

Agenda for 2023 Variety Release Meeting

January 25, 2023 1-4:30 pm in 108 Plant Biosciences

1. Approval of the Minutes of the 2022 meeting.
2. Discuss and vote on motions
 - Proposal for licensed cultivar release of MT18148 spring durum wheat from Mike Giroux and Andy Hogg.
 - Proposal for protected MAES public cultivar release of MT1809 hard red spring wheat from Jason Cook and Hwa-Young Heo.
 - Proposal for protected MAES public cultivar release of MT1939 hard red spring wheat from Jason Cook and Hwa-Young Heo.
 - Proposal for protected MAES public cultivar release of MT17M02507 spring feed barley, “MT Boy Howdy”, from Greg Lutgen, Hannah Turner, Sarah Olivo, Traci Hoogland, Joseph Jensen, Jessica Williams, Trevor Palone and Jamie Sherman.
 - Proposal for protected MAES public cultivar release of MT18H02702, “MT Bounty”, spring dual-use barley from Greg Lutgen, Hannah Turner, Sarah Olivo, Traci Hoogland, Joseph Jensen, Jessica Williams, Trevor Palone and Jamie Sherman.
 - Proposal for protected MAES public cultivar release of MT16M02201 spring malting barley, “MT Endurance”, from Greg Lutgen, Hannah Turner, Sarah Olivo, Traci Hoogland, Joseph Jensen, Jessica Williams, Trevor Palone and Jamie Sherman.
 - Proposal for licensed cultivar release of MTCL19151 Clearfield hard red winter wheat from Sue Mondal and Jake Tracy.
 - Proposal for protected MAES public cultivar release of MTF20189 forage winter wheat from Sue Mondal and Jake Tracy. S
3. Discussion on breeder and foundation seed production led by Doug Holen.

Crop Science

Entomology

Horticulture

Plant Biology

Plant Genetics

Plant Pathology

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Present 10/16

Wheat Variety Release Committee			
<i>Present</i>	<i>Voting Members, 16</i>	<i>Title / Expertise</i>	<i>Appointing Administrator</i>
X	1. Sue Mondal/Jason Cook	Assistant Professor / Winter Wheat Breeding Assistant Professor / Spring Wheat Breeding	PSPP Department Head
	2. Deanna Nash	Manager of the Cereal Quality Lab / Cereal Quality	PSPP Department Head
X	3. Alan Dyer	Professor / Plant Pathology	PSPP Department Head
X	4. Doug Holen	Manager of the Foundation Seed Program / Varietal Development	MT Foundation Seed Board
X	5. Heather Unverzagt	Exec. Director of the Montana Seed Growers / Foundation Seed and Seed Quality	MT Seed Growers Association Board
	6. Fabian Menalled	Agricultural Specialist / Cropland Weed Research	LRES Department Head
	7. Perry Miller	Professor / Cropping Systems	LRES Department Head
X	8. David Weaver	Professor / Entomology	LRES Department Head
X	9. Peggy Lamb	Research Scientist NARC / Variety Testing	Research Center Department Head
X	10. Jed Eberly	Assistant Professor CARC / Cropping Systems	Research Center Department Head
X	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
X	13. Chengci Chen	Professor and Superintendent EARC / Cropping Systems	Research Center Department Head
X	14. Qasim Khan	Senior Research Scientist, SARC / Cropping Systems	Research Center Department Head
	15. Tryg Koch	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
X	Ex-officio Daniel Juliano	Associate Director of Technology Licensing / MSU Technology Transfer	V.P. for Research and Economic Development

Present 10/16

Barley Variety Release Committee			
<i>Present</i>	<i>Voting Members, 16</i>	<i>Title / Expertise</i>	<i>Appointing Administrator</i>
X	1. Sue Mondal/Jason Cook	Assistant Professor / Winter Wheat Breeding Assistant Professor / Spring Wheat Breeding	PSPP Department Head
	2. Deanna Nash	Manager of the Cereal Quality Lab / Cereal Quality	PSPP Department Head
X	3. Alan Dyer	Professor / Plant Pathology	PSPP Department Head
X	4. Doug Holen	Manager of the Foundation Seed Program / Varietal Development	MT Foundation Seed Board
X	5. Heather Unverzagt	Exec. Director of the Montana Seed Growers / Foundation Seed and Seed Quality	MT Seed Growers Association Board
	6. Fabian Menalled	Agricultural Specialist / Cropland Weed Research	LRES Department Head
	7. Perry Miller	Professor / Cropping Systems	LRES Department Head
X	8. David Weaver	Professor / Entomology	LRES Department Head
X	9. Peggy Lamb	Research Scientist NARC / Variety Testing	Research Center Department Head
X	10. Jed Eberly	Assistant Professor CARC / Cropping Systems	Research Center Department Head
X	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
X	13. Chengci Chen	Professor and Superintendent EARC / Cropping Systems	Research Center Department Head
X	14. Qasim Khan	Senior Research Scientist, SARC / Cropping Systems	Research Center Department Head
	15. Tryg Koch	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
X	Ex-officio Daniel Juliano	Associate Director of Technology Licensing / MSU Technology Transfer	V.P. for Research and Economic Development

2023 Variety Release Minutes January 25th, 2023

1. Approval of the 2022 Meeting Minutes

- Heather Unverzagt motioned to pass 2022 minutes.
- Doug Holen seconded.
- Motion passed unanimously, 10-0.

