



DATE: February 23, 2016
TO: Variety Release and Recommendation Committee Members
FROM: John Sherwood, Chair
RE: 2016 Minutes and Committees
Chair: John Sherwood, Department Head PSPP
Secretary: Irene Decker, Administrative Assistant, PSPP

Crop Science

Entomology

Horticulture

Plant Biology

Plant Genetics

Plant Pathology

Present: Chengci Chen, Becky Garza, Ron Brown, Dave Gettel, Becky Mahurin, Ron Ueland, Ryan Weber, Craig Cook, Nancy Blake, Hwa-Young Heo, Bob Stougaard, Steve Grove, Mary Burrows, Heather Rimel, Jim Berg, John Miller, Andy Burkhardt, Megan Getz, Traci Hoogland, Darby Kammeraad, Mike Giroux, Jason Cok, Collin Watters, Bruce Myllymaki, Charlie Cahill, Leonard Schock, Pat Carr, Sherry Turner, Lola Raska, Christy Hagler, Alison Vergeront, Doug Holen, David Wichman, Hikmet Budak, Peggy Lamb, Ron Ramsfield, Jamie Sherman, Kent McVay, Qasim Khan, Charles Boyer, Deanna Nash, David Weaver, Phil Bruckner, Luther Talbert, and Lochiel Edwards. Fabian Menalled attended by phone.

Not in attendance: Monty Lesh and Perry Miller

Agenda

Following is the agenda for the 2016 Variety Release meeting to be held on Tuesday, February 23, at 1:00 pm in the Small Ballroom at the Grantree Inn. The wheat committee was the only committee that needed to meet this year.

1. Approval of the Minutes of the 2015 meeting.
2. Discuss and vote on motions submitted to the Wheat Committee.

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2016 Variety Release Committees

Wheat Variety Release Committee		
<i>Voting Members, 16</i>	<i>Affiliation</i>	<i>Appointing Administrator</i>
<i>Chair , John Sherwood</i>	<i>PSPP Head</i>	<i>Director MAES</i>
1. Phil Bruckner-spring 1. Luther Talbert-winter	Breeder	PSPP Head
2. Mike Giroux	Quality - Cereal or Forage	PSPP Head
3. Mary Burrows	Plant Pathologist	PSPP Head
4. Bill Grey	Manager	MT Foundation Seed Program
5. Heather Rimel	Manager	MT Seed Growers Association
6. Fabian Menalled	Weed Scientist	LRES Head
7. Perry Miller	Cropping systems	LRES Head
8. David Weaver	Entomologist	LRES Head
9. Peggy Lamb		NARC Superintendent
10. Dave Wichman		CARC Superintendent
11. Gadi Reddy		WTARC Superintendent
12. Bob Stougaard		NWARC Superintendent
13. Chengci Chen		EARC Superintendent
14. Ken Kephart		SARC Superintendent
15. Monte Lesh	Chair	MAES Advisory Board
16. Bruce Myllymaki		Montana Wheat and Barley Committee
Ex-officio Becky Mahurin	Dir. Technology Transfer	V.P. for Research, Creativity and Technology Transfer

Dean Charles Boyer, along with additional comments from Becky Mahurin, stated that changes can be expected in the Tech Transfer office in the near future; however, those changes will not go into effect until the next fiscal year.

John Sherwood introduced Heather Rimel (replacing Ron Larson) Doug Holen (replacing Bill Grey) and Hikmet Budak, the recently hired Plant Sciences Endowed Chair.

MOTIONS

Luther Talbert, Hwa-Young Heo, and Nancy Blake, MSU

Motion to recommend Egan for dryland production in District 1 and for irrigated production in District 5 where the orange wheat blossom midge is a problem as a public variety with PVP Title V protection.

J. Sherwood – read the motion.

L. Talbert – This cultivar was released two years ago and the decision regarding the specific districts that it should be recommended for was postponed until this year. Initially it was developed for District one which is the Flathead Valley because it had some nice characteristics for that area including orange wheat blossom midge resistance and stripe rust resistance and actually has had pretty good yield

potential in that area. From 2012 – 2015, Egan is the top yielding line in the nursery at Kalispell during that period. That is not that surprising, but if you go to the protein line, it also has the highest protein in that same time period which is something you will not see very often. A lot of the yield potential here is due to orange wheat blossom midge pressure and stripe rust pressure or both in those nurseries. That takes care of the district one recommendation for Egan.

