



# **U.S. Wheat & Barley Scab Initiative**

## **FY22 Request for Pre-Proposals**

For more information:

[https://scabusa.org/research\\_rfp-fy22](https://scabusa.org/research_rfp-fy22)

[nfo@scabusa.org](mailto:nfo@scabusa.org)

517.290.5023

## Table of Contents

**Introduction & Overview** ..... **3**

    New in this RFP!..... 3

    USWBSI Action Plan and Research Priorities..... 3

    Funding Opportunities – USWBSI Research Categories ..... 3

    Submission of FY22 Letters of Intent and Pre-Proposals ..... 4

    Project Duration – Extended Option for 4-Year Pre-Proposal ..... 5

    Review and Funding Recommendation Process ..... 5

    Questions? Need Assistance?..... 6

    Important USWBSI FY22 RFP Dates & Deadlines ..... 7

**Category 1 Instructions**..... **9**

    Research Alignment..... 9

    Category 1 Contacts (Coordinated Project Committee Chairs)..... 9

    Key Deadlines ..... 9

    PI Steps for Category 1 Submission Process..... 10

    PI Required Items Checklist for Category 1 Submission Process..... 16

**Category 2 Instructions**..... **18**

    Research Alignment..... 18

    Category 2 Contact Information (Coordinated Project Coordinator) ..... 18

    Key Deadlines ..... 18

    PI Steps for Category 2 Submission Process..... 18

    PI Required Items Checklist for Category 2 Submission Process..... 24

**Category 3 Instructions**..... **26**

    Research Alignment..... 26

    Category 3 Contact Information (Research Area Chairs) ..... 26

    Key Deadlines ..... 26

    PI Steps for Category 3 Submission Process..... 26

    PI Required Items Checklist for the Category 3 Submission Process ..... 32

**Category 4 Instructions**..... **34**

    Research Alignment..... 34

    Category 4 Contact Information..... 34

    Key Deadlines ..... 34

    PI Steps for Category 4 Submission Process..... 34

    PI Required Items Checklist for Category 4 Submission Process..... 40

**FY22 Research Category Program Descriptions and Research Priorities (PD-RP)** ..... **41**

    FHB Management (MGMT) ..... 41

    Food Safety and Toxicology (FST)..... 42

    Gene Discovery and Engineering Resistance (GDER) ..... 42

    Pathogen Biology and Genetics (PBG)..... 42

    Variety Development and Host Resistance (VDHR) ..... 43

    Barley Coordinated Project (BAR-CP) ..... 44

    Durum Coordinated Project (DUR-CP) ..... 45

    Hard Winter Wheat Coordinated Project (HWW-CP) ..... 45



USWBSI RFP: Submission links and information are also available on the [USWBSI RFP website](#).

# Introduction & Overview

## FY22 Request for Pre-Proposals (RFP)

### New in this RFP!

- **Extended Project Term.** All pre-proposals must now be submitted with either a 4-year or 2-year project term, see details in the pre-proposal category process descriptions.
- **Added Transformational Science Category.** The U.S. Wheat & Barley Scab Initiative (USWBSI) is seeking new research approaches to enrich its portfolio with novel concepts and new PIs. If you have a concept for consideration make sure to submit to this new Transformational Science category.
- **Additions to the Project Summary.** Two new items must now be included with the Project Summary: 1) a Project Schedule/Timeline covering the total project duration; and 2) Total Estimated Budget Requested Amount for each year of the project's duration. See details in the Project Summary section of the submission instructions.
- **Changed Tracking of Expected DON Samples.** DON Sample expectations are no longer required in pre-proposals, funded PIs will be contacted by the DON Lab coordinators for sample estimates.
- **Budget Justification Worksheet & Budget Summary Template.** An Excel template with built-in formulas, space for your justification narrative and auto-generation of the Budget Summary page is now available.
- **IDC Limitation.** Calculating the IDC limitation (10% of Total Federal Funds Awarded) has also adjusted, see details in the Budget Justification Worksheet & Budget Summary section of the submission instructions.
- **Updated Research Priorities.** Research priorities have been updated for FY22 (provided on page 41).
- **Online Submission of Letters of Intent.** Letters of Intent will now be submitted via an online form.
- **Changes to the EPS System and the Submission of Pre-Proposals.** A few new processes have been implemented to assist PIs with the submission process, changes include:
  - Pre-registration is no longer required.
  - All categories will be using the USWBSI Electronic Proposal Submission (EPS) System for all pre-proposal submissions.
  - PIs will be prompted to upload all their Co-PIs supporting documents directly with their submission.

### USWBSI Action Plan and Research Priorities

The FY22 Request for Pre-Proposals is based on the Program Descriptions and Research Priorities (PD-RPs). The PD-RP are derived from the USWBSI's Action Plan which is focused on increasing collaboration and communication, and more rapid attainment of the Initiative's primary goal (i.e. Mission): **"To enhance food safety and supply by reducing the impact of Fusarium Head Blight (scab) on wheat and barley."** To read the complete action plan for all research areas go to <https://scabusa.org/about#action-plan>. The PD-RPs for all research areas and coordinated projects have been updated for this RFP (starting on page 41), and can be accessed through their research page which can be found at <https://scabusa.org/research>.

### Funding Opportunities – USWBSI Research Categories

In alignment with the USWBSI Action Plan, USWBSI funding opportunities are available in four categories. PIs are encouraged to review the different options and select the category that best aligns with their research. PIs are encouraged to interact with any of the USWBSI contacts (listed on page 6) for the Coordinated Projects or Research Areas, or the Networking & Facilitation Office (NFO), to aid in identifying the appropriate area for their proposed work. For FY22, the USWBSI is soliciting proposed research for the following:

#### Category 1 – Commodity-based and VDHR-Uniform Nursery Coordinated Projects (CP)

If the primary focus of your proposed research (all USWBSI Research Areas) is on Barley, Durum or Hard Winter Wheat, you **should** submit your proposed research to the appropriate Commodity-based Coordinated Projects, provided it addresses one of their listed research priorities. If your proposed research is in the area of Variety Development and Host Resistance, and you work within one of the Uniform Regional Nurseries (states noted



below), you **must** submit your proposed research to the appropriate VDHR Uniform Nursery Coordinated Projects. **For more information on Category 1, please turn to page 9.**

- Commodity-based
  - Barley (BAR-CP)
  - Durum (DUR-CP)
  - Hard Winter Wheat (HWW-CP)
- Variety Development and Host Resistant (VDHR) – Organized around the following Uniform Nurseries:
  - Spring Wheat Region (VDHR-SPR) – States included: ID, MN, MT, ND, SD, WA
  - Northern Soft Winter Wheat (VDHR-NWW) – States included: IN, IL, KY, MI, MO, NY, OH
  - Southern Soft Red Winter Wheat (VDHR-SWW) – States included: AR, GA, LA, MD, NC, SC, TX, VA

### Category 2 – FHB Integrated Management Coordinated Project (IM-CP)

If your proposed research fits into the FHB Integrated Management Coordinated Project listed below you should submit your proposed research to this category. **For more information on Category 2, please turn to page 18.**

- Integrated Management Studies

### Category 3 – Research Area Individual Projects

If your proposed research is in one of the following research areas and is not associated with Barley or Integrated Management studies, or if you proposed research was not accepted by one of the Coordinated Projects, please submit to this category. **For more information on Category 3, please turn to page 26.**

- FHB Management (MGMT)
- Food Safety and Toxicology (FST)
- Gene Discovery and Engineering Resistance (GDER)
- Pathogen Biology and Genetics (PBG)
- Other – pre-proposals that do not fit into a specific research area or coordinated project

### Category 4 – Transformational Science Projects

The USWBSI is seeking new research approaches to enrich its portfolio with novel concepts and new PIs. If you have a concept for consideration make sure to submit to this new Transformational Science category. **For more information on Category 4, please turn to page 34.**

### Collaborative Projects Encouraged

In addition to the Coordinated Projects (Category 1 and 2), other collaborative projects within or across research areas are encouraged. PIs who intend to submit pre-proposals with similar objectives, methods, treatments, etc. should coordinate their efforts to produce a single, unified pre-proposal rather than similar, separate pre-proposals. If you are part of a collaborative project, and your proposed project is approved for funding, the funding will come in the form of a direct agreement between USDA-ARS and each of the collaborating PIs' institutions.

