 NCIS Crop-Hail School. Fargo campus, August 11, 8:45-9:30 a.m. [74].
- Agronomic and Economic Considerations for Tile Drainage. Tile Design Workshop, Grand Forks, March 11, 8-9 a.m. [65].
- Growth Stages for Canola. Eastern Crop Scout School. Seven Seas, Mandan March 3, 2-3:30 p.m. [105].
- Sunflower and Canola Production. Eastern Crop Scout School. Seven Seas, Mandan March 3, 1:30-2 p.m. [105].
- Growth Stages for Soybean. Western Crop Scout School. Seven Seas, Mandan March 3, 10:30-noon [105].
- Growth Stages for Canola. Eastern Crop Scout School. Fargo Dome, Fargo, February 26. 2-3:30 p.m. [110].
- Sunflower and Canola Production. Eastern Crop Scout School. Fargo Dome, Fargo, February 25 1:30-2 p.m. [110].
- Dry Bean Seeding Rates and Nitrogen Study Update. International Crops Expo, Alerus, Grand Forks, February 19, 9:40-10:10 a.m. [78].
- Opportunities and Challenges in Soybean Production 15th Annual MonDak Pulse Plus Day Williston, February 17, 9-9:30 a.m. [61].
- Water Management, Hitting the Sweet Spot. Sugar beet Grower meeting, Wahpeton, February 12, 10-10:30 a.m. [95].
- Water Management, Hitting the Sweet Spot. Sugar beet Grower meeting, Holiday Inn, Fargo, February 11, 10-10:30 a.m. [125].
- Water Management, Hitting the Sweet Spot. Sugar beet Grower meeting, Alerus, Grand Forks, February 10, 10-10:30 a.m. [195].
- Do Soybeans Need N Fertilizer? Best of the Best in Wheat and Soybean Research. Alerus Center Grand Forks, February 5 2:30-3 p.m. [246].
- Water Management, Hitting the Sweet Spot. Sugar beet Grower meeting, Grafton Parish, February 5, 10-10:30 a.m. [99].
- Managing water in crop production. Sargent County Crop Improvement Association, Havana, February, 3, 9-10:30 a.m. [5].
- Production Opportunities in Soybean. Getting it Right Workshop. Portage La Prairie, January 30, 9-9:45 a.m. [188].
- Update on Nitrogen Fertilization in Dry Bean. Dry Bean Day. Fargo, January 16, 11:20-11:40 a.m. [275].
- Optimizing Variety Selection in Soybean. Getting it Right Workshop. Minot, January 15, 1-2 p.m. [80].
- Optimizing Variety Selection in Soybean. Getting it Right Workshop. Newburg, January 15, 10-11 a.m. [46].
- Optimizing Variety Selection in Soybean. Getting it Right Workshop. Underwood, January 14, 10-11 a.m. [34].
- Optimizing Variety Selection in Soybean. Getting it Right Workshop. Streeter, January 13, 10-11 a.m. [26].
- Crop Management. Training for Crop Advisors. Loftsgard hall. January 9, 2-3 p.m. [22].
- Tile drainage to optimize crop yields; managing the water table. Lake Region Extension Roundup, Devils Lake. January 6, 11 to noon. [53].

I was invited to speak to a foreign groups and events in Canada. Number between [155 for 2015] indicates number of participants.
- Why Tile, Agronomical Benefits. Convention Center, Yorkton, Saskatchewan. December 9, 2015. 3:30-4:30 p.m. [52].
- Why Tile, Agronomical Benefits. Claresholm Community Center, Claresholm, Alberta. December 8, 2015. 3-4 p.m. [9].
- Why Tile, Agronomical Benefits. Lacombe Memorial Center, Lacombe, Alberta. September 14, 2015. 9-10 a.m. [24].
- Why Tile, Agronomical Benefits. Best Western Hotel Leduc, Alberta. December 7, 2015. 3 – 4 p.m. [25].

Lee
January 15, 2015. Presented a workshop on vegetable seedling grafting, Minnesota Fruit and Vegetable Growers Association annual conference, St. Cloud, MN.

January 15, 2015. Presented a workshop on tree fruit grafting, Minnesota Fruit and Vegetable Growers Association annual conference, St. Cloud, MN.

July 14, 2015. Presented a talk on NDSU vegetable research during the field day at Carrington Research and Extension Center.
Li, Deying

Lym
Attended and gave one presentation at the North Dakota Weed Control annual meeting. “Japanese knotweed may be in your county”. 8 Jan. 15. Invited.

Attended and gave two presentations Wild World of Weeds in Fargo on 20 Jan 15. “North Dakota’s newest invader, Japanese knotweed” and “Invasive weed ID” a hands-on live plant educational format.

Represented North Dakota State University attended annually the NCERA-192 (NCERA-221).

Marais


Mohamed Somo, Roshan Sharma Poudel, Seyed Pirseyedi, Xiwen Cai, Shiaoman Chao and Francois Marais. Molecular mapping of three recombined versions of the Lr56/Yr38 translocation in wheat. ASA, CSSA, and SSSA Meeting, November 18, 2015, Minneapolis Convention Center.

