U.S. Wheat & Barley
Scab Initiative

MINUTES

USWBSI Steering Committee Meeting

Tuesday, April 16, 2019, 8:45 AM – 4:15 PM CDT
Crowne Plaza Aire, Blooming, MN

Co-Chairs: Doyle Lentz (Private Grower, ND) and Ruth Dill-Macky (Univ. of Minnesota)
Members Present: Carl Bradley, (Univ. of Kentucky), Doug Buehler (Michigan State Univ., NCRA rep), Alyssa Collins (Pennsylvania State Univ.), Mike Davis (American Malting Barley Association), Paul Esker (Pennsylvania State Univ.), Pravin Gautam (BASF, NE), David Hahn (Dakota Growers Pasta Co.), Steve Harrison (Univ. of Louisiana), Rich Horsley (North Dakota State Univ.), Dustin Johnsrud (North Dakota Wheat Commission), Dave Kendra (BASF, NC), Corby Kistler (USDA-ARS, MN), Louis Kuster (US Durum Growers), Esten Mason (Univ. of Arkansas), Gary Muehlbauer (Univ. of Minnesota), Jana Murche (KWS Cereals USA), Dale Nellor (North American Millers' Assoc.), John Pitkin (Monsanto Co.), Mory Rugg (BASF, MN), Steve Scofield (USDA-ARS, IN), Carl Schwinke (Siemer Milling Co., IL), Sehgal (South Dakota State Univ.), Kevin Smith (Univ. of Minnesota), Brian Steffenson (Univ. of Minnesota), Kevin Thorsness (Bayer CropScience, ND), Todd Ward (USDA-ARS, IL), Steven Xu (USDA-ARS, ND), Shaobin Zhong (North Dakota State Univ.), Xiang Yin (Rahr Corporation), and Marv Zutz (Minnesota Barley Council)
USDA-ARS: José Costa (ADODR for the USWBSI)
Members not present: Austin Case (ABInBev), Steve Joehl (National Wheat Growers Assoc.), Brian Jorgenson (South Dakota Wheat Commission), Randy Raper (Oklahoma State Univ., SAAESD rep) and Mark Seastrand (North Dakota Barley Council), Sunish
NFO Staff: Sue Canty (USWBSI-NFO, MI), Amber Hoffstetter (USWBSI-NFO, OH) and Don Lilleboe (Lilleboe Communications LTD., ND)

1. Opening Remarks and Introductions

2. Review and Approval of Agenda

Motion: Dave Kendra made the motion to accept the agenda; seconded by Louis Kuster.
Discussion: None.
Vote: Motion was approved.

3. Review and Approval of Minutes from 12/04/18 SC Meeting

Motion: Esten Mason made the motion to approve the minutes from the 12/04/18 SC Meeting as presented; seconded by Louis Kuster.
Discussion: None.
Vote: Motion was approved.

4. Federal Funding and ARS Updates

- Mike Davis – FY19 and 20 Federal Budgets: Davis gave an overview; see Addendum 1.
- Jose Costa – USDA-ARS Issues: Costa gave an overview; see Addendum 2.

5. Updates from the NFO and EC

- Update of FY19 Funding Recommendation
  Requests for one-time only funding was solicited from the research category groups. All requests recommended for funding by the RAs/CPs at the PI's requested amount. Once ARS accepts the USWBSI's FY19 Research Plan & Budget, a final funding summary will be distributed to the Steering Committee.
- New IDC Policy for USWBSI (Addendum 3)
  Congress added language to the 2018 farm bill to limit the USWBSI's IDC to 10%. This new IDC policy will go into effect with the FY20-21 funding cycle.
- New USDA Policy for Agreements
  The Secretary for Agriculture sent out a memo to all USDA agencies to inform them that the Mission Deputy Undersecretary for USDA will review and approve all agreements and amendments. This new policy is projected to add an additional two weeks to the processing timeline.