### Submission of FY22 Letters of Intent and Pre-Proposals

The USWBSI online Letter of Intent forms and the [Electronic Pre-Proposal Submission \(EPS\) System](#) must be used for the submission of all FY22 pre-proposals. General instructions for the letter of intent and pre-proposal requirements, and supporting documentation for upload, is outlined in each Category section description.

New this year, PIs can submit their pre-proposal without any additional pre-registration. PIs will also be able to start the submission process, save and return as needed until the deadline for submission is reached. If this is your first time submitting a proposal with the USWBSI, you will be prompted to create an account to gain access and login to the submission form. **The Electronic Pre-Proposal Submission (EPS) System will open August 3, 2021.**



### EPS System and Sponsored Programs Offices

The USWBSI does not require signatures by the Authorized Organizational Representatives (AORs) on Pre-Proposals, so AORs will not be granted access to the EPS system. If the PI's institution requires approval from the Authorized Organizational Representative (i.e. Sponsored Programs Administration/Office) on 'pre-proposals', a form that can be used at the institutional level for obtaining approval by the PI's sponsored programs office is available. The form can be downloaded from the USWBSI's Website at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates).

### Project Duration – Extended Option for 4-Year Pre-Proposal

New this year, PIs will have the option to select the duration of the project for either a 2-year or 4-year term. The USWBSI is encouraging longer term (4-year) projects to reduce the significant processing requirements for the USDA-ARS, USWBSI's Networking & Facilitation Office (NFO), University Sponsored Programs Offices and PIs to establish new agreements. Please note, the USWBSI has always awarded funding annually and will continue to do so, providing your project duration, if awarded, does not commit the USWBSI to the full-term budget. Annual performance reports and renewal review/approval will continue to be required for each year of the project. The submitted duration simply allows the USDA-ARS to establish the agreement with those terms in place, allowing for continual amendments for the duration of the term. If you have questions about determining the term length of your project, please contact the USWBSI's NFO for assistance, [nfo@scabusa.org](mailto:nfo@scabusa.org) or call 517.290.5023.

### Conformance with Instructions for Pre-Proposal Preparation

It is important that all letters of intent and pre-proposals conform to the instructions provided in the FY22 RFP. The USWBSI's Networking & Facilitation Office may return, without further review, any letter of intent or pre-proposal that is not consistent with these instructions. The NFO must authorize any deviations from these instructions in advance of pre-proposal submission. Deviations must be authorized by written approval from the Researcher Co-Chair and Executive Director, Dr. Ruth Dill-Macky ([ruthdm@umn.edu](mailto:ruthdm@umn.edu)) or the Director of Operations, Michelle Bjerkness ([nfo@scabusa.org](mailto:nfo@scabusa.org)). **NOTE:** We strongly encourage all individuals submitting a pre-proposal to review the Frequently Ask Questions ([https://scabusa.org/rfp/FY22\\_RFP\\_FAQ.pdf](https://scabusa.org/rfp/FY22_RFP_FAQ.pdf)) which address common mistakes and omissions of required information from previous submitted pre-proposals, and has been updated for this RFP.

### Review and Funding Recommendation Process

All pre-proposals received by the assigned deadline will be sent for review to one of the designated review panels (i.e. Research Area and Coordinated Project Committees). The Executive Committee will then review the review panels' recommendations and if necessary, modify the awards to conform to the FY22 budget appropriated by Congress and the overall objectives of the Initiative. The final step is approval of the EC's recommended Research Plan and Budget (RP&B) by the Steering Committee in early December, following the National FHB Forum. All PIs whose pre-proposals are recommended for funding by the USWBSI will be asked to compile and formalize their proposed research (Year 1 only) into a 'Final Funding Application' for inclusion in the USWBSI's recommended research plan (approximately mid- to late-January). The recommended comprehensive research plan will be sent to USDA-ARS in the early months of 2022. More detailed information on the review process for each pre-proposal category is available on the RFP website - [https://scabusa.org/rfp/FY22\\_RFP\\_ReviewProcess.pdf](https://scabusa.org/rfp/FY22_RFP_ReviewProcess.pdf). Please note that all pre-proposals will be regarded as confidential documents. Distribution will be limited only to parties involved with the review process.

### Revisions to Pre-Proposals Made During the Review Process

In the event of a significant development (e.g., research findings, changed circumstances, unavailability of PI, etc.) that might materially affect the outcome of the review of a pending pre-proposal, the PI (or his/her representative) must contact the Executive Director (Ruth Dill-Macky, [ruthdm@umn.edu](mailto:ruthdm@umn.edu)) of the Networking and Facilitation Office (NFO) to discuss the issue. Depending on the outcome of that discussion, the PI may be allowed to submit a one-page update to the NFO. The NFO will provide a form and deadline for the update. Submitting additional information must not be used as a means of circumventing page limitations or stated deadlines.



## Questions? Need Assistance?

If you have any questions regarding this application or the pre-proposal process, please contact the U.S. Wheat and Barley Scab Initiative's Networking and Facilitation Office by phone at 517.290.5023 or by e-mail at [nfo@scabusa.org](mailto:nfo@scabusa.org). If you have specific questions within one of the pre-proposal categories, please contact the associated USWBSI representative listed below.