S.M. Pirseyedi, M. Somo, R. Sharma Poudel, X. Cai, B. McCallum, B. Saville, T. Fetch, S. Chao and F. Marais. Lr59-151 – A modified version of the Lr59 full length translocation. ASA, CSSA, and SSSA Meeting, November 18, 2015, Minneapolis Convention Center.

McClean
Phenotypic and Molecular Analysis of the Transition to Type II Growth Habit in Common Bean. Bean Improvement Cooperative Biennial Meeting. Niagara Falls, Canada. November 2, 2015. INVITED

McGinnis
(Includes number in the audience in brackets and length of talk in parentheses).
Pollinator Gardens for ND. Grand Forks Horticulture Society Meeting, Grand Forks, ND, Nov. 21, 2015 [51], (1:15), (invited).
Pollinator Gardens for ND. Prairie Rose Garden Club, Jamestown, ND, Oct. 13, 2015 [15], (45 min.), (invited).
Exciting New Annuals and Perennials. Fargo Public Library, Fargo, ND, May 19, 2015 [33], (50 min.), (invited).
Master Gardener Program. PEO International Meeting, Fargo, ND, May 11, 2015 [19], (30 min.), (invited).
Hardy Ornamental Grasses. Cashman Nurseries, Bismarck, ND, May 2, 2015 [15], (30 min.), (invited).
Exciting New Annuals and Perennials for 2015. Cass County Association of Retired Teachers, Fargo, ND, April 9 [55], (35 min), (invited).
Perennials for All Seasons (Talk I). West Otter Tail County Garden Day, Fergus Falls, MN, March 28, 2015 [38], (50 min.), (invited).
Perennials for All Seasons (Talk II). West Otter Tail County Garden Day, Fergus Falls, MN, March 28, 2015 [43], (50 min.), (invited).
Lawncare 101. **Keynote Speaker**, Tessman’s Turf Academy, Bismarck, ND, March 3, 2015 (18), (50 min.), (invited).
Using Distance Learning to Grow a Master Gardener Program. National Extension Master Gardener Coordinator Webinar, January 21, 2015 [17], (40 min.), (invited).

Submitted oral presentations – only those not listed in 2B.

Pollinator Gardens for ND. NDSU Extension Fall Conference, Bismarck, ND, Oct. 13, 2015 [20], (45 min.).
Perennial Hardiness Trials. NDSU Horticulture Field Day, Absaraka, ND, Sept. 26, 2015 [50], (15 min.).
Tour of NDSU Horticultural Research and Display Garden. Pioneer Hi-Bred Regional Meeting, Fargo, ND, Aug. 26, 2015 [40], (30 min.).
Succulent Planting Demonstration. NDSU Yard and Garden Field Day, Fargo, ND, July 21, 2015 [30], (25 min.).
Perennial Hardiness Trials. NDSU Yard and Garden Field Day, Fargo, ND, July 21, 2015 [12], (20 min.).
Common Problems with Potatoes and Tomatoes. Williston Research and Extension Center, Williston, ND, July 9, 2015 [25], (1:00).
Common Problems with Potatoes and Tomatoes. Dickinson Research and Extension Center, Dickinson, ND, July 8, 2015 [21], (30 min.).
The Science Behind Home Garden Remedies. Dickinson Research and Extension Center, Dickinson, ND, July 8, 2015 [21], (30 min.).
Designing with Annuals. Dakota Garden Expo, Bismarck, ND, April 18, 2015 [50], (45 min.).
Science Behind Home Garden Remedies. Dakota Garden Expo, Bismarck, ND, April 18, 2015 [10], (25 min.).
Perennials for All Seasons. Dakota Garden Expo, Bismarck, ND, April 18, 2015 [35], (45 min.).
Ornamental Grasses for ND. Grand Forks Gardening Saturday, April 11, 2015 [60], (50 min.).
Common Problems in Tomatoes, Potatoes, Peppers and Eggplants. Grand Forks Gardening Saturday, April 11, 2015 [70], (1:00).
Spotted Wing Drosophila. NDSU Extension Spring Fever Garden Forum, Fargo, ND, March 30, 2015 [30 in-person, unknown number online], (10 min.).
Edible Landscaping. NDSU Extension Spring Fever Garden Forum, Fargo, ND, March 30, 2015, [30 in person, unknown number online], (30 min.).