6. Research Leaders' Presentations

NOTE: PowerPoint Presentations are available at https://scabusa.org/pdfs/RC-Presentations_4-16-19.pdf

- Barley Coordinated Project – Brian Steffenson (Addendum 4; Handout #1)
- Durum Coordinated Project – Steven Xu
- Hard Winter Wheat Coordinated Project – Sunish Sehgal
- VDHR - Spring Wheat Region Coordinated Project – Mory Rugg
- VDHR - Northern Soft Winter Wheat Coordinated Project – Jana Murche
- VDHR - Southern Soft Winter Wheat Coordinated Project – Steve Harrison
- FHB Management – Paul Esker
- Food Safety & Toxicology – Dave Kendra
- Gene Discovery & Engineering Resistance – Steve Scofield
- Pathogen Biology & Genetics – Todd Ward

7. FY20-21 Request for Pre-Proposals and Review Process

- Process and Timetable for Setting FY20-21 Working Caps: The SC will be polled on the recommended caps. The EC will take the results of the SC poll to create a final recommendation. The SC will then vote on the EC's final recommendation of working caps.
- Overview of FY20-21 Request for Pre-Proposals (RFP) – Submission and Review: It was requested that an extra layer of review be added to the CPs and VDHR by having another group look over the proposals and committee recommendations. The chairs of the CPs were polled and all thought it would be beneficial, but the consensus was that it coincides with field season. The EC will discuss and make a final decision.

8. Review Proposed Changes to Policies & Procedures

Motion: Carl Schwinke made a motion to approve the proposed changes (see Addendum 5) to the Policies & Procedures; seconded by Sunish Sehgal.
Discussion: None.
Vote: Motion was approved.

9. 2019 National FHB Forum
December 8-10, Milwaukee, WI

- Overview of Program Format
  The program format will remain the same, however, we plan to incorporate a poster competition into the 2019 Forum.

  Action: Amber Hoffstetter will create a plan for the poster competition and submit to the EC for approval.

- Schedule of Administrative Meetings
  - EC Executive Session, Friday evening, Dec. 6.
  - EC meets with Research Chairs/Vice-Chairs on Saturday, Dec. 7.
  - EC Executive Session on Sunday morning, Dec 8, before the Forum begins
  - EC Executive Session, Monday evening, Dec. 9.
  - SC meets on Tuesday, Dec. 10 following the close of the Forum.
  - EC wrap-up meeting: following the close of the Steering Committee Meeting on Dec. 10.
  - National Wheat Improvement Committee (NWIC) meets on Dec 11.

10. Presentation on the new ScabSmart Website - Amber Hoffstetter demonstrated the redesigned ScabSmart Website.

11. Small Discussion Groups – The purpose of the small discussion groups was to review the proposed changes to the Action Plan and FY20-21 Research Priorities.

12. Small Discussion Follow-up: Groups report summary of their discussions.

FHB Management (MGMT) – The group had a few additional changes to the proposed action plan. MGMT Chair will send final version to the NFO.

Food Safety & Toxicology (FST) – There are no proposed changes to the Action Plan for FST.

Gene Discovery & Engineering Resistance (GDER) – The group discussion led to additional changes that need to be developed and then circulated to the GDER group at large. Scofield and Muehlbauer will draft these changes. Once approved by the GDER group, the Executive Committee will be responsible for approving final changes.

Pathogen Biology & Genetics (PBG) –There were no additional changes that resulted from the group discussion. However, a fourth research priority focused on understanding plant and abiotic interactions that benefit disease resistance, will be added to the FY20-21 Research Priorities.

Variety Development & Host Resistance (VDHR) – The group had a few additional changes to the proposed action plan. VDHR-SWW Chair, who facilitated the process of updating VDHR section of action plan, will send final version to the NFO.

13. Review Proposed Changes to Action Plan for FY20-21.

GDER was the only group that needed more time to make changes to their action plan. It was suggested the SC approve all changes now, with the exception of GDER which could be approved by the Executive Committee.

Motion: Sunish Sehgal made a motion to approve the proposed changes for MGMT, FST, PBG and VDHR, but have the EC review and approve the final changes for GDER; motion seconded by Carl Schwinke.
Discussion: None.
Vote: Motion was approved.