To facilitate pre-proposal preparation, a Frequently Asked Questions (FAQs) document pertaining to preparation and submission of pre-proposals is available electronically on the USWBSI's Website at: [https://scabusa.org/rfp/FY22\\_RFP\\_FAQ.pdf](https://scabusa.org/rfp/FY22_RFP_FAQ.pdf)

<b>Category 1</b>		
<b>Commodity-Based Coordinated Projects</b>		
Barley (BAR-CP)	Tom Baldwin, ND State Univ	<a href="mailto:Thomas.t.baldwin@ndsu.edu">Thomas.t.baldwin@ndsu.edu</a>
Durum (DUR-CP)	Steven Xu, USDA-ARS, CA	<a href="mailto:Steven.Xu@USDA.GOV">Steven.Xu@USDA.GOV</a>
Hard Winter Wheat (HWW-CP)	Sunish Sehgal, SD State Univ	<a href="mailto:Sunish.Sehgal@sdstate.edu">Sunish.Sehgal@sdstate.edu</a>
<b>Category 1</b>		
<b>Variety Development &amp; Host Resistance (VDHR) - Uniform Nursery Coordinated Projects</b>		
Spring Wheat Region (VDHR-SPR)	Andrew Green, ND State Univ	<a href="mailto:andrew.j.green@ndsu.edu">andrew.j.green@ndsu.edu</a>
Northern Soft Winter Wheat (VDHR-NWW)	Clay Sneller, Ohio State Univ	<a href="mailto:sneller.5@osu.edu">sneller.5@osu.edu</a>
Southern Soft Red Winter Wheat (VDHR-SWW)	Steve Harrison, Louisiana State Univ	<a href="mailto:sharrison@agcenter.lsu.edu">sharrison@agcenter.lsu.edu</a>
<b>Category 2</b>		
<b>FHB Integrated Management Coordinated Project (IM-CP)</b>		
Integrated Management Studies	Pierce Paul, Ohio State Univ	<a href="mailto:paul.661@osu.edu">paul.661@osu.edu</a>
<b>Category 3</b>		
<b>Research Area Individual Projects</b>		
FHB Management (MGMT)	Erick DeWolf, Kansas State Univ	<a href="mailto:Dewolf1@ksu.edu">Dewolf1@ksu.edu</a>
Food Safety and Toxicology (FST)	Dave Kendra, BASF, NC	<a href="mailto:david.kendra@basf.com">david.kendra@basf.com</a>
Gene Discovery and Engineering Resistance (GDER)	Jyoti Shah, Univ of North Texas	<a href="mailto:Jyoti.shah@unt.edu">Jyoti.shah@unt.edu</a>
Pathogen Biology and Genetics (PBG)	Martha Vaughan, USDA, IL	<a href="mailto:martha.vaughan@usda.gov">martha.vaughan@usda.gov</a>
<b>Category 4</b>		
<b>Transformational Science Projects</b>		
New PIs with Novel Concepts	Michelle Bjerkness, NFO Director of Operations	517.290.5023 <a href="mailto:nfo@scabusa.org">nfo@scabusa.org</a>
<b>Networking &amp; Facilitation Office (NFO)</b>		
General Questions Regarding the RFP Process	Ruth Dill-Macky, Researcher Co-Chair and Executive Director	612-625-2227 <a href="mailto:ruthdm@umn.edu">ruthdm@umn.edu</a>
	Michelle Bjerkness, NFO Director of Operations	517.290.5023 <a href="mailto:nfo@scabusa.org">nfo@scabusa.org</a>



**Important USWBSI FY22 RFP Dates & Deadlines**

	Key Actions	Deadline
<b>All FY22 Pre-Proposals</b>  <a href="https://scabusa.org/EPS/">Access the USWBSI EPS Pre-Proposal Submission Form (https://scabusa.org/EPS/)</a>	USWBSI EPS System <b>Opens</b> for Pre-Proposal Submissions	<b>August 3, 2021</b>
	<b>Deadline</b> for submission of Pre-Proposal(s) and supporting documents via USWBSI EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>

*(by Category with additional specific deadlines)*

RFP Category	Key Actions	Deadline
<b>Category 1: Commodity-based and VDHR-Uniform Nursery Coordinated Projects (CP)</b>	<b>Step 1:</b> Letter of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2:</b> CP Chairs notify all PIs who submit Letters of Intent to their Coordinated Project on status and next steps	<b>July 29, 2021</b>
	USWBSI EPS System Opens	<b>August 3, 2021</b>
	<b>Step 3:</b> If accepted, deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>
<b>Category 2: FHB Integrated Management Coordinated Project (IM-CP)</b>	<b>Step 1:</b> Letter of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2a:</b> IM-CP Coordinator notifies all PIs who submit Letters of Intent on status and next steps	<b>July 29, 2021</b>
	EPS System Opens	<b>August 3, 2021</b>
	<b>Step 2b:</b> If accepted, IM-CP Coordinator sends protocols to PI's accepted into the IM-CP	<b>August 19, 2021</b>
	<b>Step 3:</b> If accepted, deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>
<b>Category 3: Research Area (RA) Individual Pre-Proposals</b>	EPS System Opens	<b>August 3, 2021</b>
	Deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via the EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>
<b>Category 4: Transformational Science Pre-Proposals (TSCI)</b>	<b>Step 1:</b> Letter of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2:</b> NFO notifies all PIs who submitted Letters of Intent whether their proposed research has been accepted	<b>July 29, 2021</b>
	EPS System Opens	<b>August 3, 2021</b>
	<b>Step 3:</b> Deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via the EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>



# **Category 1**

**Commodity-based and  
VDHR-Uniform Nursery  
Coordinated Projects (CPs)**



## Category 1 Instructions

### Commodity-based and VDHR-Uniform Nursery Coordinated Projects (CPs)

#### Research Alignment

Does my proposed research belong in a Commodity-based or VDHR-Uniform Nursery Coordinated Project? Yes, if the primary focus of your proposed research involves the following:

<b>Commodity-based Coordinated Projects</b>	Barley (BAR)
	Durum (DUR)
	Hard Winter Wheat (HWW)
<b>VDHR-Uniform Nursery Coordinated Projects</b>	Spring Wheat Region <i>States included in this CP: ID, MN, MT, ND, SD</i>
	Northern Soft Winter Wheat <i>States included in this CP: IN, IL, KY, MI, MO, NY, OH</i>
	Southern Soft Red Winter Wheat <i>States included in this CP: AR, GA, LA, MD, NC, SC, TX, VA</i>

**NOTE:** If you are working on spring or soft winter wheat and your state is not listed with one of the VDHR Uniform Nursery CPs, please contact the Networking and Facilitation Office (NFO) for guidance.

#### Category 1 Contacts (Coordinated Project Committee Chairs)

<b>Commodity-Based Coordinated Projects</b>		
Barley (BAR-CP)	Tom Baldwin, ND State Univ	<a href="mailto:Thomas.t.baldwin@ndsu.edu">Thomas.t.baldwin@ndsu.edu</a>
Durum (DUR-CP)	Steven Xu, USDA-ARS, CA	<a href="mailto:Steven.Xu@USDA.GOV">Steven.Xu@USDA.GOV</a>
Hard Winter Wheat (HWW-CP)	Sunish Sehgal, SD State Univ	<a href="mailto:Sunish.Sehgal@sdstate.edu">Sunish.Sehgal@sdstate.edu</a>
<b>VDHR - Uniform Nursery Coordinated Projects</b>		
Spring Wheat Region (VDHR-SPR)	Andrew Green, ND State Univ	<a href="mailto:andrew.i.green@ndsu.edu">andrew.i.green@ndsu.edu</a>
Northern Soft Winter Wheat (VDHR-NWW)	Clay Sneller, Ohio State Univ	<a href="mailto:sneller.5@osu.edu">sneller.5@osu.edu</a>
Southern Soft Red Winter Wheat (VDHR-SWW)	Steve Harrison, Louisiana State Univ	<a href="mailto:sharrison@agcenter.lsu.edu">sharrison@agcenter.lsu.edu</a>

#### Key Deadlines

<b>Category 1: Commodity-based and VDHR-Uniform Nursery Coordinated Projects (CP)</b>	<b>Step 1:</b> Letter of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2:</b> CP Chairs notify all PIs who submit Letters of Intent to their Coordinated Project on status and next steps	<b>July 29, 2021</b>
	USWBSI EPS System Opens	<b>August 3, 2021</b>
	<b>Step 3:</b> If accepted, deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>

