the PULSE

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Root Rot Management in Field Peas

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Updated recommendations for improving the yield and profitability of field peas under root rot pressure

Collaborative field pea disease management research conducted by the Carrington, Hettinger and Williston research centers from 2014-2022 suggests that it may be possible to achieve commercially acceptable field pea yields under significant root rot pressure through the combined use of early planting, fungicide seed treatment, and a six-year crop rotation.

Planting field peas early conferred average yield gains of 4 to 8 bushels/acre across multi-year, multi-location studies conducted in fields with significant Aphanomyces and Fusarium root rot pressure. In planting date studies conducted from 2017-2020 at Carrington and on-farm sites in west-central and northwestern North Dakota, root rot severity (assessed at mid-vegetative growth) increased sharply with delays in planting. Root rot severity was minimized when peas were planted into soils that averaged (across day and night) less than 50°F at seeding depth (2 inches) in the 7 days after planting. Emergence suffered in very cold soils, and yield was maximized at soil temperatures of 45 to 50°F (average, across day and night, at a 2-inch depth over the first 7 days after planting). Planting within these target soil temperatures is possible with knowledge of current daytime and night time temperatures combined with the current 7 to 10-day forecast.

Use of a fungicide seed treatment conferred average gains of 4 to 6 bushels/acre in early-planted peas across multi-year, multi-location studies conducted in fields with significant Aphanomyces and Fusarium root rot pressure. Strong, consistent gains from fungicide seed treatment were observed when soil temperatures averaged less than 55°F (average, day and night, at a 2-inch depth) over the first 7 days after planting, and seed treatments mitigated the emergence problems associated with planting into very cold soils (<45°F).

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Executive Director Message

By: Shannon Berndt

I am sure many of you have been getting equipment (and yourselves) prepared for the field. Given the first day of Spring is officially Monday (March 20), you certainly wouldn't know that by checking the temp or for that matter looking out the window. Many I know are thankful for the precipitation as we head into another crop year, unfortunately the late heavy snows have presented challenges for others including our livestock producers.

The past several months has been filled with activities, events and meetings. As we all know, winter is the best time of year to catch producers with a bit of "extra time" as long as Mother Nature cooperates. We wrapped up Convention, the annual research review and participation in the annual Washington DC mission hosted by the USA Dry Pea & Lentil Council. In addition, NPGA representatives have had a seat at the table for Farm Bill roundtable discussions in the region with fellow commodities. I appreciate the folks that take time out from their operations to participate.

Sometimes things don't go quite as we have planned and due to a family emergency, I missed the NPGA Convention this year. It is times like these that we are reminded how fortunate we are to be surrounded by a strong, supportive community. It has been exciting to hear all the great comments regarding the changes that were made and the quality of speakers/content at Convention. We appreciate any feedback and input that you may have regarding venue, speakers, topics, etc. Please be sure to watch for surveys to gather this important info to help us plan for future. I want to thank Erin, the NPGA Board and her parents for knocking the Convention out of the park as it sounds like it was a great event! If you have not had a chance to check out the updates from Convention, etc. I would encourage you to check out the last e-news edition of the Pulse News posted on our website.

Please be sure to follow us on social media and the website to get the latest scoop on what's happening in the industry. We have dedicated teams of researchers working on the latest challenges and providing educational resources for producers to have a successful crop year. On the marketing side, pulses continue to play a significant role in protein-based markets. With agronomic benefits such as nitrogen fixing, improved soil health and potential yield increases to subsequent crops, pulses provide opportunities for farming operations beyond just good prices. Our industry is fortunate to have marketing experts located around the world to continue to promote the quality of U.S. grown pulse crops.

As we head into the next few months, the staff is busy planning for our next year of activities and programs. We will be presenting our proposals to our stakeholders, the Montana Pulse Crop Committee and the ND Dry Pea & Lentil Council for the fiscal year 2023.24. We look forward to our continued partnerships and building new collaborations!