2. Discussion of Variety Release Motions

Wheat Committee

- Mike Giroux presented data for MTD18148 spring durum wheat.
- MTD18148 is a semi-dwarf spring durum wheat with early heading and excellent pasta quality traits
- It is yield competitive to Alzada in the North Central region with equal test weight and higher grain protein.
- Doug Holen asked about sawfly cutting/ Mike Giroux pointed out that 148 has low cutting but not as low as MT Raska.
- Peggy Lamb added that the shorter lines tend to have less cutting in general.
- David Weaver asked about falling numbers. Mike Giroux commented it had high falling numbers and that low numbers have not been observed.
- Mike Giroux talked about the high gluten index and high yellowness of MTD18148 semolina.
- MTD18148 is susceptible to Fusarium head blight like most lines tested, is resistant to stem rust, and moderately susceptible to stripe rust and fungal leaf spot.
- Mike Giroux asked the groups opinion if this line should be a private release or public release.
- Doug Holen mentioned he thought it would be better served as a private release.
- Daniel Juliano said his philosophy is to release even if not a private release so it can get a chance.
- Jamie Sherman asked if releasing as a private means more competition with public MSU varieties.
- Doug Holen thought there might be less competition as a private vs releasing as another public variety.
- Chengci Chen mentioned he thought it might not perform well in Eastern Montana and should be targeted towards North Central Montana.
- Linda Dykes mentioned MT18148 not only has a high gluten index like Alzada but higher wet gluten as well.
- Peggy Lamb asked if we could go back to recommending varieties on a district basis?
- Jamie Sherman suggested we mention the regions or growing conditions in the variety releases.
- The on whether to discuss a recommended list was tabled to finish discussing new variety releases.
- Mike Giroux motioned for release of MTD18148 spring durum wheat as a private licensed released variety with name TBD.

- Doug Holen seconded the motion.
- Motion passed unanimously, 10-0.

Barley Committee

- Jamie Sherman presented data on MT17M02507 spring feed barley, with proposed name 'MT Boy Howdy'.
 - MT17M02507 has a long grain fill period, high number of plumps, and smoother awns.
 - MT17M02507 has lower grain protein when grown under malting quality fertilizer management and has a lower test weight than check varieties.
 - Hockett and Haxby are the most widely grown feed barleys because they are multiple purpose.
 - Dave Gettel asked why grow this line over Haxby?
 - Jamie said it was because of the yield potential as it was the top yielding line in dryland over the regional nursery and Montana trials.
 - Sam Anderson asked if the lower protein content is a problem? Jamie Sherman replied yes but the data is limited to just this year. It is its biggest weakness.
 - Its quality is not good for malting due to high beta glucans.
 - Doug Holen pointed out that we currently get no royalties from Hockett and Haxby so if we can release a replacement that has PVP we should.
 - Jamie Sherman asked about the suitability of the name? Nobody made a comment.
 - Jamie Sherman motioned to release MT17M02507 as a public protected variety with the proposed name 'MT Boy Howdy'.
 - David Weaver seconded the motion.
 - Motion passed unanimously, 10-0.
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- Jamie Sherman presented data on MT18H02702 with the proposed name 'MT Bounty'.
 - MT18H02702 is a high performing human food/feed line, early heading, tall, smooth awns, high grain protein, high beta glucans and high plumps.
 - Has white hullless seeds targeted towards Asian food market.
 - Might not produce carcinogenic molecule during malting (that comes from hulled barley). This would be a poor malting line due to high protein and beta glucans. Could be a niche market maybe as laws in Europe regulate the amount of this carcinogen but not in the U.S.
 - Jamie Sherman wondered if segregating this hullless barley would be an issue for getting the line grown?
 - Sam Anderson mentioned that the Japanese were interesting in having a MT food barley even though the market is very small.
 - Releasing as a public variety might not be good because it is such a small market and growers might not be able to sell it.
 - Foundation Seed and MWBC are supportive of a private licensed release.
 - Daniel Juliano brought up that it could be licensed to multiple entities.
 - Heather Unverzagt asked if this line threshes out completely hullless because partially hulled barley has been an issue for producers in the past? This should be noted in PVP release.
 - Emergence has also been an issue in the past with waxy hullless barleys.
 - Jamie Sherman mentioned that she thought it had good emergence compared to other waxy

lines.