Osorno


Peters
January 6, 2015, A Weeds Management Strategy In Fields, Lake Region Extension Roundup, Memorial Building, Devils Lake, ND, invited
January 7, 2015, A strategy for managing weeds in fields across the crop sequen, Richland County Ag Day, Community Room, Law Enforcement Center, Wahpeton, ND, invited
January 20, 2015, Weed Control and Tillage, Soil and Soil Water workshop, FargoDome, Fargo, ND, invited.
January 30, 2015, Controlling Weeds Makes Good Cents, FSBN, ND, invited.
February 4, 2014, Mad Money – How to Manage Your (Seed) Bank Account, Soybean Best of the Best, Courtyard Hotel, Moorhead, MN, invited
February 5, 2014, Mad Money – How to Manage Your (Seed) Bank Account, Soybean Best of the Best, Alerus Center, Grand Forks, ND, invited
February, 25, 2015, Forum-Glyphosate Tolerant Weeds, American Society of Sugar Beet Technologists Meeting, Hilton Clearwater Resort, Clearwater Beach FL, invited
March 4, 2015, Mad Money – How to Manage Your (Seed) Bank Account, BASF Farmer Meeting on Weeds Management, Ramada Inn, Fargo, ND, invited
April 20, 2015 Biotechnology, A Presentation to the West Fargo Rotary Club, Fargo Holiday Inn, Fargo, ND, invited
May 21, 2015, Webinar on ‘Growing Hosta in North Dakota’, Presented to the ND Master Gardeners, Loftsgard Hall, NDSU, Fargo, ND, invited
August 12, 2015, Weeds Management in Fields, Minnesota Soybean Council Meeting, Olivia, MN, invited
October 8, 2015, Controlling Weeds Makes Good Dollars and Cents, North Dakota Bankers Association Ag Credit Conference, Radisson Inn, Bismarck, ND, invited
October 13, 2015, Weed Resistance Management Working Group: A One-Year Progress Report, a breakout session at NDSU Extension Fall conference, Radisson Hotel, Bismarck, ND, invited
December 2, 2015, Rethinking Waterhemp Control, NDSU / UM Commercial Pesticide Applicator Training, Fargo Dome, Fargo, ND, invited
December 10, 2015, Managing Weeds in North Dakota, Bismarck Irrigation, Best Western Ram-Kota Hotel, Bismarck, ND, invited
December 15, 2015, Controlling Weeds. What are my Options? How can I make my Options Last?, Wells County Winter Show, Festival Hall, Fessenden, ND, invited
January, 13, 2015, Weeds Management in the Crop Sequence Contributes to Field-based Weed Control Strategy in Sugarbeet, Sugarbeet Research Reporting Session, Fargo, Holiday Inn, Fargo, ND
January 20, 2015, Weed Control in Sugarbeet; Cover Crops and Rotational Crops, Southern Minnesota Beet Sugar Coop Growers Meeting, Willmar Holiday Inn Conference Center Willmar, MN
February 5, 2015, Weeds Management in Sugarbeet, Grafton Growers Meeting, Grafton Parish Center, Grafton, ND
February 10, 2015, Weeds Management in Sugarbeet, Grand Forks Growers Meeting, Alerus Center, Grand Forks, ND
February 11, 2015 Weeds Management in Sugarbeet, Fargo Growers Meeting, Fargo Holiday Inn, Fargo, ND
February, 12, 2015, Weeds Management in Sugarbeet, Minn-Dak Farmers’ Coop Growers Meeting, Wahpeton Eagles Club, Wahpeton, ND
March 17, 2015, Univ. of Minnesota, Winter Crops Day, Olivia, MN
March 18, 2015, Weeds Management in Sugarbeet, Wahpeton ND
March 19, 2015, 2015 Update on Sugarbeet Agronomy, Centrol Crop Consultant Meeting, Fargo Holiday Inn, Fargo, ND, [45]

Submitted oral presentations – only those not listed in 2B.
• 12 plot tours
• 9 coffee chat meetings

Rahman

Invited Speaker - Presented at Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur-1706, Bangladesh, on April 07, 2015.

Invited Speaker - Presented at Bangladesh Agricultural Research Institute, Joydebpur, Bangladesh, on April 06, 2015.

Ransom
Made 40 presentations in 2015 at various meetings and field days. Most were invited except for the meetings that I personally organize. Total number addressed by these meetings was 2,871.

Robinson
Rotational crops effects on potato production in the Red River Valley. Northern Canola Growers. Fargo, ND. 19 Nov. 2015. [44]
Herbicide damage on potatoes, Dicamba and glyphosate-resistant soybean. Black Gold Agronomist training. Fargo, ND. 30 Sep. 2015. [25]
2,4-D for scab control. MN Area II Potato Field day. Becker, MN. 14 Jul. 2015. [50]
Update on phosphorous acid testing. RDO Spring meeting. Perham, MN. 31 Mar. 2015. [40]
Improving potato production through varieties and management practices. MN Area II Short Course. St. Cloud, MN. 3 Mar. 2015. [55]

Non-invited presentations
Overview of 2015 potato production. NPPGA Field Day. Larimore, ND. 20 Aug. 2015. [125]
2,4-D use for weed suppression in non-red potatoes and slow release phosphorous. Inkster, ND. 20 Aug. 2015. [200]
Red and yellow potato variety trial. NPPGA Field Day. Hoople, ND. 20 Aug. 2015. [130]

Schwarz
Understanding the Maillard Reaction. Farmer Brewer Winter Weekend, Amherst, MA Jan 17, 2015. Invited
DON-3-Glucoside in Malting and Brewing. Industry seminar on applications of barley malts. National Laboratory for Cereal Fermentation Technology, Jiangnan University, Wuxi China. May 19, 2015. Invited

Shetty
Beary Institute of Technology, Bangalore, India February 2015 ““Systems-Based Understanding of Global Food Security Challenges with Integration of Urban Living & Green Technologies”

American Council of Medicinally Active Plants (ACMAP) 6th Annual Conference at Washington State University, Spokane, WA, USA, May 2014 “Metabolic Biology of Bioactive Medicinal Foods from American Indian Food Systems”.

