



DATE: January 19, 2021
TO: Variety Release Committee
FROM: Mike Giroux, Chair
RE: 2021 Variety Release Minutes and Committees
Chair: Mike Giroux, Department Head PSPP
Secretary: Andy Hogg, Research Associate, PSPP

Present wheat variety release committee members:

Phil Bruckner, Jason Cook, Deanna Nash, Alan Dyer, Doug Holen, Heather Unverzagt, Perry Miller, David Weaver, Peggy Lamb, Patrick Carr, Chengci Chen, Ken Kephart

Absent Committee Members:

Ed Davis, Justin Vetch, Jessica Torrion, Marc Vogel, Mike O'Hara

Others present:

Daniel Juliano, Cassidy Marn, Darrin Boss, Darin Oelkers, Frankie Crutcher, Harvey TeSlaa, Hwa-Young Heo, Jamie Sherman, Jed Eberly, Mary Burrows, Nancy Blake, Ron Brown, Ryan Bogar, Ryan Holt, Sam Anderson, Sreekala Bajwa, Zacchary Coccoli

Agenda for 2021 Variety Release Meeting

Following is the agenda for the 2021 Variety Release meeting to be held on **Tuesday, January 19, 2021 at 1:00 pm in 108 Plant BioScience Building.**

1. Approval of the Minutes of the 2020 meeting.
2. Discuss and vote on the following:

Proposal for protected MAES public cultivar release of MT1716 from Jason Cook, Hwa-Young Heo and Philip Bruckner, Spring Wheat Breeders, Submitted Jan. 4th, 2021.

<https://plantsciences.montana.edu/foundationseed/varietyrelease/2021.html>

Crop Science

Entomology

Horticulture

Plant Biology

Plant Genetics

Plant Pathology

Mike Giroux
Department Head and Professor

Department of Plant Sciences and Plant Pathology
College of Agriculture
119 Plant BioScience Building
PO Box 173150
Montana State University
Bozeman, MT 59717-3150

Telephone: 406-994-7877
Fax: 406-994-7600

Wheat Variety Release Committee		
<i>Voting Members, 16</i>	<i>Title / Expertise</i>	<i>Appointing Administrator</i>
1. Phil Bruckner	Professor / Winter Wheat Breeding	PSPP Department Head
1. Jason Cook	Assistant Research Professor / Spring Wheat Breeding	PSPP Department Head
2. Deanna Nash	Manager of the Cereal Quality Lab / Cereal Quality	PSPP Department Head
3. Alan Dyer	Professor / Plant Pathology	PSPP Department Head
4. Doug Holen	Manager of the Foundation Seed Program / Varietal Development	MT Foundation Seed Board
5. Heather Unverzagt	Exec. Director of the Montana Seed Growers / Foundation Seed and Seed Quality	MT Seed Growers Association Board
6. Ed Davis	Agricultural Specialist / Cropland Weed Research	LRES Department Head
7. Perry Miller	Professor / Cropping Systems	LRES Department Head
8. David Weaver	Professor / Entomology	LRES Department Head
9. Peggy Lamb	Research Scientist NARC / Variety Testing	Research Center Department Head
10. Patrick Carr	Associate Professor and Superintendent CARC / Cropping Systems	Research Center Department Head
11. Justin Vetch	Assistant Professor and Superintendent WTARC/ Cropping Systems	Research Center Department Head
12. Jessica Torrion	Assistant Professor and Superintendent NWARC / Crop Physiology	Research Center Department Head
13. Chengci Chen	Professor and Superintendent EARC / Cropping Systems	Research Center Department Head
14. Ken Kephart	Associate Professor and Superintendent SARC / Agronomist	Research Center Department Head
15. Marc Vogel	Chair MAES Advisory Council	MAES Advisory Board
16. Mike O'Hara	Montana Wheat and Barley Director, Representing Teton & Chouteau County	Montana Wheat and Barley Committee
Ex-officio Daniel Juliano	Associate Director of Technology Licensing / MSU Technology Transfer	V.P. for Research and Economic Development

1. Approval of the Minutes of the 2020 meeting.

- Phil Bruckner motioned to pass 2020 minutes. Doug Holen seconded and the minutes were passed unanimously.
- Proceed to presentation from Jason Cook on the proposed release of MT1716.

2. Wheat Committee

- **Jason Cook provided background information on the pedigree of MT1716 and on Fusarium head blight disease (FHB). Major benefits of MT1716 are that it has good to moderate FHB resistance and high yield in dryland production.**
- MT1716 comes from the cross MT1274 x RB07 (Minnesota, 2007). MT1274 has the pedigree Vida/Clear White. RB07 is the source of FHB resistance in MT1716. Interestingly, the mechanism and/or genes conferring FHB resistance in RB07 and MT1716 is unknown.
- Testing for FHB was done in Sidney, MT by Dr. Frankie Crutcher over three years (2018-2020). In each of the three years MT1716 had the lowest FHB severity, incidence, disease index, DON, and FDK compared to popular MSU varieties Vida, Lanning, Dagmar, and McNeal.
- Doug Holen asked what the Fusarium disease pressure was over these three years? Jason Cook said disease pressure was higher in 2019 compared to 2018 and 2020. However, he explained that the FHB testing was done using artificial inoculant and misting to encourage disease, it was not reliant on natural disease pressure.
- Mike Giroux asked if the FHB resistance gene, Fhb7 was in this variety? Jason Cook replied that it was not and that none of the known FHB resistance genes were present in the parent RB07 or MT1716 to his knowledge.
- Jason Cook presented yield data from 20 location-years, spanning 2018-2020. MT1716 had comparable yield to Vida and Dagmar, which were the highest yielders in the trials. MT1716 yielded significantly higher than SY-Ingmar and Corbin. SY-Ingmar is of note because it has FHB resistance and is the most widely grown FHB resistant line in the state.
- Data was presented on protein content from 20 location-years. MT1716 had average grain protein of 14.6% which was lower than SY-Ingmar and Dagmar, but higher than Vida. MT1716 grain protein falls within the range of currently grown varieties.
- Compared to SY-Ingmar it has a similar test weight (61.9 lb/bu). MT1716 has a heading date that is 3 days earlier than Vida and two days earlier than SY-Ingmar. MT1716 is hollow stemmed, semi-dwarf in height like currently grown lines and is considered to have the stay green trait.
- Off-station performance from 16 location-years was presented spanning 2018-2020 and included several additional lines such as SY-Soren, SY-Ingmar, and Brennan, all of which have some FHB resistance and are widely grown in MT. Regarding yield, MT1716 performed better than all the lines mentioned above. MT1716 had lower protein than these varieties but was comparable to other recent MSU releases. Heading date of MT1716 was again 2 days earlier than the lines mentioned.