- It was suggested by most to move forward as private non-exclusive release.
 - Jamie Sherman motioned to table the submission of this line until she can gather more data on the threshability and emergence so it can be noted in a release.
 - Doug Holen seconded it.
 - Motion passed unanimously, 11-0.
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- Jamie Sherman presented data on MT16M02201 spring malting barley, with the proposed name 'MT Endurance'.
 - MT16M02201 is high yielding in dryland conditions, has low grain protein, earlier heading and long grain fill due to stay green with high plumps.
 - Jamie Sherman mentioned that there is interest in the industry to have more acres produced on 'sustainable' rainfed acres.
 - MT16M02201 has a slightly higher protein than Buzz but a lower test weight. MT16M02201 has the highest malting extracts of any line tested.
 - MT16M02201 weakness is when grown under irrigated conditions the beta glucan content can get higher than maltsters like. Jamie Sherman noted that this should be conveyed to the growers too they don't grow it under irrigation.
 - The high extract percent was very stable across environments even during drought conditions.
 - Had better standability than Hocket though will lodge under heavy rain conditions.
 - Sam Anderson asked if this was a replacement for Buzz?
 - Jamie Sherman said no because it was intended for dryland production and not irrigated whereas Buzz does well under both. Would be more a replacement for Hockett.
 - Jamie motioned that we release MT16M02201 as a public protected variety with the name 'MT Endurance' because of its performance in dryland conditions.
 - Doug Holen seconded the motion.
 - Motion passed unanimously, 11-0.

Wheat Committee

- Jason Cook presented data on MT1809 hard red spring wheat and MT1939 at the same time.
- MT1939 has some winter wheat genes from having Yellowstone in its pedigree but is spring habit.
- Over 24 location years across dryland these two lines were the highest yielding lines with yield higher or equal to Dagmar. They were also the top yielding lines in the 2022 regional nursery which had drought conditions. Jason Cook though both might have a higher yield potential than Dagmar.
- Under all irrigated and rainfed location years (n=30) these two lines were the top two yielding lines.
- MT1809 has good/average protein and MT1939 has a little lower protein. Both are lower than Dagmar.
- Both have average heading and good test weights. Both lines are semi-solid with MT1939 being very solid like Choteau and MT1809 being less solid. Both however have 25% cutting in Havre. MT1809 experienced more cutting in Fort Benton than Dagmar but MT1939 had

more cutting in Havre. The high stem solidness in MT1939 didn't translate to less cutting later. Maybe it develops solidness at a different time points.

- Qasim Khan asked if it is misleading to call it a solid stem line because it displays moderate cutting. Jason Cook emphasized that's why we need to provide growers with cutting data so they know the whole story. Just calling it solid stem doesn't explain how it will perform in the field.
- Jason Cook suggested maybe giving a cutting scale of 1-9 so growers know what to expect and not just looking at solid stem scores.
- Dave Weaver agreed that the cutting data should be highlighted for growers but maybe not using a scale.
- MT1939 has slightly lower falling numbers more like Vida while MT1809 has a higher falling number than average.
- MT1809 has some tolerance to FHB like MT Sidney while MT1939 is more susceptible to Fusarium head blight.
- MT1809 is resistant to tan spot but susceptible to Septoria while the opposite is true for MT1939.
- MT1939 has better lodging resistance than MT1809.
- Both lines are considered resistant to most races of stem rust including UG99.
- Both are susceptible to stripe rust.
- Both lines have a strong mixing tolerance, higher water absorption, and good flour protein content.
- Jason Cook mentioned that both are tolerant to moderately tolerant to aluminum toxicity and so would be varieties to hopefully replace Vida.
- Jason Cook thought that these two lines offered different things but were high yielding warranting releasing both.
- Doug Holen agreed he thinks these two lines have unique characteristics and are both good options.
- Jason Cook motioned to release MT1939 hard red spring wheat as a public protected variety with name TBD.
- Doug Holen seconded.
- Motion passed unanimously, 11-0.
- Jason Cook motioned to release MT1809 hard red spring wheat as a public protected variety with name TBD.
- Doug Holen and Dave Weaver seconded.
- Motion passed unanimously, 10-0.

- Sue Mondal presented data for MTCL19151 Clearfield hard red winter wheat.
- Every generation is sprayed with herbicide to ensure it has the proper resistance with the two resistance genes. The two years of data required for approval from BASF has been sent off but Sue hasn't heard back on the status yet.
- Across all locations and years this line had good yield potential and performed better than CL Brawl which is currently the most grown Clearfield line.
- MTCL19151 is hollow stemmed so it is susceptible to wheat stem sawfly.
- MTCL19151 has a very early heading date like CL Brawl but a later maturity than CL Brawl.
- MTCL19151 has good winter hardiness, good grain protein and is two inches shorter than

most MT lines at 26 inches.