14. Discuss Plan for Finalizing Research Priorities for FY20-21

- The updated research priorities need to be submitted to Sue Canty by April 30, 2019.
- The Executive Committee will review and approve the final changes to GDER's Action Plan and Research Priorities.
- The updated Action Plan and Research Priorities will be distributed in conjunction with the FY20-21 RFP.

15. New Items

Ruth Dill Macky – How do we incorporate or seek out new PIs into the Initiative?
NOTE: The small discussion groups were asked to consider this question, time permitting. Suggestions from groups are summarized below.

- MGMT – The Initiative could reach out to extension pathologists, use the NCERA 184 groups, and target specific states growing wheat that are not currently part of the Initiative.
- FST – The Initiative could work with the food manufacturing sector on collaborative research and see how they address contaminated grain.
- GDER/PBG – The Initiative could target new faculty by inviting them to the Forum and paying for their travel expenses. Perhaps each research committee could be allowed to invite one new travel participant and have the Initiative pay their expenses. The Initiative could also send representatives to society meetings and/or present a poster with the Initiative's mission and goals.
- VDHR – The Initiative could include more private company involvement by perhaps opening slots for private companies to get DON samples tested in the labs.

Motion: Esten Mason made a motioned to adjourn the meeting; seconded by Dave Kendra.
Discussion: None.
Vote: Motion was approved.

Meeting Adjourned at 3:27 p.m. CT

Minutes Recorded and Submitted by:

Amber Hoffstetter

Amber L. Hoffstetter, Research Technical Specialist
USWBSI's Networking & Facilitation Office

ADDENDUM 1

FY2019 and FY2020 Federal Budget Update

Mike Davis, American Malting Barley Association

At the December 4, 2018 Steering Committee meeting it was pointed out that due to the efforts of the National Barley and Wheat Improvement Committees over the past few years, and the more recent efforts of a team of stakeholders, including Scott Heisel, AMBA; Doyle Lentz, North Dakota Barley Council; Marv Zutz, Minnesota Barley Council; Dale Thorenson, National Barley Growers Association; and Joshua Tonsager, National Association Wheat Growers, stakeholders were optimistic regarding ARS scab research provisions in the almost completed 2018 Farm Bill.

The final bill, which was subsequently passed by Congress and signed by the President on December 20, 2018, increased authorization from $10 Million/year to $15 Million/year for the next five years and limits indirect costs to 10% for USWBSI research grants. Authorization does not provide funding, it must also be appropriated by Congress on an annual basis, but it does provide justification and standing to secure that funding.

At the end of the historically long partial government shutdown, Congress passed and the President signed the FY2019 Consolidated Appropriations Bill on February 15, 2019. Funding for the USWBSI was maintained at $9.45 Million/year for the grant program and base funding increases that were provided to ARS programs conducting scab research. With the increased authorization, NBIC and NWIC requested that Congress appropriate funding of $5.55 Million for FY2020 to bring funding to the authorized level during their March visits. As has been the case for recent increases, our request, and thus the intent of Congress, is that half of any appropriated funding increase go to the grant program and half to increase base funding for ARS programs that are conducting scab research. The later funding apportionment to be worked out between the USWBSI Executive Committee and ARS.

Funding for the ARS Small Grains Genomic Initiative (SGGI) was increased by $1 Million for FY2019, bringing total annual funding to $2.5 Million/year. The increase will provide funding to the ARS small grains regional genotyping laboratories, wheat and barley quality laboratories, doubled haploid research & production, and uniform small grains nurseries. NBIC and NWIC have requested an increase of $940,000 for FY2020, to bring total funding to the goal of $3.44 Million/year.

Two fiscal year bipartisan Congressional budget agreements with Presidents Obama and Trump for FY16-17 and FY18-19, overrode the Budget Control Act of 2011, which dictates deep sequestration cuts, and instead provided increased spending for Defense and all other discretionary spending. This provided the opportunity for successful efforts to secure increased funding of $2 Million in FY2017 and $750,000 in FY2018 for the USWBSI. The ARS base funding portion was added to the base budgets of the small grains regional genotyping laboratories in FY2017, and the Small Grains and Potato Germplasm Research Unit, Aberdeen, ID and Cereal Disease Laboratory, St. Paul, Minnesota, for scab research.