B. Stougaard - In 2014 and 2015, we started treating the yield trial with insecticide and it still is yielding better and the protein is still phenomenally high.

L. Talbert – The orange wheat blossom midge has moved over the mountains from the Flathead Valley to the Western Triangle and Egan was tested there for several years. Do we want to recommend Egan for Western Triangle where orange wheat blossom midge is a problem?

B Stougaard - Initially the idea was to recommend for Dist. 1 but Pondera County has very high midge populations and it is getting well established in the eastern part of the state in the Plentywood area so we wondered if it could be recommended for other areas.

L. Talbert – John Miller and Julie Prewitt were nice enough to put together summary data from the Conrad station and all the off station nurseries from around there. The data I am showing is from the Conrad station for the last five year. You can see that Egan is not among top performers in terms of grain yield; its protein is still higher than everything else, but its grain yield tends to be in the bottom group. This is true for all of the state except for Flathead Valley. Should we recommend this variety for District 5 where orange wheat blossom is an issue?

J. Sherwood – You might mention the requirement that Egan be sold as a 'refuge in the bag' product.

L. Talbert – There is a concern that midge will become resistant to the resistance gene in Egan. Thus the requirement is that Egan has to be sold by seed dealers with a 10% refuge in the bag and 90% Egan to hopefully serve as a refuge to prevent this resistance development. This is the first year that Egan seed with refuge is actually being sold to growers. Is there a motion that it be recommended for District 5?

D. Weaver - How many nurseries have actually had high midge pressure in District 5?

L. Talbert – Only one.

D. Weaver – And we only want to use it when there is midge pressure; it doesn't do well if there isn't pressure.

J. Berg - Just like sawfly; sometimes solid stem varieties don't do that well when you don't have sawfly pressure.

L. Talbert – In dryland Montana, Egan does not do well. Is this sufficient information for us to make a recommendation for this area?

J. Sherwood – Motion to recommend Egan for dryland production in District 1 and for irrigated production in District 5 where the orange wheat blossom midge is a problem as a public variety with PVP Title V protection.

D Wichman - 2nd the motion

Vote: 12 for 0 against

Luther Talbert, Hwa-Young Heo, and Nancy Blake, MSU

Motion to license MT1173 to a BASF-approved entity partner for commercialization.

J. Sherwood - Motion to license MT1173 to a BASF-approved entity partner for commercialization. Obviously this variety has the Clearfield resistance gene.

D. Weaver – seconded the motion

L. Talbert - Table 1 is a history of this variety. This variety is a Clearfield variety which means it is resistant to the Beyond herbicides which is trait owned by BASF. It came from crossing the herbicides resistant genes with the variety Vida. We developed several Clearfield lines that were similar to Vida in terms of their other characteristics. For those of you who were on the committee, a couple of years ago, we proposed a line for release called MT1172 which was a Clearfield variety from the same cross that this variety came from. It was recommended by this committee that it be released. There was lots of discussion about gluten strength in MT1172 and based on that concern, we decided to not proceed even though this committee recommended release. I went to Asia and they were not as concerned about the strength of Montana varieties. It was less of an issue than what I thought but even with that we went back to the data and saw that MT1173 did not yield as much as MT1172, but it had a little higher protein and a little stronger gluten than MT1172. We decided that given the issue of gluten-strength, it would be better to go ahead with this second variety.

Table 3 - You can see that MT1173 is among the top yielding lines in the nursery; maybe not quite as good as Vida, but it is high yielding.

Table 7 shows cereal quality data from this line. Basically what we are trying to address is the gluten strength issue. What you can see for wheat protein in these nurseries is that MT1173 is about a half point higher than Vida. If you look at some of the measurements of strength, MT1173 tends to be a little higher than MT1172 and maybe even a little higher than Vida.

Table 8 – This is cereal quality data from the next year showing basically the same thing, that MT1173 is basically higher in protein and a little stronger than MT 1172 which was recommended two years ago. I thought it would be better to accept a slightly lower yield than MT1172 and release the one with a little higher gluten strength and higher protein.

J. Sherwood – Any questions or discussion

R. Weber – Is this a two gene Clearfield line? Was it treated with Beyond?

L. Talbert – Yes, it is two gene. It was not treated with Beyond in these trials, but it has been grown by Ed Davis and Fabian Menalled in the requisite number of BASF trials to confirm herbicide tolerance and it has been approved by BASF as a Clearfield variety.