## PI Steps for Category 1 Submission Process

### 1. Pre-Submission Letter of Intent (LOI) Requirements

If you plan to participate in one of the Coordinated Projects, you must submit a Letter of Intent form that adheres to the following:

- Proposed project title
- Name of PI and Co-PIs
- Indicate the anticipated length (2-year or 4-year) and if this is a new or continuing project with USWBSI
- Identify the Research Area in which your project fits (applicable to Commodity-based CPs only)
- Synopsis that describes the following:
  - the CP's research priority which your project fits (if it does not fit one of the CP's stated Research Priorities, provided starting on page 41, suggest a new objective)
  - the problem being addressed
  - approaches for solving the problem and the rationale for using these approaches
  - the outputs of the project and how those outputs will be used by researchers, extension educators, or stakeholders to accomplish the overall mission of the USWBSI
- Include a statement that demonstrates that the PI/Co-PI's are capable of carrying out the proposed research based on past research productivity and expertise in the relevant field(s) of research
- Projected total amount of budget request for Year 1 of project



**Submission Deadline:**

Letter of Intent form must be submitted online by **July 1, 2021**.

**Submission Link:**

[Category 1 Online Letter of Intent Forms](#)

### 2. Letters of Intent (LOI) Review & Notification

After committee review, the CP Committee Chair will notify all PIs who submitted Letters of Intent whether their proposed research has been accepted into the Coordinated Project by July 29, 2021.

**NOTE:** If your proposed research was not accepted by one of the CPs, you may submit an individual project pre-proposal for consideration following the instructions for Category 3 (page 26).

### 3. Pre-Proposal Submission Requirements

All PIs notified of acceptance to submit a pre-proposal into a Commodity-based or VDHR-Uniform Nursery Coordinated Project must complete the online pre-proposal submission via the [USWBSI EPS System](#). PIs are encouraged to review the form once it is available to familiarize yourself with all the required components. PIs will also be able to start the submission process, save and return as needed until the deadline for submission is reached. Requirements for this online submission tool must include and adhere to the following:

#### Principal Investigator Contact Information

- Last Name
- First Name
- Email Address
- Institution
- Department
- Address
- Work Phone

#### Sponsored Programs Contact Information

- Last Name
- First Name
- Email Address

### Project Title of Proposed Research

The title of the project pre-proposal must be brief (**85-character maximum** including spaces and punctuation), yet represent the major thrust of the project. Because this title will be used to provide information to those who may not be familiar with the proposed project, highly technical words or phraseology should be avoided where possible. In addition, phrases such as “investigation of” or “research on” should not be used. Keep in mind titles should be **broad in scope**, allowing for **changes in project objectives annually** as needed if awarded.

### Research Category

Select the specific Coordinated Project under Category 1 you have been approved for a pre-proposal.

### Project Type

Indicate if this is a new project or a continuing project that was previously or currently awarded.

### Project Duration

New this year (for FY22), PIs will have the option to select the duration of the project for either a 2-year or 4-year term. The USWBSI is encouraging longer term (4-year) projects to reduce the significant processing requirements for the USDA-ARS, USWBSI-NFO, University Sponsored Programs Offices and PIs to establish new agreements. Please note, the USWBSI has always awarded funding annually and will continue to do so, providing your project duration, if awarded, does not commit the USWBSI to the full-term budget., Annual performance reports and renewal review/approval will continue to be required for each year of the project. The submitted duration simply allows the USDA-ARS to establish the agreement with those terms in place, allowing for continual amendments for the duration of the term. If you have questions about determining the term length of your project please contact the USWBSI Networking and Facilitation Office for assistance, [nfo@scabusa.org](mailto:nfo@scabusa.org) or call 517.290.5023.



### PI and Co-Investigator Background Information – Upload Required

To assist peer reviewers in assessing the competence and experience of the proposed collaborators. The items listed below should be included for the PI and Co-Investigators who are expected to work on the project in a significant fashion (e.g. expectation of co-authorship on ensuing publications), whether or not funds are sought for this support. (**Note:** Accommodations may be requested if one of your Co-PIs is a PI on a USWBSI pre-proposal and is unable to provide their CPS form to you prior to the pre-proposal submission deadline; contact the USWBSI-NFO for assistance.) The PI will need to upload the following items for the PI and Co-Investigators:

- **Curriculum Vitae (CV) with Publication List**

**Curriculum Vitae.** The CV should be limited to a presentation of academic and research credentials, e.g., educational, employment and professional history, and honors and awards. Unless pertinent to the project, do not include meetings attended, seminars, or personal data.

**Publication List.** A chronological list of all publications in refereed journals during the past five years, including those in press, should be included with each project members CV, non-refereed technical publications that have relevance to the proposed project may be included.

**NOTE:** The CV and Publication List should be uploaded as one PDF file and must not exceed four pages per scientist. CV/Pubs for collaborators or sub-contractors are not required.

- **Current and Pending Support (CPS) Form.** Download the current CPS form from the FY22 RFP web page at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates). Other versions of Current and Pending Support forms will NOT be accepted. All PIs submitting a Pre-Proposal must also submit completed Current and Pending Support Forms listing other current public or private support to which key personnel identified in the Pre-Proposal have committed portions of their time, whether or not salary support for person(s) involved is included in the budget. Analogous information must be provided for any pending proposals that are being considered by, or that will be submitted in the near future to, other possible sponsors, including other USDA Programs or agencies, and the USWBSI. Concurrent submission of identical or similar proposals to the other possible sponsors will not prejudice the review or evaluation by the USWBSI for this purpose. However, a Pre-Proposal that duplicates or overlaps substantially with a **proposal already reviewed and funded (or to be funded)** by another organization or agency will not be recommended under this program.



### Project Pre-Proposal Materials – Upload Required

The following materials should be developed and uploaded as one PDF file in the order noted and adhering to the requirements as specified. Begin by downloading the 'Project Pre-Proposal Form' from [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates).

#### Project Summary

Fill in the Project Summary Page (limited to 2 pages), using Calibri or Times New Roman 12-point font, and includes the following:

- Project Title (same as what is included in the submission form)
- Project PI, Institution and Co-PI(s), Institution(s)
- Project Summary

The text for this portion of the project summary **should not exceed 400 words** and should focus on the following (**all four bullets below must be addressed**):

- Overall project goal(s)
- Project Objectives (list in numbered format) and Expected Outcome(s) for each objective
- Approaches that will be used to accomplish project goal(s) within the period of proposed work
- Statement of Mutual Interest (i.e. how will stakeholders/end-users benefit from this research)

Additionally, you should include these items in the Project Summary section (this will not be counted toward the 400-word count requirement).

- Abbreviated (but tentative) Project Schedule/Timeline for the total project duration (i.e. all years)
- Total Estimated Requested Amount for each year of the project

#### Project Description

The Project Description should immediately follow the Project Summary. This plan must describe how your work specifically fits into the overall Coordinated Project and identify any linkages to other work plans that are part of the Coordinated Project. The Project Description should be formatted using Calibri or Times New Roman, 12 point or higher, black colored font with one-inch margins. Bold formatting should only be used for section headings or used minimally to emphasize importance or significance. **NOTE:** Digital images inserted into the Project Description must fit within the five (5) page limit. The **maximum size of images** to be included is 1200 x 1500 pixels, using 256 colors. Figures must be legible when printed on an 8.5" x 11" page (100% scale). Conformance to the format requirements will be strictly enforced.