ADDENDUM 1

Without a FY20-21 bipartisan budget agreement, sequestration cuts per the Budget Control Act of 2011, will be implemented. The President's proposed FY2020 budget skirts that act for Defense spending by adding substantial increases to the Overseas Contingency Operations fund, which is exempt from its provisions, and imposes sequestration reductions for most of the remaining discretionary budget, including USDA research. Funding for ARS Salaries and Expenses would decrease by $99.775 Million, a 7.7% reduction from the FY2019 Consolidated Appropriations Bill.

The budget proposes the following small grains research reductions.

$ 816,000	Headquarters, Beltsville, MD	**Fusarium head blight of wheat and barley**
$ 200,000	Headquarters, Beltsville, MD	Wheat Stripe Rust Initiative
$ 322,000	ID, Aberdeen	Aquaculture Systems – Rainbow Trout
$ 65,000	IL, Urbana–Champaign	Oat Virus Resistance
$1,384,000	Headquarters, Beltsville	National Plant Disease Recovery System

There is bipartisan support in Congress for a FY20-21 budget agreement that will allow for increases in both Defense and other discretionary spending from FY2019 levels, and bipartisan opposition to the proposed reductions to USDA research, so it is unlikely they will be adopted. At this time, the President is against a Congressional agreement, and coupled with the need for a debt ceiling agreement at about the same time as the October 1 start of FY2020, and the upcoming 2020 election, a final budget may not be passed until 2020, as occurred with the FY2019 budget.

ADDENDUM 2

ARS Budget Update

José Costa

FY2019 enacted budget had a $100.5M increase for ARS ($1.25 Bi).

Biggest increase was for NBAF for $57.6 M in Manhattan (National Bioterror Agricultural Facility). NBAF is a $1.2 Bi facility built by DHS and now has been transferred to ARS.

$1M for the small grains genomic initiative (wheat, barley, oats)

$1M for oat research ($540K Fargo; $270K CDL and $90K for Aberdeen).

$200K wheat quality in Manhattan (wheat and sorghum).

$150K for Manhattan wheat genetics (wheat and sorghum).

Proposed FY2020 presidential budget has the following reductions:

$816 K USBSI.

$200 K Stripe Rust Initiative.

$1.384M National Plant Disease Recovery System (CDL ~400 K; $60 K Kenya nursery for CIMMYT, $40 K for Marshall, $50K for Castroville, $35 K for wheat blast).

$65K Oat virus (U of IL).

ADDENDUM 3

New Indirect Rate (IDC) Policy for the USWBSI

SEC. 7303 of the 2018 Farm Bill:

(f) LIMITATION ON INDIRECT COSTS.—A recipient of a grant under this section may not use more than 10 percent of the funds provided by the grant for the indirect costs of carrying out the initiatives described in subsection (a).

NOTE: subsection (a) authorizes the consortium (USWBSI) to carry out a multistate research project aimed at understanding and combating diseases of wheat and barley caused by *F. graminearum* and other related fungi.

USDA ARS

U.S. Wheat & Barley Scab Initiative

RESEARCH UPDATE AND QUESTIONNAIRE FOR Barley Coordinated Project (BAR-CP)

Summary of Funding (FY18) for BAR-CP	
Total # of Projects	**Total Amount Awarded**
14	$ 863,502

1. List the major success of your RA/CP during the past two years? Please be specific.

Phil Bregitzer

- Nascent efforts to address FHB threat in the western US have advanced markedly. At Aberdeen, the ARS (Hu/Bregitzer/Klos) and UI (Marshall) collaboration to establish procedures for testing and producing FHB reaction data for the Intermountain west have matured. Procedures and equipment for the mist nurseries have been refined, and there are now two nursery sites.
- Data from these nurseries and from cooperators in the Midwest have shown moderate levels of resistance present in elite spring malting and food barleys. This is an unexpected and welcome result that suggests that selection within this germplasm may result in lines that would be immediately useful to control FHB in the non-conducive local environment as well as serving as a source of potentially novel resistance.