J. Sherwood – Any questions or discussion?

M. Giroux – It looks like it was worth the wait.

L. Talbert – Do you have any comments Collin?

C. Watters – We received different messages from different people at different times. However, the trend is in the right direction. The foreign customers are looking for consistency and maintaining the high quality and high strength. The mixing tolerance may be a little low to be totally honest, but it is an improvement.

L. Talbert – If it does great it will get on 25,000 acres but it will never be a high acreage variety.

? – Is there any sawfly tolerance?

L. Talbert – No, it is basically hollow stem and it is not as tolerant as Vida to sawfly.

J. Sherwood – any other questions, comments. The Motion is to license MT1173 to a BASF-approved entity partner for commercialization.

Vote - 12 for, 0 opposed

Luther Talbert, Hwa-Young Heo, and Nancy Blake, MSU

Motion to release MT1316 hard red spring wheat as a public variety with PVP Title V protection.

J. Sherwood - Motion to release MT1316 hard red spring wheat as a public variety with PVP Title V protection.

L. Talbert - This relates to the question of lower gluten strength and the two most widely grown varieties in Montana right now are Vida and Reeder. Vida is actually a progeny of Reeder. Both lines are associated with higher yield but weaker gluten – on the lower end of what we want. MT1316 came from one of our typical lines, the Vida-Reeder types that we have on our program. A variety from NDSU called Glenn which has been adopted by the hard red spring wheat community as the quality standard that they compare everything to. This cross came from one of our Vida/Reeder types to Glenn. It was a selection from that program with the goal being to hopefully exceed the yield potential of Vida and then also to push the gluten strength up.

Table 1 – Shows grain yield over 14 sites in Montana and if you go to the very end, the mean of the 10 dryland sites is exactly the same as Vida. It is recommended for dryland sites, but it has also done perfectly well at the irrigated nurseries.

Table 2 – Shows the other agronomic characteristics averaged across all 14 sites. The column to pay attention to is the protein column. Protein was about 0.4 of a point higher than Vida. The solid stem score of 6.3, means hollow stem so it will not have any resistance to the wheat stem sawfly. Another thing to point out is plant height is 30.7 inches which is a little shorter than Vida, 0.7 of an inch. This may seem meaningless but that is not true. The variety Choteau which is maybe a little shorter than that - there are many people that think Choteau is too short and Vida is OK so it does matter. I would say that in a perfect world, I would wish that this variety were an inch taller.

Table 3 – This is just some more nursery data from the preliminary yield trial for three sites showing that this line has yield potential more or less equivalent to Vida.

Table 4 – In this particular set of nurseries, the grain protein level was about 0.7 of a point higher than Vida.

Table 5 – We had this line in our off station trials at 16 sites along with other widely grown varieties and MT1316 did very well. It a very nice looking variety. Its yield potential, especially in the dryland sites, was at least as high as Vida, maybe a little better. The protein on dryland sites was about 0.4 of a point higher than Vida.

Table 6 – Shows the cereal quality data for this line. For simplicity, let's look at Mixograph tolerance. That's a good general measure of how strong the gluten is. It is stronger than Vida and similar to Duclair, which is mostly judged as a good quality variety. It is a little bit less strong than McNeal and Egan which are very strong gluten wheats. Both years, MT1316 had a strength level similar to Duclair, more than Vida and Reeder and less than McNeal and Egan which are very strong. This seems to be about what we are shooting for with hard red spring wheat in Montana.

J. Sherwood - Motion to release MT1316 hard red spring wheat as a public variety with PVP Title V protection.

B. Myllymaki - seconded the motion

B. Mahurin - Why are you not considering this as licensed release?

L. Talbert – Because it is a wheat that will probably go into the commodity market like any other public release – Vida, McNeal, Choteau.

J. Sherwood – The default in our policy is that all wheat and barley varieties that do not have special traits that require us to license them are released as public protected varieties.

J. Sherwood - Motion to release MT1316 hard red spring wheat as a public variety with PVP Title V protection.

Vote - 12 for, 0 against

C. Cahill – Is this a red chaff variety?

L. Talbert – No, it is a white chaff variety. Regarding the name for this MT1316, we've gone away from having the name decided at this meeting. Most of you remember a research associate that worked on the spring wheat project for about 30 years, Susan Lanning. I would like to propose that MT1316 be named 'Lanning' as a tribute to Susan. She came by and looked at the data and agreed it would be ok. If anyone objects to this name, you can tell me later.