Thailand Food Ingredient Conference, Bangkok, Thailand, September, 2015 “Metabolic Innovations of Phytochemicals for Health”.


Symbiosis University, Pune, India; Program in Biomedical Sciences and Nutrition, October, 2015, “Systems-Based Metabolic Innovations for Global Food Security & Public Health Challenges”.

Texas A & M University, October, 2015 “Systems-Based Metabolic Innovations for Global Food Security & Public Health Challenges”.

Sikkim University, Gangtok, India, November, 2015 International Conference on “Ethnic Fermented Foods and Beverages: Microbiology and Health Benefits’ “Metabolic Basis for Fermented Foods for Health and Food Security”.


Baasandorj, T., Simsek, S. 2015. Dark, hard and vitreous (DHV) HRS wheat kernel content effect on flour and baking quality. ASABE Intersectional Meeting. Fargo, ND.


Malalgoda, M., Ohm, J.B., Meinhardt, S., Simsek, S. 2015. Spring wheat gliadins: have they changed in 100 years? AACC International Meeting. Minneapolis, Minnesota. *First placed winner of the “AACC-I 2015 Best Student Research Paper Competition”. M. Malalgoda is MS degree student in Dr. Simsek’s program.


Thompson


Moderator. International Crops Expo, Grand Forks, ND, February 18, 2015. (Andy was out sick so filled in).


(Kelly Cooper gave the potato breeding report at the Oakes Field Day also held on August 20. I provided handouts, signs, prepped him, etc.)


Thompson, S. Potato improvement for the Northern Plains, NCCC215 Potato Breeding and Genetics Regional Coordinating Committee, Chicago, IL, December 8, 2015.

West

Invited presentation at the 2015 NDSU Horticulture Extension Spring Fever Program on woody plant diversity. This program was presented live on the NDSU Campus (Fargo, ND) and broadcast across the state to local extension offices. 454 ND residents were participating across ND. 31 March 2015


Invited keynote speaker for the 2015 ND State Horticultural Society annual meeting. Gave presentation titled: What is new with NDSU: A glimpse into the woody plant improvement program. 125 in attendance. Medora, ND. 14 August 2015

Williams
Numerous presentations are made each year at statewide, regional and national meetings involving seed and commodity producers, commodity groups, certification and seed enforcement organizations, Ag industry and university research and extension personnel.

Zhang
Zhang, Q. 2015. Genetic variations of drought tolerance in creeping bentgrass. 2015 Annual ASA, CSSA, SSSA meeting. Nov. 6-9, St. Paul, MN. (Oral)

Zollinger
In 2015, I gave 91 presentations of which 4 were invited. An itemized list by date, title, and location can be provided upon request.

Zuk
North Central Turfgrass Growers Assn. Annual Conference. Fargo, ND. Ornamental grasses: Uses and Cold Hardiness, Feb. 4
5. Books

Carena


6. Book Chapters

Hatterman-Valenti

McClean


Rahman

Robinson

7. Research Reports

Berti
Midwest Forage Association.
Midwest Cover Crops Council- ND representative
NCIS – alfalfa multi-peril insurance report

Carena


Sharma, S., N. Dong, and M.J. Carena. 2015. EEVO Genetics, Inc. NDSU Research and Technology Park. Innovation challenge proposal on marketing NDSU corn hybrids.


Carena, M.J. 2015. NDSSR (North Dakota Synthetic for Stiff Roots) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS22 (NDSS22 for Amino Acid Quality Protein) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS23 (NDS13HP for High Protein) Maize Release. PVP Disclosure Form and Breeding Agreement.


Carena, M.J. 2015. NDS25 (NDSS17HY for Yield and Earliness) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS26 (NDL17HY for Yield) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS27 (NDS15HO for Oil content) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDEarlyGEM32 (Exotic Adaptation from temperate Argentina) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDEarlyGEM33 (Exotic Elite adaptation from tropical Brazil) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDEarlyGEM34 (Exotic Elite Adaptation from tropical Caribbean) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS57 (NDL18 for Grain Quality) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS68 (NDSS1 for Adaptation and Female Inbred Lines) Maize Release. PVP Disclosure Form and Breeding Agreement.

Carena, M.J. 2015. NDS69 (NDSSSRS for Recurrent Selection and Female Inbred Lines) Maize Release. PVP Disclosure Form and Breeding Agreement.

Christoffers

Hall

Hatterman-Valenti
Hatterman-Valenti, H. and C. Auwarter. 2015. Agnition starter fertilizer trial. MN Area II Potato Research and Promotion Council and Northern Plains Potato Growers Ass. 2015 Research Reports, p. 10.

Hatterman-Valenti, H. and C. Auwarter. 2015. Effect of simulated glyphosate drift on seed pieces from four potato processing cultivars. MN Area II Potato Research and Promotion Council and Northern Plains Potato Growers Ass. 2015 Research Reports, p. 13-18.
Robinson, A., H. Hatterman-Valenti, and A. Winchester. 2015. Improving postemergence herbicides in potato production. MN Area II Potato Research and Promotion Council and Northern Plains Potato Growers Ass. 2015 Research Reports, p. 44-47.