Hoping you all have a safe & prosperous Spring!

NPGA Website Resources for Planting Pulses

Did you know the NPGA website has an entire section dedicated to producer resources? Whether you are a new pulse producers, or just looking to brush up on your pulse production practices, he have resources for you! Scan the QR Codes below for easy access!

Production Guides

Harvest Tips

Buyer/ Supplier Quicklist

Podcasts

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Root Rot Management in Field Peas Continued...

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Dark-brown necrosis of the epicotyl and upper tap root characteristic of severe Fusarium root rot.

Multiple fungicide seed treatments representing all major manufacturers were tested, and all products tested that contained active ingredients with efficacy against Pythium and Rhizoctonia performed similarly. Laboratory testing for Aphanomyces and Fusarium confirmed the contribution of these pathogens to root rot symptoms observed in these studies at mid-vegetative growth. Testing was not conducted for Pythium or Rhizoctonia, but the strong response to seed treatment observed when soils were cool suggests that both of these pathogens may be contributing to root rot complex in problem fields.

In the seventh year of a long-term crop rotation study conducted in a field with severe Aphanomyces and Fusarium root rot pressure in Carrington, commercially acceptable field pea yields (49 bu/ac) were obtained when a six-year rotation was combined with fungicide seed treatment and early planting (45-50°F average soil temperatures in the 7 days after planting). Peas were planted just as the first producers in the area were beginning to plant wheat. The six-year rotation (five years out of peas) conferred a 9-bushel yield gain versus a 3-year rotation (pea / wheat / wheat), and the six-year rotation conferred a 11-bushel yield gain versus a 2-year rotation (pea / wheat). Crop rotation was critical for achieving satisfactory yields but insufficient as a stand-alone management tool. In the same study, peas in the six-year rotation yielded 44 bu/ac without fungicide seed treatment. If planting had been delayed 7-10 days until wheat planting was mostly finished, yields would likely have been 35-40 bu/ac with the same rotation.

In the same crop rotation study, a four-year crop rotation (pea/wheat/wheat/wheat, pea/wheat/canola/wheat, or pea/wheat/flax/wheat) did not confer commercially acceptable field pea yields. With fungicide seed treatment, field pea yields averaged 25 bu/ac across three different four-year rotations in 2022 and 37 bu/ac across two different four-year rotations in 2020. However, planting was conducted into relatively warm soils both years. Average soil temperature was approx. 56°F in 2022 and 50.5°F in 2018 (average at 2-inch depth, day and night over the 7 days after planting, estimated from the NDAWN station located 2,000 feet away). Yields would likely have been much higher with earlier planting.

A PDF with user-friendly slides illustrating major results from these studies is available on the NDSU Carrington Research Extension Center website. Search for 'NDSU Carrington Plant Pathology' or navigate to https://www.ndsu.edu/agriculture/ag-hub/research-extension-centers-recs/carrington-rec/research/plant-pathology.

Follow-up research is planned to determine the frequency with which commercially acceptable field pea yields can be achieved relative to crop rotation interval, soil temperature, and use of a fungicide seed treatment. Testing is planned for 12 fields in Carrington and Williston with root rot problems stemming from a long history of field pea and lentil production: 3 fields with a relatively tight rotation (2 years out of peas or lentils), 3 fields with a moderate rotation (3 years out of peas or lentils), and 6 fields with a long rotation (6 or more years out of peas or lentils). Testing will be conducted with and without fungicide seed treatment at four planting dates approximately a week apart, with the first seeding conducted as soon as wheat planting begins in the area and with one date corresponding to a target 45-50°F soil temperature.

Yellow-brown discoloration of the epicotyl and roots characteristic of severe Aphanomyces root rot.

This research was a collaborative effort of Michael Wunsch (plant pathologist, Carrington), Audrey Kalil (plant pathologist, Williston), and John Rickertsen (agronomist, Hettinger) and their staff. The research was made possible by grants from the Northern Pulse Growers Association, the ND Crop Protection Harmonization and Registration Board, and the USDA Specialty Crop Block Grant Program administered by the ND Department of

Ascochyta Blight Management in Chickpeas

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Updated recommendations for improving the yield and profitability of chickpeas under Ascochyta blight pressure.