Phil Bruckner and Jim Berg, MSU

Motion that MTS1224 hard red winter wheat be approved for release in 2016, that MTS1224 be named 'x' and that x be recommended for all cropping districts.

J. Sherwood - Motion that MTS1224 hard red winter wheat be approved for release in 2016, that MTS1224 be named Loma, and that Loma be recommended for all cropping districts.

B. Stougaard – Seconded the motion

P. Bruckner – This is a line that derives from a from a cross between Yellowstone and two solid stem lines and the reason we are interested in releasing this line is because it has the Yellowstone yield potential as well as other positive characteristics that we are interested in.

Table 1 – Loma is an awned, white chaffed, semi solid, semi-dwarf hard red winter wheat, medium to late in maturity. We don't know the exact Rht gene yet, but Loma is similar in height to CDC Falcon, SY Wolf, and Bearpaw. There is not much winter hardiness data yet but Loma appears better than Rampart and Judee for winter hardiness. Judee is our leading solid stem variety in the state but it does have a weakness in terms of winter hardiness and MTS 1224 will be superior to that. It is resistant to stem rust and stripe rust based on evaluations in Montana and Washington State. There is some evidence that it could have Cephalosporium stripe resistance.

Table 2 - Shows yield data from different locations. Loma is a line that is competitive for yield in all cropping districts. On average, it is equivalent to the yield potential of Yellowstone over 42 location years. It would be at least 10% better in yield than any of the solid stem varieties that are currently employed. The highest yielding of those would be Warhorse, about 10% lower yielding. The pattern of yield response is shown in this figure. Yellowstone is the top line and Loma is the line immediately under Yellowstone and down below would be Judee and Warhorse so there is no doubt that this is a good yielding line similar in yield response to Yellowstone.

Table 3 – This is a semi solid line. On average if you look at the means, the average solidness of Loma is 19.1 and that is less than Warhorse, Bearpaw and Rampart but similar to Judee and Genou. We have recently replaced Genou in terms of solid stem varieties. There are a couple of estimates of sawfly cutting tolerance. There is one in Table 1 based on 7 location years. The LSD is quite large but it shows that as we would expect based on stem solidness, this line has intermediate tolerance to cutting by wheat stem sawfly, more than we'd see in the best solid stem lines, but less cutting than we would see in the hollow stem lines. It is not a variety for our most severe sawfly infested environments; it may be good for environments that have a moderate level of sawfly infestation.

Data is included for stem rust and stripe rust resistance, both positive for the variety.

Table 7 - Shows really good milling and baking quality - fairly low PPO line - positive for noodle quality in Asia. It has good flour yield compared to other varieties tested in this analysis, good milling characteristics and dough mixing qualities. This line was evaluated in this year's Wheat Quality Council evaluations recently summarized in Kansas City by U.S. millers. Jim, what did you hear about this line down there?

J. Berg – We had a stressed year for lines that were put in but the Montana group did really well considering the dry conditions we went through. There were 16 millers and bakers at the meeting and Loma was the top choice of a number of the participants. They like the things that come out of Montana. It went over very well at the Wheat Quality Council meeting for grown entries.

P. Bruckner –Due to its production environment, it did have small kernels and low test weights but all the lines produced in the same environment had the same issues. I had David Weaver look this MT1224 data over and he said that it would potentially be a good replacement for Judee.

D. Weaver – In looking over the data, it looks like a perfect fit to me to be a replacement for Judee in terms of wheat stem sawfly response.

P. Bruckner – It is different from any sawfly tolerant wheat we have had before. It is semi solid but has a lot more yield potential; maybe it has to get out there to see where it fits. We haven't had any lines this short so maybe we will test that with this line.

J. Sherwood – Motion that MTS1224 hard red winter wheat be approved for release in 2016, that MTS1224 be named 'Loma' and that 'Loma' be recommended for all cropping districts.

J. Sherwood – How much breeder seed do you have if this is going to be released this fall.

P. Bruckner – We do have 10 acres of Foundation seed production - 10 acres at moccasin and 5 acres at the Post Farm.

J. Sherwood – Any other questions?

Vote - 12 for, 0 against

J. Sherwood – Some of the things that were brought up like the price of the research fees would be appropriate to discuss in the session tomorrow at 9:30.

L. Talbert – Moved to adjourn

D. Weaver – Seconded the motion

Vote: 12 for, 0 against.