Carl Griffey

Our program plans to release a new winter hulled barley variety (VA11B-141 LA) with comparable yield and increased test weight and FHB resistance of Secretariat and Nomini, respectively. Multiple year DON data shows VA11B-141 LA as having lower DON in comparison to Nomini.

Patrick Hayes

Doubled haploids produced for collaborating institutions.

Richard Horsley

Three two-rowed lines from NDSU will be evaluated in the AMBA Plant Scale evaluation program in 2019. This is the first time three lines from a single breeding program have undergone Plant Scale evaluation at the same time. Two of the lines, 2ND32529 and 2ND32829, accumulate significantly less DON than ND Genesis. ND Genesis is one of the most widely grown 2-rowed malting barley varieties in the Midwest.

Gongshe Hu

Identified FHB resistance and lower DON content elite barley lines from 7 year-location data: 2Ab04-X01084-27 and 2Ab07-X031098-31. The DON levels of those

lines are equal or less than the 2-rowed resistance check variety of Conlon. Those lines are currently under AMBA's plant scale testing.

Gary Muehlbauer

We identified mutations in HvUGT13248 and showed that they are susceptible to DON in a root assay. We created sister transgenic lines in the Rasmusson background expressing and non-expressing HvUGT13248 for testing in the field. We fine mapped and tested recombinants in the field for the chromosome 6H bin 7 and 2H bin 8. We have preliminary data that shows the protein content gene (Gpc1) at the chromosome 6H QTL is associated with DON resistance and that there may be another QTL for FHB resistance in the region.

Kevin Smith

First two-row breeding lines with lower DON entered into AMBA industry testing.

Mark Sorrells

The evaluation of spring and winter malting barley lines and cultivars continued to generate useful information on their relative resistance/susceptibility.
We confirmed that Endeavor winter malting barley has the best FHB resistance in our winter misted, inoculated nursery.
Genomic selection was used to select spot blotch, pre-harvest sprouting, and FHB resistant lines growing in New Zealand.

Francis Trail

We have identified trichomes as a point of ingress of *F. graminearum* into barley. The trichomes have a localized resistance response that is weaker on the prickle like trichomes and the domed trichomes have a stronger response. Trichome type is more important than row type. We identified the locus involved in this resistance *vrs-1c.* We recommend that this be considered for an additional resistance to stack with others.

We tested the powdery mildew resistance barley lines and, contrary to previous reports, we did not see any increased susceptibility to FHB in these lines, and the trichomes did not show a change in response related to susceptibility in these lines.

Ce Yang

- Carried out a field experiment with 26 lines (two replicates) and collected both color and hyperspectral images across from the beginning of FHB inoculation to the end of disease spreading in summer 2018.
- Processed the hyperspectral images for spectral band selection, which reduces the data volume and is helpful in data storage and processing for much larger scale field experiment with more genome lines. The results were presented in the annual FHB forum in fall 2018.

- We planned to process the color images with two steps: spike detection and disease area detection. We used deep learning algorithms (mask-CNN) for spike detection and achieved acceptable accuracies. We are now working on detecting the disease area on the spikes. Fall 2018 – now.
- Collected hyperspectral images on DON seeds in fall 2018.

2. What does your RA/CP expect to accomplish during the next two year-funding cycle?

Phil Bregitzer

Continued advancement of germplasm resources: identification of new potential, release of new varieties. This project incorporates non-VDHR RA activities, and may contribute new insights that may enable increased selection efficiency as a result of a greater understanding of the host-pathogen interaction or by investigating new phenotyping methods (for instance, use of qPCR as an inexpensive and informative alternative or supplement to DON analysis via GC-MS.

Carl Griffey

Completion of FHB phenotypic data on all Nomini mapping populations and ability to identify, validate, and develop diagnostic markers for major scab resistance QTL derived from Nomini and compare these with the QTL previously identified in Eve.