The Project Description should not exceed five (5) pages in length (including tables and figures) and should describe in clear, concrete terms the substance of your proposed research including the following:

- Title. Same as what is included in the submission form and Project Summary
- USWBSI Research Priority Alignment. Relevance of the project to the goals of the U.S. Wheat and Barley Scab Initiative with specific reference to the priorities listed in the FY22 Program Descriptions and Research Priorities (PD-RP) should be clearly stated. Research Priorities can be viewed starting on page 41 or they can be found on their research page, which can be accessed at <https://scabusa.org/research>.
- Rationale and Significance. It is understood that head scab is a devastating disease. Acknowledgment of this fact should require no more than one sentence. Concisely present the rationale behind the proposed research; identify the gaps in the knowledge base that your proposed research is trying to fill.
- Research Materials and Methods. Specifically, this section must include:
  - The hypotheses or questions being asked;
  - A description of the investigations and/or experiments proposed in the sequence in which the investigation or experiments are to be performed;
  - Techniques and methodologies to be used in carrying out the proposed project, including the feasibility of the techniques. (Describe in step by step fashion exactly what techniques, materials and methods will be used.);

- Results expected;
- Means by which experimental data will be analyzed or interpreted;
- Means of applying results or accomplishing technology transfer, where appropriate;
- Pitfalls that may be encountered;
- Limitations to proposed procedures; and
- A detailed (but tentative) schedule/timeline for conducting major steps involved in these investigations and/or experiments for Year 1 (in alignment with Year 1 Budget).

**NOTE:** Failure to address each of the issues in the bullet list will diminish the likelihood of the success of your pre-proposal being recommended for funding.

### References to Project Description

Reference information is required of references cited in the Project Description. PIs must follow accepted scholarly practices in providing citations for source materials. While there is no established page limitation for the references, this section must include bibliographic citations only, and must not be used to provide parenthetical information outside of the project description.

### Facilities and Equipment

All facilities and major items of equipment available for use or assignment to the proposed project during the requested period of support should be described. In addition, items of nonexpendable equipment necessary to conduct and successfully conclude the proposed project should be listed (including dollar amounts), and if funds are requested for acquisition, justification should be included in the Budget Justification Worksheet.

### Collaborative or Sub-contractual Arrangements

If the nature of the proposed project requires collaboration or contractual arrangements with other research scientists, corporations, organizations, agencies, etc., the applicant must identify the collaborator(s) and provide a **detailed explanation of the nature** of the collaboration. Evidence in the form of a letter of intent (may be in the form of an e-mail) from all collaborators must be provided to assure reviewers that collaborators or sub-contractors involved have agreed to render the indicated services. **The letter of intent must include specific details describing the services the collaborator will provide.**

### Budget Materials

PIs will need to provide the following detailed budget documentation. New this year, an Excel template with built-in formulas, space for your justification narrative, and auto-generation of the Budget Summary page has been created. Double checking that all of your details transferred as intended and all totals match is advised.

### Budget Type

Select 'Single Budget' if award would be going to only one individual (i.e. PI). Select 'Multi-PI Budget' if award from ARS would be going to multiple individuals (i.e. separate agreements/awards). Please note, two templates for developing either a single or multi-PI Budget Justification Worksheet & Budget Summary are available, make sure to select the one that matches with your budget type.

### Budget Request

You will need to enter the final budget requested dollar amount for Year 1 of your project, as well as an estimated budget for the duration of the project term (depending on your selection of a 2-year or 4-year project). The full duration amount is just an estimate and can be a multiplication of first year for the term or if you anticipate adjustments we encourage the PI to adjust as expected. A detailed budget justification worksheet will not be required beyond the first year.



### Budget Justification Worksheet & Budget Summary – Upload Required

Utilizing one of the Excel '**Budget Justification Worksheet & Budget Summary**' Templates (available at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates)), complete all the relevant sections and follow the instructions included in the file. Once finalized, upload the Excel Template into your submission. **NOTE:** For

all line item categories and subcategories where funds are requested, **descriptive details must be provided** (in the blue segments of the template) that justify the amount being requested.

Make sure to select the appropriate template for your situation, template options include:

- **Budget Justification Worksheet & Budget Summary Template – Single PI version;** single PI/single project
- **Budget Justification Worksheet & Budget Summary Template – Multi-PI version;** for a pre-proposal with multiple PIs on a single project that will be awarded out to multiple PI institutions. The 'Multi-PI' version allows for up to five (5) different PIs to each have a separate budget justification worksheet that will transfer automatically into a single cumulative Budget Summary page. In such cases, if a 'Multi-PI' proposed research project is recommended for funding, the awards will go directly to the individuals' institutions from USDA-ARS. If your pre-proposal has more than five (5) Co-PIs, contact the USWBSI-NFO for instructions.

**Tuition Remission:** Tuition remission is **permitted** under USDA-ARS **research grant agreements** with any type of recipient organization (i.e. universities). However, for PIs currently funded under a Non-Assistance Cooperative Agreement (NACA), tuition remission is NOT allowed.

**Indirect Cost (IDC) Limitation 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 project costs** to maximize total funding used for research.

As part of the 2018 Farm Bill - Agriculture Improvement Act of 2018 – signed into law (Public Law 115-334) on 12/20/18, a fixed Indirect Cost Limitation of 10% has been set for the USWBSI ([See Title VII, Subtitle C, Section 7303](#), page 332 of bill; page 336 of PDF). This is a limitation on the reimbursement of indirect costs and represents the maximum amount of grant dollars available to recover indirect costs. PIs must calculate the allowable IDC % per their institutions NICRA/F&A rate agreement to determine which calculation generates the lowest IDC amount for reimbursement, in accordance with the 10% limitation of Total Federal Funds Awarded. Universities may voluntarily elect to use a percentage below 10% for pre-proposals submitted to the USWBSI, however they **cannot charge a rate higher than 10%**. A formula is included in the template to determine the 10% limitation amount, PIs will need to enter their allowable NICRA/F&A rate for comparison, the lower amount will automatically carry forward.

**NOTE:** Indirect Costs are not applicable to ARS Scientists and PIs currently funded under Non-Assistance Cooperative Agreements (NACAs).

**Small Business Innovated Research (SBIR) Fee:** In the event your proposed research is recommended for funding, the SBIR Fee will be assessed prior to the award being made by USDA-ARS. The SBIR fee is mandated by Congress under [Public Law 112-81, Subtitle A, SEC. 5102 \(a\) \(1\) \(I\)](#) in support of the Small Business Act. The current rate for the SBIR fee is 3.2%.

This fee is charged only to projects that are funded through a research grant agreement or a NACA with USDA-ARS (i.e. not applicable to ARS PIs). When applicable, PIs are advised to incorporate the Small Business Innovated Research (SBIR) fee into their budget request. The formula to calculate the fee is included in the template.