- MTCL19151 is moderately resistant/susceptible to stripe rust.
 - Quality trials over three years and two locations this was the highest yielding line with no herbicide damage and has good test weight and grain protein.
 - MTCL19151 has low PPO, high water absorption, and excellent loaf volume. Has a long mixing time like Yellowstone.
 - MTCL19151 would be a good replacement for CL Brawl.
 - Sue Mondal motioned for release of MTCL19151 Clearfield hard red winter wheat as a licensed variety with name TBD.
 - Dave Weaver seconded the motion.
 - Motion passed unanimously, 10-0.
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- Sue Mondal presented data for MTF20189 hard red forage winter wheat.
 - MTF20189 has a higher yield than Willow creek and but is a little less than Ray.
 - Dry matter yield was like Willow Creek and higher than Ray.
 - It is earlier heading, has a tall plant height like Willow Creek, has excellent test weight. Even with tall plant height it had good resistance to lodging.
 - Its forage quality is like Ray and Willow Creek.
 - In seed yield trials, it had average yield with high test weight and high grain protein. Has similar good baking qualities to Ray.
 - Has good resistance to stripe rust. Is hollow stem so would be susceptible to sawfly.
 - Sue Mondal thinks it is an excellent replacement for Willow Creek because it yields significantly more and is earlier with good grain protein.
 - Sue Mondal motioned for release of MTF20189 hard red forage winter wheat as a public protected variety with name TBD.
 - Doug Holen seconded.
 - Motion passed unanimously, 10-0.

3. Discussion on breeder seed production.

- Doug Holen would like to make a requirement for 20 bushels of cereal grains breeder seed and 100 bushels of pulse breeder seed for the initial foundation increase. This would need to be done before coming to the variety release meeting. Doug says this is needed so he can have plenty of seed on hand if there is a lot of interest and people don't have to wait on it. He suggested people do increases in Arizona over the winter to accomplish this.
- Jamie Sherman had a concern about having the land or seed stock available to always make this happen, like in the case of the hulless barley.
- After discussion it was decided to leave the language as "should" instead of "required" to make room for certain exceptions.
- Peggy Lamb thinks we should have some recommendations for growers regarding growing areas and conditions. Maybe not have a preferred list but highlight somewhere where these lines should or should not be grown.
- Group agreed the breeders should/could add this information to their variety release as to where it performs best and worst but not necessarily a recommendation.
- The document will be edited to reflect these recommendations.

- Doug Holen motioned to adjourn meeting.
- Dave Weaver seconded.
- Motion passed unanimously, 10-0.
- Meeting adjourned.

Attendance

In Person:

1. Mike Giroux, MSU-PSPP
2. Andy Hogg, MSU-PSPP
3. Jason Cook, MSU-PSPP
4. Jamie Sherman, MSU-PSPP
5. Sue Mondal, MSU-PSPP
6. Sam Anderson, MWBC
7. Daniel Juliano, MSU-TTO
8. David Weaver, MSU-LRES
9. Doug Holen, MSU-Foundation Seed
10. Alan Dyer, MSU-PSPP
11. Peggy Lamb, MSU-NARC
12. Dave Gettel, MSU-COA
13. Phil Bruckner MSU-PSPP Professor Emeritus
14. Ron Ramsfield, MSU-PSPP
15. Ron Brown, MSU-EARC
16. Kevin McPhee, MSU-PSPP
17. Greg Lutgen, MSU-PSPP
18. Traci Hoogland, MSU-PSPP
19. Hannah Turner, MSU-PSPP
20. Jessica Williams, MSU-PSPP
21. Nancy Blake, MSU-PSPP
22. Hwa Young Heo, MSU-PSPP
23. Heather Unverzagt, Montana Seed Growers
24. BranDee Johnston, MSU-Foundation Seed
25. John McDonnell, Circle-S Seeds
26. Zach Thibault, Circle-S Seeds

By Webex:

27. Justin Vetch, MSU-WTARC
28. Chengci Chen, MSU-EARC
29. Jed Eberly MSU-CARC
30. Frankie Crutcher, MSU-EARC
31. Linda Dykes, USDA-ARS ND
32. Eleri Haney, MSU-NARC
33. Robert Brown, MSU-NARC
34. Ryan Holt, Nutrien Ag Solutions
35. Martin Hochholter, Meridian Seeds
36. Scott Christensen, Nutrien Ag Solutions
37. Rebecca Papke, Montana Seed Growers
38. Nida Shaikh, MSU-TTO