Patrick Hayes

Produce doubled haploids for collaborating institutions.

Gongshe Hu

- Continue to accumulate more data for other elite or advanced to conclude for their FHB resistance and DON content.
- To phenotype more breeding lines for the resistance to help line selection and advancement.

Gary Muehlbauer

Study the mutations in the HvUGT13248 and the barley transgenics expressing HvUGT13248 with a goal towards understanding the role of trichothecenes in infection and disease severity. Continue to fine map the 2H bin8 and 6H bin 7 QTL and identify markers and lines that uncouple the deleterious traits from resistance at both QTL.

Kevin Smith

Continuous flow of breeding lines with lower DON into industry testing.
Evaluation of genomic prediction methods to select parent combinations that increase population variance and reduce unfavorable correlations with FHB resistance in breeding crosses.

Mark Sorrells

- We will expand our winter barley FHB testing to include more lines from Idaho and Nebraska.
- We will release a new spring, two row malting barley with improved resistance to FHB.
- We are collaborating with Jason Wallace at the CCRU to dissect the SD2 locus for seed dormancy, malt quality parameters, and germination tests for vigor and water sensitivity.
- Our program will continue to evaluate both winter and spring barley nurseries and breeding lines in our misted, inoculated FHB nursery.
- A collaboration with Bregitzer and Hayes to combine FHB resistance with scald resistance in winter barley has been initiated.
- We are evaluating lines derived from crosses with DH130910 (Oregon State University) for FHB, scald, and facultative winter habit.

Ce Yang

- A pheno-cart with color, multispectral and depth sensors is under design and will be used in field test in summer 2019.
- Diseased area will be detected on the spikes and we will publish the result as a journal article.
- We will test and refine our detection model after the data collection in summer 2019.
- We will collect seeds by the end of the crop season 2019.
- We will work on the DON seeds image analysis to explore the capability of hyperspectral imaging for DON detection from whole-seed level, with the aim of saving labor, time and cost in DON detection.

3. What changes would allow your RA/CP to reach its goals more quickly?

Phil Bregitzer

Fully realizing the potential input from western and northeastern researchers requires more funding. This requires increasing the overall funding, as opposed to cannibalizing funding from programs in the Midwest.

Carl Griffey

Increasing the number of lines in the AMBA Pilot Scale and Plant Scale evaluation programs that have reduced DON accumulation and malt quality desired by the end users. Currently, many of the lines with lower DON accumulation have poor quality.

Richard Horsley

The challenge developing malting barley varieties with reduced DON accumulation has been the negative linkage association between reduced DON accumulation and unacceptably high wort ß-glucan levels. That negative association has been

broken. 2ND32529 and 2ND32829 both have lower DON accumulation and very low levels of wort ß-glucan.

Gongshe Hu

No change is necessary, just let me to focus on the proposed work.

Gary Muehlbauer

A robust high-throughput screening method that allowed screening germplasm and mutant populations for novel resistance and susceptibility.

Mark Sorrells

I think we are already doing everything possible to reach our goals quickly.

Ce Yang

Extra funding support for personnel (with imaging and machine learning/deep learning skills) to work on DON detection in seeds.

4. Are there any unmet needs that need to be addressed?

Carl Griffey

All barley workers must share all germplasm resources with each other for research purposes.

Gary Muehlbauer

Refer to response under 3.

Kevin Smith

Flexible, inexpensive, fast genotyping – targeted sequencing platform.

Mark Sorrells

Thanks to the barley CP support I we are adequately funded for the current year to achieve our goals given the capacity we have in our program. As our barley FHB breeding expands, we may request additional funding in future years.

Additional Comments:

Patrick Hayes

It would help to have a cross selection prioritization process and compliance with the F1 seed receipt date.

Francis Trail

- We are extremely happy that we now have a dedicated transgenic plant laboratory. This has been holding back progress for some years.
- The Barley group is a very well integrated group that has accomplished a lot and is wonderful to work with.