## Conditional Forms



### **Breeder Form** – Upload Required

If you are submitting a Pre-Proposal that focuses on the development of varieties, you must also complete and upload a 'Breeder Form'. This form can be downloaded from the USWBSI's Website at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates) under 'Category 1 Forms'.



### **Pre-Breeding/Germplasm Form** – Upload Required

If the primary output for your proposed project is pre-breeding or development of germplasm, rather than a finished variety for commercial production, you must complete and upload a Pre-Breeding/Germplasm Form. This form can be downloaded from the USWBSI's Website at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates) under 'Category 1 Forms'.

**NOTE:** If you are completing a Pre-Breeding/Germplasm form, you also need to provide letters of support from your collaborators.



**Submission Deadline:** The Pre-Proposal must be submitted via the USWBSI EPS system by **September 21, 2021.**

**Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)


**PI Required Items Checklist for Category 1 Submission Process**

- Submit Letter of Intent online form, requires approval by CP before proceeding to Pre-Proposal Submission Process
  - If approved, initiate Pre-Proposal Submission via the [USWBSI EPS System](#)
  - Use the [templates and forms](#) provided for required uploads
  - Prepare materials for submission upload per specifics outlined in instructions
    - PI Contact Information
    - Sponsored Programs Contact Information
    - Project Title (keep broad in scope, 85 character maximum)
    - Research Category
    - Project Type (note if new or continuing project)
    - Project Duration (new this year select either a 2-year or 4-year project)
    - PI and Co-Investigator Background Information (collect from your Co-PIs and upload)
      - CV(s)/Publication List(s)
      - Current & Pending Support Forms
    - Project Materials (upload as one PDF meeting requirements noted)
      - Project Summary (should not exceed 400 words)
      - Project Description (should not exceed five pages including tables and figures)
      - References to Project Description
      - Facilities and Equipment
      - Collaborative or Sub-contractual Agreements
        - Letters from Collaborators (required for all pre-breeding/germplasm development related Pre-Breeding Proposals)
    - Budget Materials
      - Budget Type
      - Budget Request
      - Budget Justification Worksheet & Budget Summary Template(s) (prepare in Excel template and upload; justification narrative details required for all sections and subsections where funds are being requested; e-signature required on the Budget Summary page)
- NOTE:** Make sure to use appropriate template either Individual or Multi-PI

**Conditional Forms**

- Breeder Form (required for all variety development related Pre-Proposals)
- Pre-Breeding/Germplasm Form (required for all pre-breeding/germplasm development related Pre-Proposals)

Category 1: <b>Commodity-based and VDHR-Uniform Nursery Coordinated Projects (CP)</b>	<b>Step 1:</b> Letters of Intent (LOI) online form submitted by PI	<b>July 1, 2021</b>
	<b>Step 2:</b> Notification by CP Chairs on LOI status	<b>July 29, 2021</b>
	USWBSI EPS System Opens	<b>August 3, 2021</b>
	<b>Step 3:</b> If accepted, FY22 Pre-Proposal(s) submitted via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>



**Letter of Intent Submission Link:** [Category 1 Online Letter of Intent Forms](#)  
**Pre-Proposal Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)  
**Forms & Templates for Upload:** [All USWBSI FY22 RFP Forms & Templates to Prepare & Upload](#)





# **Category 2**

**FHB Integrated Management  
Coordinated Project (IM-CP)**

## Category 2 Instructions

### FHB Integrated Management Coordinated Project (IM-CP)

#### Research Alignment

Does my proposed research belong in the FHB Integrated Management Coordinated Project? Yes, if the primary focus of your proposed research involves the following:

<b>Integrated Management Studies</b>	Integrated management strategies for FHB and DON including tillage practices, crop sequences, and other cultural practices targeting <i>Fusarium</i> -infested residues.
--------------------------------------	--

#### Category 2 Contact Information (Coordinated Project Coordinator)

FHB Integrated Management Coordinated Project (IM-CP)		
<b>Integrated Management Studies</b>	Pierce Paul, Ohio State Univ	<a href="mailto:paul.661@osu.edu">paul.661@osu.edu</a>

#### Key Deadlines


<b>Category 2: FHB Integrated Management Coordinated Project (IM-CP)</b>	<b>Step 1:</b> Letters of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2a:</b> IM-CP Coordinator notifies all PIs who submit Letters of Intent on status and next steps	<b>July 29, 2021</b>
	EPS System Opens	<b>August 3, 2021</b>
	<b>Step 2b:</b> If accepted, IM-CP Coordinator sends protocols to PI's accepted into the IM-CP	<b>August 19, 2021</b>
	<b>Step 3:</b> If accepted, deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>

#### PI Steps for Category 2 Submission Process

##### 1. Pre-Submission – Letter of Intent (LOI)

If you plan to participate in the FHB Integrated Management Coordinated Project, you must submit a Letter of Intent that adheres to the following:

- Proposed project title
- Name of PI and Co-PIs
- Indicate the anticipated length (2-year or 4-year) and if this is a new or continuing project with USWBSI
- Reasons proposed component is needed
- Goals in the [USWBSI Action Plan](#) addressed by this proposed research
- Research needs from the USWBSI Program Description and Research Priorities for [FHB Management](#) addressed by this research
- Outputs of the project and how those outputs will be used by researchers, extension educators, or stakeholders to accomplish the overall mission of the USWBSI
- Include a statement that demonstrates that the PI/Co-PIs are capable of carrying out the proposed research based on past research productivity and expertise in the relevant field(s) of research
- Projected total amount of budget request for Year 1 of project

	<b>Submission Deadline:</b>	Letter of Intent form must be submitted online by <b>July 1, 2021</b>
	<b>Submission Link:</b>	<a href="#">Category 2 Online Letter of Intent Form</a>

## 2. Letters of Intent (LOI) Review & Notification

After committee review, the CP Coordinator will notify all PIs who submitted Letters of Intent whether their proposed research has been accepted into the Coordinated Project by July 29, 2021. If accepted into the IM-CP, the Coordinated Project Coordinator will send the standard protocols to all PIs by August 19, 2021.

**NOTE:** If your proposed research was not accepted by the FHB Integrated Management-CP, you may submit an individual project pre-proposal for consideration following the instructions for Category 3 (page 26).

## 3. Pre-Proposal Submission Requirements

All PIs notified of acceptance to submit a pre-proposal into the FHB Integrated Management Coordinated Project must complete the online pre-proposal submission via the [USWBSI EPS System](#). PIs are encouraged to review the form once it is available to familiarize yourself with all the required components. PIs will also be able to start the submission process, save and return as needed until the deadline for submission is reached. Requirements for this online submission tool must include and adhere to the following:

### Principal Investigator Contact Information

- Last Name
- First Name
- Email Address
- Institution
- Department
- Address
- Work Phone

### Sponsored Programs Contact Information

- Last Name
- First Name
- Email Address

### Project Title of Proposed Research

The title of the project pre-proposal must be brief (**85-character maximum** including spaces and punctuation), yet represent the major thrust of the project. Because this title will be used to provide information to those who may not be familiar with the proposed project, highly technical words or phraseology should be avoided where possible. In addition, phrases such as “investigation of” or “research on” should not be used. Keep in mind titles should be **broad in scope**, allowing for **changes in project objectives annually** as needed if awarded.

### Research Category

Select the Category 2 FHB Integrated Management Coordinated Project (IM-CP)

### Project Type

Indicate if this is a new project or a continuing project that was previously or currently awarded.