Howatt

Kalb


Kandel


**Lym**


**Manthey**


**Marais**

An annual progress report was presented to the Minnesota Wheat Research & Promotion Council on March 30, 2015.

An annual progress report was presented to ND Wheat Commission on April 1, 2015.

A progress report was presented at the HWW-CP Planning Meeting that was held on April, 20th, 2015 at the University of Nebraska, Lincoln.

**Peters**


Robinson


Robinson, A. P. Timing of Linex + Metribuzin on Russet Burbank potato. North Dakota Weed Control Research Reports.

Robinson, A. P. Optimizing Linex Use in Irrigated Russet Burbank Potato Production. TKI NovaSource.


Schwarz

Simsek

Thompson


Zollinger
2 in Res. Prog. Rep. ND Soybean Growers Assoc.
52 in 2015 North Dakota Weed Control Research, NDSU, Fargo, ND

8. Popular Press articles

Berti
Berti, M.T., and A. Wick. 2015. How to select a cover crop or cover crop mix? NDSU Forages webpage. Available at: http://www.ag.ndsu.nodak.edu/research/plantsciences/forages


Berti, M.T. 2015. What is the best method to estimate forage yield in older alfalfa stands? Plants vs. stems. Forage Focus, March 2015. p. 21


Christoffers
AgWeek interview (2015, May 5) New definition for ‘superweeds’.

Deckard
Mick Kjar, AgWeek, What we can learn from Record Yields? April 2015.

Gramig
http://modernfarmer.com/2015/09/crop-diversity-study/
Hall

Howatt
Conducted six interviews for press articles with editorial remarks before printing. Five interviews for sound-bites to be included with news report on program.

Kandel


Print Media Interviews

Rick Natynski, Sunflower survey info for Croplan publication. Interview and review article, October 28, 2015.

Radio / T.V. Interviews


M. Kjar, Ag News 890. 1:20-1:30 p.m. Live. Soybean maturity update and sunflower survey. September 11, 2015


M. Kjar, Ag News 890. 1:35-1:45 p.m. Live. Soybean crop update, sunflower survey and cover crop. August 3, 2015


Sarah Heinrich. KFGO, Fargo. Interview about Uganda. June 26, 2015. 10-10:10 a.m.

M. Kjar, KQLX Ag News 890. 1:35-1:45 p.m. Live. IDC on soybean, Trip to Uganda with CRS. June 17, 2015.


M. Kjar, Ag News 890. 1:50-2:00 p.m. Live. Soybean fertilization with N. February 6, 2015.


Lym
Interview with Mick Kjar concerning resistant weeds and the expected EPA plan to control them for KVLY and the Dakota Ag radio network

McGinnis
The Dirt, official newsletter of the ND Master Gardener Program

Media Outreach: Newspaper Articles
(These articles either publicized my work or else I was interviewed as a source of information for the following articles. Links to articles included where available)


http://homes.winnipegfreepress.com/winnipeg-real-estate-articles/renovation-design/Spotted-TERROR/id-4466


Garden Project donates more than 1M pounds of produce. Farm & Ranch Guide. February 9, 2015.

Media Outreach: Radio
Recorded radio interview with Mick Kjar to promote NDSU Extension’s appearance at Big Iron, September 11, 2015.


**Media Outreach: Television Interviews (Other than North Dakota Today)**

Poison Ivy Segments. WDAY First News. July 14, 2015 (four live 1-2 min. segments at 5:00 a.m., 5:30 a.m., 6:00 a.m., and 6:30 a.m.; also recorded separate segment for the evening news).


**Media Outreach: KVLY North Dakota Today Gardening Segments**


Lawn Tasks to Complete for Fall. September 3, 2015 (7:18) [http://www.valleynewslive.com/ndtoday/home/headlines/Lawn-Tasks-to-Complete-for-Fall-324096621.html](http://www.valleynewslive.com/ndtoday/home/headlines/Lawn-Tasks-to-Complete-for-Fall-324096621.html)


**Osorno**


**Peters**


Television interview with M Kjar, weed control trends in 2015, January 12, 2015

Radio interview with Jay Rehder, RRVN, weeds management in fields, January 12, 2015

Radio interview with Jay Rehder, RRFN, attendance in meetings and weeds management awareness, March 18, 2015

Release article on Palmer Waterhemp with Mike Hergert from RRFN, March, 2015

Release article on ‘Back to the Future’ - Systems approach weed control in sugarbeet, Don Lilleboe, Sugarbeet Grower magazine, March, 2015, pages 14-16

Radio interview with Randy Koenen, RRFN, Early season weeds; herbicide choices, April 29,2015

Radio interview with KFGO, discuss dry soils conditions, May 1, 2015

Radio interview with Rich Mattern, NDSU Ag Communications, for general distribution, dry spring conditions and impact on weed control, May 6, 2015