PROPOSED CHANGES TO POLICIES & PROCEDURES

Current Policy	Proposed Changes to Policy/New Procedures
V.B.2. - Research Plan and Budget (RPB) Process>Development of the Request for Pre-Proposals (RFP)>Indirect Costs (IDC) Rate Policy The USWBSI's review process focuses on the competitiveness of total project costs (i.e. direct and indirect). Because Fusarium head blight is such a severe problem for the U.S. wheat and barley industries, the USWBSI has set the rate limit for indirect costs at 5%.	**V.B.2. -** Research Plan and Budget (RPB) Process>Development of the Request for Pre-Proposals (RFP)>Indirect Costs (IDC) Rate Policy Because Fusarium head blight is such a severe problem for the U.S. wheat and barley industries, the USWBSI's review process focuses on the **competitiveness of total projects costs** (i.e. direct and indirect) to maximize total funding used for research. ********** NOTE: The RFP will include the new Federal IDC rate for the USWBSI. SEC. 7303 of the 2018 Farm Bill: **(f) LIMITATION ON INDIRECT COSTS.—**A recipient of a grant under this section may not use more than 10 percent of the funds provided by the grant for the indirect costs of carrying out the initiatives described in subsection (a). **Guidance for calculating IDC:** The grantee is allowed to charge their applicable Federally Negotiated Indirect Cost Rate Agreement (NICRA) rate or 10%, whichever is less. The allocation basis (e.g. Modified Total Direct Costs) for the indirect costs is whatever was approved in their current NICRA.
USWBSI Transgenic Management Policy: Regardless of any federal regulations regarding gene edited plants, PIs receiving funds from the U.S. Wheat and Barley Scab Initiative must manage gene edited plants in the same manner as transgenic plants are managed. **Approved by SC on 12/4/18**	**IV. USWBSI Transgenic Management Policy** Regardless of any federal regulations regarding gene edited plants, PIs receiving funds from the U.S. Wheat and Barley Scab Initiative must manage gene edited plants in the same manner as transgenic plants are managed. ********** NOTE: "Structure and Roles of USWBSI Committees and Administrative Office" will now be 'V.". **Implementation of new policy:** Transgenic Management Agreement (see back) will be included in the annual final funding application. Principal Investigators (PIs) will sign and accept agreement on an annual basis.

USWBSI TRANSGENIC MANAGEMENT AGREEMENT

USWBSI Consolidated Funding Title: *Fusarium Head Blight Research.*

Principal Investigator: John Smith

Institution: U.S. National University

Fiscal Year: 2019

USWBSI's FY19 Total Recommended Amount: $ 398,865

ARS Agreement Number: *New (59-0206-5-007 is in 4th year)*

USDA-ARS FY19 Total Award Amount: $ 386,497

USWBSI Project ID	USWBSI Research Category	USWBSI Project Title	USWBSI's Recommended Amount	ARS Award Amount
FY18-TR-035	GDER	Breed Scab Resistant and Low DON Hard Winter Wheat Varieties for the Northern Plains	$ 150,963	$ 146,282
FY18-NW-005	VDHR-NWW	Barley Stripe Mosaic Virus-Mediated CRISPR/Cas9 Genome Editing for FHB Resistance Improvement	115000	$ 111,434
FY18-IM-016	MGMT	Integrated Management of FHB and DON in Wheat in South Dakota	28634	$ 27,746
FY18-SM-055	HWW-CP	Pyramiding Multiple FHB Resistance QTLs in Different Winter Wheat Backgrounds.	$ 29,634	$ 28,715
FY18-BA-005	BAR-CP	Identification, Characterization and Development of Widely-Adapted FHB-Resistant Germplasm.	$ 74,634	$ 72,320
		FY19 USWBSI's Total Recommended/ARS Award Amount	**$ 398,865**	**$ 386,497**

USWBSI Transgenic Management Policy: Regardless of any federal regulations regarding gene edited plants, PIs receiving funds from the U.S. Wheat and Barley Scab Initiative must manage gene edited plants in the same manner as transgenic plants are managed.

PI's Acceptance of USWBSI's Transgenic Management Policy: ☐

_____

Principal Investigator' Signature Date