### Project Duration

New this year (for FY22), PIs will have the option to select the duration of the project for either a 2-year or 4-year term. The USWBSI is encouraging longer term (4-year) projects to reduce the significant processing requirements for the USDA-ARS, USWBSI-NFO, University Sponsored Programs Offices and PIs to establish new agreements. Please note, the USWBSI has always awarded funding annually and will continue to do so, providing your project duration, if awarded, does not commit the USWBSI to the full-term budget. Annual performance reports and renewal review/approval will continue to be required for each year of the project. The submitted duration simply allows the USDA-ARS to establish the agreement with those terms in place, allowing for continual amendments for the duration of the term. If you have questions about determining the term length of your project please contact the USWBSI Networking and Facilitation Office for assistance, [nfo@scabusa.org](mailto:nfo@scabusa.org) or call 517.290.5023.



### **PI and Co-Investigator Background Information** – Upload Required

To assist peer reviewers in assessing the competence and experience of the proposed collaborators. The items listed below should be included for the PI and Co-Investigators who are expected to work on the project in a significant fashion (e.g. expectation of co-authorship on ensuing publications), whether or not funds are sought for this support. (**Note:** Accommodations may be requested if one of your Co-PIs is a PI on a USWBSI pre-proposal and is unable to provide their CPS form to you prior to the pre-proposal submission deadline; contact the USWBSI-NFO for assistance.) The PI will need to upload the following items for the PI and Co-Investigators:

- **Curriculum Vitae (CV) with Publication List**

**Curriculum Vitae.** The CV should be limited to a presentation of academic and research credentials, e.g., educational, employment and professional history, and honors and awards. Unless pertinent to the project, do not include meetings attended, seminars, or personal data.

**Publication List.** A chronological list of all publications in refereed journals during the past five years, including those in press, should be included with each project members CV, non-refereed technical publications that have relevance to the proposed project may be included.

**NOTE:** The CV and Publication List should be uploaded as one PDF file and must not exceed four pages per scientist. CV/Pubs for collaborators or sub-contractors are not required.

- **Current and Pending Support (CPS) Form.** Download the current CPS form from the FY22 RFP web page at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates). All PIs submitting a Pre-Proposal must also submit completed Current and Pending Support Forms listing other current public or private support to which key personnel identified in the PRP have committed portions of their time, whether or not salary support for person(s) involved is included in the budget. Analogous information must be provided for any pending proposals that are being considered by, or that will be submitted in the near future to, other possible sponsors, including other USDA Programs or agencies, and the USWBSI. Concurrent submission of identical or similar proposals to the other possible sponsors will not prejudice the review or evaluation by the USWBSI for this purpose. However, a PRP that duplicates or overlaps substantially with a **proposal already reviewed and funded (or to be funded)** by another organization or agency will not be recommended under this program.

### **Project Pre-Proposal Materials** – Upload Required

The following materials should be developed and uploaded as one PDF file in the order noted and adhering to the requirements as specified. Begin by downloading the 'Project Pre-Proposal Form' from [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates).

#### **Project Summary**

Fill in the Project Summary Page (limited to 2 pages), using Calibri or Times New Roman 12 point font, and must include the following:

- Project Title (same as what is included in the submission form)
- Project PI, Institution and Co-PI(s), Institution(s)
- Project Summary

The text for this portion of the project summary **should not exceed 400 words** and should focus on the following (**all four bullets below must be addressed**):

- Overall project goal(s)
- Project Objectives (list in numbered format) and Expected Outcome(s) for each objective
- Approaches that will be used to accomplish project goal(s) within the period of proposed work
- Statement of Mutual Interest (i.e. how will stakeholders/end-users benefit from this research)

Additionally, you should include these items in the Project Summary section (this will not be counted toward the 400-word count requirement).

- Abbreviated (but tentative) Project Schedule/Timeline for the full project duration (i.e. all years)
- Total Estimated Requested Amount for each year of the project



## Project Description

The Project Description should immediately follow the Project Summary. This plan must describe how your work specifically fits into the overall Coordinated Project and identify any linkages to other work plans that are part of the Coordinated Project. The Project Description should be formatted using Calibri or Times New Roman, 12 point or higher, black colored font with one-inch margins. Bold formatting should only be used for section headings or used minimally to emphasize importance or significance. **NOTE:** Digital images inserted into the Project Description must fit within the five (5) page limit. The **maximum size of images** to be included is 1200 x 1500 pixels, using 256 colors. Figures must be legible when printed on an 8.5" x 11" page (100% scale). Conformance to the format requirements will be strictly enforced.

The Project Description should not exceed five (5) pages in length (including tables and figures) and should describe in clear, concrete terms the substance of your proposed research including the following:

- Title. Same as what is included in the submission form and Project Summary
- USWBSI Research Priority Alignment. Relevance of the project to the goals of the U.S. Wheat and Barley Scab Initiative with reference to the applicable priorities listed in the FY22 Program Descriptions and Research Priorities (PD-RP) should be clearly stated. Research Priorities can be viewed starting on page 41 and can also be found on their research page, which can be accessed at <https://scabusa.org/research>.
- Rationale and Significance. It is understood that head scab is a devastating disease. Acknowledgment of this fact should require no more than one sentence. Concisely present the rationale behind the proposed research; identify the gaps in the knowledge base that your proposed research is trying to fill.
- Research Materials and Methods. Specifically, this section must include:
  - The hypotheses or questions being asked
  - A description of the investigations and/or experiments proposed in the sequence in which the investigation or experiments are to be performed (NOTE: The Coordinated Project Coordinator will send the standard protocols to all PIs whose proposed research projects were accepted into the CP by August 19, 2021.)
  - Techniques and methodologies to be used in carrying out the proposed project, including the feasibility of the techniques. (Describe in step by step fashion exactly what techniques, materials and methods will be used.)
  - Results expected
  - Means by which experimental data will be analyzed or interpreted
  - Means of applying results or accomplishing technology transfer, where appropriate
  - Pitfalls that may be encountered
  - Limitations to proposed procedures
  - A detailed (but tentative) schedule/timeline for conducting major steps involved in these investigations and/or experiments for Year 1 (in alignment with Year 1 Budget).

**NOTE:** Failure to address each of the issues in the bullet list will diminish the likelihood of the success of your pre-proposal being recommended for funding.

## References to Project Description

Reference information is required of references cited in the Project Description. PIs must follow accepted scholarly practices in providing citations for source materials. While there is no established page limitation for the references, this section must include bibliographic citations only, and must not be used to provide parenthetical information outside of the project description.

## Facilities and Equipment

All facilities and major items of equipment available for use or assignment to the proposed project during the requested period of support should be described. In addition, items of nonexpendable equipment necessary to conduct and successfully conclude the proposed project should be listed (including dollar amounts), and, if funds are requested for their acquisition, justification should be included in the Budget Justification Worksheet.



## Budget Materials

PIs will need to provide the following detailed budget documentation. New this year, an Excel template with built-in formulas, space for your justification narrative, and auto-generation of the Budget Summary page has been created. Double checking that all of your details transferred as intended and all totals match is advised.

### Budget Type

Select 'Single Budget' with award going to only one individual (i.e. PI). The 'Multi-PI Budget' is only for awards from ARS that go to multiple individuals (i.e. separate agreements/awards). Please note, two templates have been developed, make sure to select the "Single Budget Version" for your budget type.