- Mike Giroux asked if there were other disease ratings taken besides FHB? Jason Cook said they had fungal leaf spot ratings from Huntley for one year and that MT1716 potentially had good resistance to foliar fungal pathogens. Jason said that more data needed to be taken before making that determination. No other plant disease data was presented.
- Doug Holen asked about FHB ratings, and wondered what rating this variety would receive? Jason Cook said the FHB scale is 1-9, with 1 being totally resistant and 9 being totally susceptible. He mentioned that for FHB there is no true resistance, and no lines are rated as a 1 or 2. He thought that SY-Ingmar was rated a 3. Jason thought MT1716 might be rated as a 4. Jason said more data is needed before a concrete rating could be given.
- Data on end-use quality was presented from 7 location-years between 2018 and 2020. MT1716 had a high flour yield like Vida and SY-Ingmar and flour protein higher than Vida and Duclair but lower than SY-Ingmar. MT1716 had the lowest mixing tolerance of the lines tested at 1.3, SY-Ingmar had a mixing tolerance of 3.7. Interestingly, MT1716 had an average mixing time (4 min) that was higher than Vida (3 min) but lower than SY-Ingmar (4.6 min). MT1716 also had a longer bake mixing time (10.7 min) compared to Vida (6.1 min). MT1716 had a lower loaf volume (1163 cc) than SY-Ingmar (1231 cc) but higher than Vida (1133 cc).
- Mike Giroux asked why the mixing tolerance was so low while the mixing time was average to high, and if this was a rare occurrence?
- Cassidy Marn commented that she thought it was not typical and that a low mixing tolerance could be an area of concern. Over the last several years she noted that MWBC have received comments on how high grain proteins is not translating to high mixing tolerance. In the past it has been generally accepted that these two things are highly interrelated.
- Jason Cook acknowledged that the two possible drawbacks of MT1716 are the low mixing tolerance and that it is hollow stem.
- Heather Unverzagt asked if MT1716 was going to be recommended for just irrigated or dryland production? Jason said it would be recommended across the state but did particularly well in dryland. He did not have a lot of data on growing under irrigation. Heather then asked if Jason had prepared the plant variety description yet and if there were any known variants present? Jason replied that they had not started the description yet and that there likely were no common variants.
- Alan Dyer commented that in the FHB trials that the inclusion of more resistant controls would improve the testing, instead of just comparing them to mainly susceptible lines.
- Jason Cook agreed and then presented some FHB data from the regional scab nursery, which did include more resistant material. Data from the regional nursery showed MT1716 had moderate resistance to FHB.
- Doug Holen asked if there were any falling number issues? Jason Cook said on the limited data he had that the falling number was higher than that of Lanning on average from trials conducted in Havre. He did not see an immediate issue but would like to see more data before making that conclusion.

- Jason Cook motioned for release of MT1716 as public protected variety.
- David Weaver seconded the motion.
- There was no further discussion.
- Vote was taken and passed unanimously 11-0.
- Doug Holen mentioned that he had 5 bushels of MT1716 breeder seed that would be increased as foundation seed in 2021.
- Meeting was adjourned at 1:45 pm.

Attendance Detail

In Person:

1. Mike Giroux, MSU-PSPP
2. Andy Hogg, MSU-PSPP
3. Jason Cook, MSU-PSPP
4. Phil Bruckner, MSU-PSPP
5. Doug Holen, MSU-Foundation Seed
6. Heather Unverzagt, MSGA

By Webex:

7. Alan Dyer, MSU-PSPP
8. Cassidy Marn, MWBC
9. Chengci Chen, MSU-EARC
10. Daniel Juliano, MSU-TTO
11. Darin Boss, MSU-MAES
12. Darin Oelkers, MSU-TTO
13. David Gettel, MSU-MAES
14. David Weaver, MSU-LRES
15. Deanna Nash, MSU-PSPP
16. Frankie Crutcher, MSU-EARC
17. Harvey TeSlaa, MSU-PSPP
18. Hwa-young Heo, MSU-PSPP
19. Jamie Sherman, MSU-PSPP
20. Jed Eberly MSU-CARC
21. Ken Kephart, MSU-SARC
22. Mary Burrows, MSU-PSPP/COA
23. Nancy Blake, MSU-PSPP
24. Pat Carr, MSU-CARC
25. Peggy Lamb, MSU-NARC
26. Ron Brown, MSU-EARC
27. Ryan Bogar, Chair MT Pulse Crop Committee
28. Ryan Holt, Nutrien Ag
29. Sam Anderson, MWBC
30. Skreekala Bajwa, MSU-COA
31. Zachary Cocolli, MT Department of Agriculture