Radio interview with RRFN, discuss dry field conditions, May 7, 2015

Radio interview with KFGO, discuss field conditions, May 12, 2015

Radio interview with RRFN, discuss field conditions, May 14, 2015

Radio interview with WZFG, discuss Enlist Duo approval status, May 15, 2015

Radio interview with KFGO to discuss cold weather impacts on sugarbeet, May 19, 2015
Interview with Andrea Johnson MN Farmer Growers (Despite early planting, most sugarbeet made it through cold nights), May, 21, 2015.
Radio interview with Mike Hergert, Red River Farm Network to discuss waterhemp, June 11, 2015.
Radio interview with Scott and Bob, The Sugarbeet Report, June 18, 2015
Interview with Mikkel Pates, AgWeek, waterhemp in sugarbeet. The interview was printed in the Fargo Forum and in the August 3, 2015 addition of AgWeek.
Radio interview with Mike Hergert, RRFN, summer weed control, July 13, 2015
Radio interview with Ken Morgan, Interstate Farm Network, summer weed control, July 15, 2015
Radio interview with Jay Rehder, RRFN, waterhemp control in sugarbeet, July 21, 2015
Magazine interview, a weed control strategy, Dan Lemke, Soybean Growers Magazine, August, 2015.
Radio interview, Mikkel Pates, Agweek, Big Iron, September 1, 2105
Radio interview, Ken Morgan, Interstate at Big Iron, Weeds Management, September 15, 2015
Radio interview, Mick Kjar, Big Iron and Weeds Management, September 11, 2015
Radio interview, Mick Kjar, Big Iron and Weeds Management, September 15, 2015
Radio interview, Mark Dorenkamp, Brownfield Ag News, Weeds Management, September 15, 2015
Radio interview, Carah Hart, RRFN, Big Iron, Weeds Management, September 15, 2015
Radio interview with Cara Hart, Red River Farm Network, Weeds management, post-harvest, October 20, 2015
Radio interview with Ken Morgan, Interstate News, a strategy for waterhemp control in sugarbeet and soybean, December 3, 2015
Radio interview with Mark Dorenkamp, Brownfield Ag News, a strategy for waterhemp control in sugarbeet and soybean, December 3, 2015
Radio interview with Randy Kohen, RRFN, a strategy for waterhemp control in sugarbeet and soybean, December 22, 2015

Rahman
Radio broadcasted interviews
July 21, 2015: Broadcasted an interview on the NDSU canola breeding program as part of the “Canola Minute” of the Red River Farm Network, North Dakota, USA.
April 30, 2014: Broadcasted an interview on the NDSU frost-tolerant canola breeding program as part of the Canola Minute” of the Red River Farm Network, ND, USA.
April 23, 2014: Broadcasted an interview on the NDSU heat tolerant canola breeding program as part of the “Canola Canola Minute” of the Red River Farm Network, ND, USA.

Ransom
Media interviews 15 including t.v. and radio
Websites – Maintained the corn hybrid testing program webpage and the small grain page.

Robinson

Media interviews: 4 video interviews, 14 radio interviews.

Webpage / Social media
Potato Extension webpage had 17,905 pageviews in 2015. Of those, 86% were from the United States. The website data indicated that 66% were new visitors and 34% were returning visitors. I made 51 posts on the webpage this past year. There were 209 posts made on social media. This includes Facebook, Twitter, Google+, and LinkedIn. The NDSU Potato Extension Facebook page has 161 likes, 218 followers on Twitter, 15,325 views to the Google+ page, and 488 connections on LinkedIn. The NDSU-Potato Listserv, maintained by Dr. Robinson, has 190 members.

**Thompson**


**Zollinger**
Media interviews:
- TV = 5
- Radio = 18
- Magazine articles = 26
- Crop and Pest Report articles = 16
- Telephone calls = 198 hours
- Information requests via email = 569 hours
- Office visits = 146 hours
- Diagnostic samples = 195/65 hours

9. Reviewed Extension Publications

**Christoffers**

**Hatterman-Valenti**


**Kandel**


Endres, G. H. Kandel, and J. Ransom. 2015. Replanting or Late Planting Crops. A934 revised. NDSU Extension Service. Fargo, ND.


Contributions to the North Dakota Crop and Pest Report Newsletter

Lym


Manthey

Marais
Joel Ransom, Francois Marais, Senay Simsek, Andrew Friskop and Maricelis Acevedo (NDSU Main Station); Eric Eriksmoen (North Central Research Extension Center, Minot); John Rickertsen (Hettinger Research Extension Center); Bryan Hanson (Langdon Research Extension Center); Glenn Martin (Dickinson Research Extension Center); Mike Ostlie (Carrington Research Extension Center); and Gautam Pradhan (Williston Research Extension Center). North Dakota Hard Winter Wheat Variety Trial Results for 2015 and Selection Guide (A1196-15).

McGinnis


Osorno


Ransom
Submitted the following articles for the Crop and Pest Report during the year:
No. 1. May 7, Checking for adequate stands of small grains.
No. 3. May 21, Frost damage in small grains and corn.
No. 4. May 28, Evaluating corn stands.
No. 5. June 4, Evaluating emergence uniformity in corn.
No. 6. June 11, Small grain and corn development: 2015 growing season.
No. 9 July 2, Preparing for planting winter wheat in land not planted this spring.