Reports received from crop advisors and chickpea growers in 2022 have confirmed the effectiveness of using Bravo WeatherStik and generics as tank-mix partners for the management of Ascochyta blight of chickpeas. Collaborative research conducted by the Carrington and Williston research centers since 2015 has shown sharp, consistent improvements in Ascochyta management and chickpea yield by using Bravo WS as a tank-mix partner with traditional fungicides, particularly Proline. Ascochyta blight was elevated in much of Western North Dakota and South Dakota in 2022, and producers utilizing this tank-mix reported excellent Ascochyta management.

Tank-mixing Bravo WS with Proline has sharply improved chickpea yields across all levels of disease pressure in field studies. Proline is registered for use at 5.0-5.7 fl oz/ac and Bravo WS is registered at 1.38-2.0 pt/ac. In field studies, the tank-mix was optimized when Proline was applied at 5.7 fl oz/ac and Bravo WS was applied at 1.38 pt/ac. Praiz and Equus 720, generic versions of Bravo WS, performed similarly to Bravo WS when tank-mixed with Proline. There was a trend of slightly reduced efficacy associated with the generic products, but differences were not statistically significant and are unlikely to be commercially relevant in most circumstances.

Other fungicides commonly used in chickpeas have also responded well to this tank-mix. Proyvsol appears to respond to tank-mixing with Bravo WS similarly to Proline, with the tank-mix conferring yield gains in chickpeas at low, medium and high Ascochyta pressure. Provysol (3 fl oz) plus Bravo WS (1.38 pt/ac) has performed similarly to Proline (5.7 fl oz) plus Bravo (1.38 pt) in field trials. Miravis Neo (13.7 fl oz), which is essentially a stand-alone SDHI (FRAC 7) fungicide given the limited activity of azoxystrobin and propiconazole against Ascochtya blight, has also responded well to tank-mixing with Bravo WS. Testing with Miravis NEO has been more limited, and follow-up testing with this fungicide is planned.

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Ascochyta blight of chickpeas

Chickpea pod exhibiting symptoms of Ascochyta blight

Ascochyta blight of chickpeas

Ascochyta Blight Management in Chickpeas Continued….

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Chickpea producers should be advised that Priaxor (4 fl oz) has not shown efficacy against Ascochtya blight in field trials in Carrington in 2020, 2021, or 2022 when applied alone without a tank-mix partner. In previous testing (2011-2019), Priaxor conferred similar Ascochyta blight management as Proline except under very high disease pressure. It is currently unclear whether the Ascochyta pathogen of chickpeas has developed resistance to fluxapyroxad, the SDHI (FRAC 7) ingredient in Priaxor. When Priaxor (4 fl oz) has been tank-mixed with Bravo WS (1.38 pt), satisfactory Ascochyta blight management has still been achieved, although this tank-mix has not performed as well as Proline (5.7 fl oz) + Bravo WS (1.38 pt).

Fungicide efficacy testing results for Ascochyta blight of chickpeas are available at the NDSU Carrington Research Extension Center website. Search for 'NDSU Carrington Plant Pathology' or navigate to https://www.ndsu.edu/agriculture/ag-hub/research-extension-centers-recs/carrington-rec/research/plant-pathology.

This research was a collaborative effort of Michael Wunsch (plant pathologist, Carrington), Audrey Kalil (plant pathologist, Williston), and John Rickertsen (agronomist, Hettinger) and their staff. The research was made possible by grants from the Northern Pulse Growers Association, the ND Crop Protection Harmonization and Registration Board, and the USDA Specialty Crop Block Grant Program administered by the ND Department of Agriculture.

Montana Grain Growers Association Welcomes Grant-Funded Executive Directors for Montana Pulse Crop Committee

The Montana Grain Growers Association (MGGA) applied and received a grant from the Montana Pulse Crop Committee and recently hired Liz Edmundson, of Cascade, to serve as the executive director to the Montana Pulse Crop Committee (MPCC).

Over the years, MGGA has realized the necessity and value to collaborate with other commodities beyond wheat and barley. MGGA is proud to hire an executive director to address pulse industry needs and improve the return on investment for Montana's farmers. The intent of hiring an executive is to identify an individual to serve the pulse committee who would be able to invest in and deliver support to the committee with marketing, research, education, and policy development.

MGGA Executive Vice President, Alison Vergeront applauds the selection of Liz Edmundson to serve as the Executive Director of MPCC. "We welcome Liz and look forward to working with her to support and ensure the success of the committee and the pulse growers." Vergeront said. "The work Liz does will ultimately help all the farmers in Montana who raise wheat, barley and pulse crops"

"Thank you to Alison and the MGGA crew for making the transition into a new position so seamless and welcoming." Liz Edmundson stated. "I am thrilled to be stepping into a supporting role for the Montana Pulse Crop Committee and I look forward to working with a team that puts the success of the Montana farmer (pulse producer) at the core of its decisions."

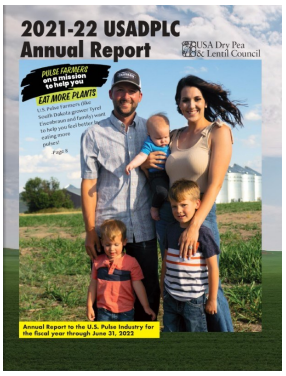
The MPCC is a Governor appointed board made up of 5 Montana pulse crop producers who oversee the collection and distribution of 1% of the net receipts of all pulse crops grown in Montana. The MPCC mission is to; invest in and deliver support for marketing, research, education, and policy development programming that improves return on investment for the pulse producers of Montana.

What We've Been Up To!

Below is a brief highlight of the NPGA programs, activities and representation around the region from the end of February - mid-March

- Brainstormed our 23/24 Budget proposals
- Attended and sponsored the virtual North Dakota Academy of Nutrition and Dietetics Annual Symposium - March 7-8
- Announced annual research funding awards
- Participated in all USADPLC Board & Committee Meetings.
- Presented the 23/24 Budget Proposal to the Montana Pulse Crop Committee on March 20th
- Exhibited at the MT Capitol Ag Day on March 21 in Helena, MT
- Exhibited at the ND Capitol Ag Day on March 21 in Bismarck, ND

2021/22 USA Dry Pea & Lentil Council Annual Report Now Available



USA Dry Pea & Lentil Council

Penny For Your Thoughts...?

Your voice and opinions matter to us! Please take 4-5 minutes to take part in our annual member survey. This will give us insight into what YOU would like to see from the NPGA, and will also help tremendously when planning future events. Scan the QR code above, OR type this address into your web browser to take part:

https://www.surveymonkey.com/r/F3KG9NR

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"Northern Pulse Growers Association"

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Working for the Producer!

Join Today!

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1 **Advocacy**

The NPGA advocates for the regions pulse producers and industry representatives through our Crongressional representatives, agency officals and Government entities.

2 **Research**

NPGA strives to work with NDSU, MSU, NCI, and other entities who provide cutting edge research on breeding/genetics, weed/disease issues, pest management, and value added opportunities.

3 **Producer Education**

Providing producers with resources to manage agronomic issues, technology tools, and updates on markets are just a few of the strategies NPGA employs for the continued success of the regions pulse industry.

4 **Promotion**

NPGA continues to work closely with youth programs, nutrition/health advocates, and food industry stakeholders to distribute information on the use and health benefits of pulses!

5 **Collaboration**

The NPGA invests in collaborations with many of our neighbors in the ag industry and works to promote positive messaging. It is more important than ever that as an ag industry we work together to ensure success for future generations!