Robinson


Simsek

Thompson

Zollinger
2015 Herbicide Compendium. NDSU Extension Circular (Revised).
2015 NDSU Adjuvant Compendium. NDSU Extension Circular (Revised).
2015 North Dakota Herbicide Mode of Action Chart (Revised)
Bringing land in CRP back into production. A-1364. NDSU Extension Circular

10. Videos

Kalb

Dakota Growing videos. Seventeen videos were published through our Dakota Garden Expo and my collaboration with Dakota Media Access:
- Growing Tomatoes in North Dakota (presented by this educator)
- Getting Started with Square-Foot Gardening (presented by this educator)
- Cool Fruits for a Cold Climate (presented by this educator)
- Starting Seeds in Soil Cubes
- The Science Behind Home Remedies
- Create Your Own Little World
- Selecting for Nutrition in Our No-Till Garden
- Growing Annuals in Containers & Gardens
- Underutilized Evergreens
- How to Calibrate a Backyard Sprayer
- How to Hand-Pollinate Corn
- Weed Control in Lawns
- Pruning Shrubs for Fruit & Beauty
- Fun (and Cheap) Plant Projects for You and Your Kids
- NPSAS/NDSU Vegetable Variety Trials
- Navigating Gardening with Pinterest: Successes and Failures

These videos were broadcast locally on the Dakota Growing show on local cable television throughout the year. The videos were downloaded on demand at http://www.dakotamediaaccess.org/dakota-growing/. The Production Manager of Dakota Media Access states that our videos are the most popular videos on their television station and on their website.

Spring Fever Garden Forums videos. Fourteen videos were published through our Spring Fever Garden Forums and my collaboration with NDSU Ag Communications:
- Update on Japanese Beetle (presented by this educator)
- The Sweet Side of Honeyberries
- Evergreen Trees for North Dakota
- Pollinators of North Dakota
- Diagnosing Plant Problems
- Will You Dig These 2015 Flower and Garden Trends?
- How to Grow Large Onions
- Pruning Shrubs
- Update on Emerald Ash Borer
- Update on Spotted Wing Drosophila
- Edible Landscapes: Gardening Outside the Box
- Herb It Up!
- Stop Turf Problems Before They Start
- Woody Plant Diversity

These videos were posted online and viewed by over 1,100 persons during 2015.

Schwarz

Available to members of the North American Maltsters Guild http://www.craftmalting.com/video-library/
- Deoxynivalenol webinar (recorded October 2015, 1 hour:37 min)
- Malting 101 (recorded January 2015)
- Understanding the Maillard Reaction (recorded January 2015, 29 min)

11. Intellectual Property

Helms

Intellectual property PVP for ‘ND1406H’ and PVP for ‘ND Henson’ soybean varieties

Osorno

PVP # 201500067. Field bean. Talon dark red kidney bean.
PVP # 201500066. Field bean. Rosie light red kidney bean.
**Thompson**
PVP Certificate 201300675 issued 2015 for Dakota Russet.

**West**
Two Horticulture Disclosure Forms were approved for new cultivar release in 2015.
- Lavaburst™ Ohio Buckeye – *Aesculus glabra* ‘LavaDak’
- September Flare™ Sugar Maple – *Acer saccharum* ‘SeptDak’
Both trademark names are being reviewed by the US Patent and Trademark Office. Both plants have been undergoing extensive propagation trials and distribution to commercial nurseries for commercial evaluation and propagation.

**III. Awards**

**Berti**
CHS International study abroad grant. Grant to fund part of the cost of the students traveling abroad in 2015 in the course PLSC379/PLSC779. July 2015, $10,000. Provost’s Travel Grant Award to attend the 23rd European Biomass Conference, 1-6 June 2015, Vienna, Austria. $1000

**Carena**
Nominated for the Dale Hogoboom and Jordan A. Engberg Presidential Professorships.

**Christoffers**
NDSU Academic Advising Award for 2015.

**Kalb**
Nominated for AGSCO Excellence in Extension Award.
Nominated for NDSU Extension Service Excellence in Extension Team Award (Spring Fever Garden Forums).

**Lee**
Received the Open Door Award, the NDSU Ag Week Inaugural Banquet, April 17, 2015.

**Manthey**

**Osorno**
November 4, 2015: Distinguished Achievement Award. Bean Improvement Cooperative (BIC).

**Peters**

**Robinson**
Spudman Emerging Leader Award (1st academic awarded)
2015 Extension and Education Committee Award for Newsletter, Agronomy Society of America.

**Simsek**
Khalid, K.H., Simsek, S. 2015. Milling of whole wheat flour. NC213 Grain Quality Annual Meeting. Kansas City, MO. *People’s Choice Award for Best Poster Competition*. Ms. Khalid is PhD student in Dr. Simsek’s program
Lindgren, A., Simsek, S. 2015. Solvent retention capacity of wheat flour milling fractions. ASABE Intersectional Meeting. Fargo, ND. *Second place winner of “best poster competition”*. Ms. Lindgren is MS student in Dr. Simsek’s program.
Malalgoda, M., Ohm, J.B., Meinhardt, S., Simsek, S. 2015. Spring wheat gliadins: have they changed in 100 years? AACC International Meeting. Minneapolis, Minnesota. *First placed winner of the “AACC-I 2015 Best Student Research Paper Competition”. M. Malalgoda is MS degree student in Dr. Simsek’s program.

**West**
Nominated for the NDSU Odney Excellence in Teaching for 2014-2015. I was not chosen as the final recipient of this award for 2015.

**Zollinger**
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Investigator(s)</th>
<th>Funding Agency</th>
<th>Start Date</th>
<th>End Date</th>
<th>Amount Requested</th>
<th>Amount Awarded</th>
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<td>Minor Crop Pest Management Program Interregional Research Project # 4</td>
<td>Ciernia, Mark</td>
<td>USDA/NIFA/Michigan State University</td>
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<td>Introduction of Raspberry Cultivars for Small Fruit Production in North Dakota</td>
<td>Dai, Wenhao</td>
<td>SBARE - New and Emerging Crops</td>
<td>4/25/2015</td>
<td>6/30/2016</td>
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<td>Field Evaluation of Introduced Raspberry Cultivars for Small Fruit Production in North Dakota</td>
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<td>Identify Molecular Markers Associated with a Low Cadmium Uptake Gene(s) in Durum Wheat (Triticum turgidum L. var. durum)</td>
<td>Elias, E.</td>
<td>ND Crop Improvement Association</td>
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<td>Identify and Develop Durum Wheat Resistant to Fusarium Head Blight</td>
<td>Elias, E.</td>
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<td>Expand Durum Breeding Project</td>
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<td>ND Wheat Commission</td>
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<td>Developing Durum Wheat Germplasm with Low Cadmium Uptake</td>
<td>Elias, E.</td>
<td>ND Wheat Commission</td>
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<td>Use of Throughput genotyping systems to detect markers associated with agronomic traits in durum wheat</td>
<td>Elias, E., Shiaoman Chao</td>
<td>USDA/ARS</td>
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<td>Tillage and AMF Inoculant Impacts on Organic Vegetable Production in the Upper Midwest</td>
<td>Gramig, G., Carr, P.</td>
<td>The Ceres Trust</td>
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<td>Targeted Grazing to Reduce Tillage in Organic Dryland Systems</td>
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<td>Pulse Quality and Utilization Core Research Support</td>
<td>Hall, C.</td>
<td>Northern Pulse Growers Association</td>
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<td>Optimization of Pasteurization Conditions for Flaxseed Quality and Safety</td>
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<td>Heartland Flax</td>
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<td>Breeding for Increase ALA in Flax</td>
<td>Hammond, J.</td>
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<td>Northern Grapes: Integrating Viticulture, Winemaking</td>
<td>Hatterman, H.</td>
<td>Cornell University</td>
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<td>Weed Control in Juneberry: Evaluating Fall Versus Spring Applications</td>
<td>Hatterman-Valenti, H.</td>
<td>Crop Protection Production Harmonization &amp; Reg. Board</td>
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<td>Evaluating Overwintering Systems for Floricane Blackberries in North Dakota</td>
<td>Hatterman-Valenti, H.</td>
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<td>Defining Glyphosate and Dicamba Drift Thresholds in Dry Beans, Field Peas, and Potatoes</td>
<td>Ostlie, M., Endres, G., Zollinger, R., Robinson, A., Hatterman-Valenti, H., Jenks, B.</td>
<td>ND Specialty Crop Block Grant</td>
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<td>Phase I/II Germplasm Evaluation of Cold-Hardy Winegrape Accessions and Cultivar Management Research in ND</td>
<td>Hatterman-Valenti, H., Shetty, K.</td>
<td>ND Dept of Ag/Grape and Wine Research Grant</td>
<td>11/1/2015</td>
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<td>Helms, Ted</td>
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<td>Visual Ratings for Iron-Deficiency Chlorosis</td>
<td>Helms, T.</td>
<td>ND Soybean Council</td>
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<td>Breeding of Glyphosate-Resistant Soybean Cultivars</td>
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<td>Increasing Awareness of Soybean Cyst Nematode in ND: 2015</td>
<td>Markell, S., Helms, T.</td>
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<td>Developing 6- and 2-rowed malting barley cultivars with enhanced FHB resistance and reduced DON accumulation</td>
<td>Horsley, R.</td>
<td>USDA-ARS/USWBSI</td>
<td>5/3/2015</td>
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<td>Development of Two-Rowed Malting Barley Cultivars</td>
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<td>Breeding and Genetics of Six- and Two-Rowed Malting Barley</td>
<td>Horsley, R.</td>
<td>American Malting Barley Association</td>
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<td>Developing Specialty Spring Wheat Germplasm/Cultivars with Insect Resistance and Adapted to ND</td>
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<td>White and Specialty Spring Wheat Breeding Technician</td>
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<td>Teboh, J., Ransom, J., Cihacek, L.</td>
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**Rahman, M.**

**Ransom, Joel**

**Robinson, Andrew**
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<td>Defining Glyphosate and Dicamba Drift Thresholds in Dry Beans, Field Peas, and Potatoes</td>
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Total Amount: $6,799,407.21