### Budget Request

You will need to enter the final budget requested dollar amount for Year 1 of your project, as well as an estimated budget for the duration of the project term (depending on your selection of a 2-year or 4-year project). The full duration amount is just an estimate and can be a multiplication of first year for the term or if you anticipate adjustments we encourage the PI to adjust as expected. A detailed Budget Justification Worksheet & Budget Summary will not be required beyond the first year.



### Budget Justification Worksheet & Budget Summary – Upload Required

Utilizing the Excel '**Budget Justification Worksheet & Budget Summary Template – Single PI version**' (available at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates)), complete all the budget justification sections and follow the instructions included in the file. Once finalized, upload the Excel Template into your submission.

**NOTE:** For all line item categories and subcategories where funds are being requested, **descriptive details must be provided** (in the blue segments of the template) that justify the amount being requested.

**Tuition Remission:** Tuition remission is **permitted** under USDA-ARS **research grant agreements** with any type of recipient organization (i.e. universities). However, for PI's currently funded under a Non-assistance Cooperative Agreement (NACA), tuition remission is NOT allowed.

**Indirect Cost (IDC) Limitation 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 project costs** to maximize total funding used for research.

As part of the 2018 Farm Bill - Agriculture Improvement Act of 2018 – signed into law (Public Law 115-334) on 12/20/18, a fixed Indirect Cost Limitation of 10% has been set for the USWBSI ([See Title VII, Subtitle C, Section 7303](#), page 332 of bill; page 336 of PDF). This is a limitation on the reimbursement of indirect costs and represents the maximum amount of grant dollars available to recover indirect costs. PIs must calculate the allowable IDC % per their institutions NICRA/F&A rate agreement to determine which calculation generates the lowest IDC amount for reimbursement, in accordance with the 10% limitation of Total Federal Funds Awarded. Universities may voluntarily elect to use a percentage below 10% for pre-proposals submitted to the USWBSI, however they **cannot charge a rate higher than 10%**. A formula is included in the template to determine the 10% limitation amount, PIs will need to enter their allowable NICRA/F&A rate for comparison, the lower amount will automatically carry forward.

**NOTE:** Indirect Costs are not applicable to ARS Scientists and PIs currently funded under Non-Assistance Cooperative Agreements (NACAs).

**Small Business Innovated Research (SBIR) Fee:** In the event your proposed research is recommended for funding, the SBIR Fee will be assessed prior to the award being made by USDA-ARS. The SBIR fee is mandated by Congress under [Public Law 112-81, Subtitle A, SEC. 5102 \(a\) \(1\) \(I\)](#) in support of the Small Business Act. The current rate for the SBIR fee is 3.2%.



This fee is charged only to projects that are funded through a grant agreement or a NACA with USDA-ARS (i.e. not applicable to ARS PIs). When applicable, PIs are advised to incorporate the Small Business Innovated Research (SBIR) fee into their budget request. The formula to calculate the fee is included in the template.

 **IM-CP Trials Summary Form** – Upload Required

If you are submitting a Pre-Proposal for Category 2 focusing on the integrated management strategies for FHB and DON including tillage practices, crop sequences, and other cultural practices targeting *Fusarium*-infested residues, you must also complete an 'IM-CP Trials Summary Form.' The purpose of the form is that it will allow the review panel to readily see what site specific decisions were made by the PI in developing their trials. This form can be downloaded from the USWBSI's Website at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates) under 'Category 2 Forms'.



**Submission Deadline:** The Pre-Proposal must be submitted via the USWBSI EPS system by **September 21, 2021.**


**Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)



**PI Required Items Checklist for Category 2 Submission Process**

- Submit Letter of Intent online form, requires approval by IM-CP Coordinator before proceeding to Pre-Proposal Submission Process
- If approved, initiate Pre-Proposal Submission via the [USWBSI EPS System](#)
- Use the [templates and forms](#) provided for required uploads
- Prepare materials for submission upload per specifics outlined in instructions
  - PI Contact Information
  - Sponsored Programs Contact Information
  - Project Title (keep broad in scope, 85 character maximum)
  - Research Category
  - Project Type (note if new or continuing project)
  - Project Duration (new this year select either a 2-year or 4-year project)
  - PI and Co-Investigator Background Information (collect from your Co-PIs and upload)
    - CV(s)/Publication List(s)
    - Current & Pending Support Forms
  - Project Materials (upload as one PDF meeting requirements noted)
    - Project Summary (should not exceed 400 words)
    - Project Description (should not exceed five pages including tables and figures)
    - References to Project Description
    - Facilities and Equipment
  - Budget Materials
    - Budget Type
    - Budget Request
    - Budget Justification Worksheet & Budget Summary Template(s) (prepare in Excel template and upload; justification narrative details required for all sections and subsections where funds are being requested; e-signature required on the Budget Summary page)
- IM-CP Trials Summary Form

<b>Category 2: FHB Integrated Management Coordinated Project (IM-CP)</b>	<b>Step 1:</b> Letters of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2a:</b> Notification by IM-CP Coordinator on LOI status	<b>July 29, 2021</b>
	EPS System Opens	<b>August 3, 2021</b>
	<b>Step 2b:</b> IM-CP Coordinator sends protocols	<b>August 19, 2021</b>
	<b>Step 3:</b> If accepted, FY22 Pre-Proposal(s) submitted by PIs	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>



**Letter of Intent Submission Link:** [Category 2 Online Letter of Intent Form](#)  
**Pre-Proposal Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)  
**Forms & Templates for Upload:** [All USWBSI FY22 RFP Forms & Templates to Prepare & Upload](#)







# **Category 3**

**Research Area Individual Projects**

## Category 3 Instructions

### Research Area Individual Projects

#### Research Alignment

Does my proposed research belong in the Research Area Individual Project Category? Yes, if your research is in one of the following research areas, and if the primary focus is not on Barley or Integrated Management Studies, or was not accepted by one of the Coordinated Projects, you should complete your pre-proposal using the instructions and forms provided in this section of the FY22 RFP.

<b>Research Area Individual Projects</b>	FHB Management (MGMT)
	Food Safety and Toxicology (FST)
	Gene Discovery and Engineering Resistance (GDER)
	Pathogen Biology and Genetics (PBG)
	Other – Pre-proposals that do not fit into a specific research area or coordinated project may also be submitted in this Category

#### Category 3 Contact Information (Research Area Chairs)

<b>Research Area Individual Projects</b>		
<b>FHB Management (MGMT)</b>	Erick DeWolf, Kansas State Univ	<a href="mailto:Dewolf1@ksu.edu">Dewolf1@ksu.edu</a>
<b>Food Safety and Toxicology (FST)</b>	Dave Kendra, BASF, NC	<a href="mailto:david.kendra@basf.com">david.kendra@basf.com</a>
<b>Gene Discovery and Engineering Resistance (GDER)</b>	Jyoti Shah, Univ of North Texas	<a href="mailto:Jyoti.shah@unt.edu">Jyoti.shah@unt.edu</a>
<b>Pathogen Biology and Genetics (PBG)</b>	Martha Vaughan, USDA, IL	<a href="mailto:martha.vaughan@usda.gov">martha.vaughan@usda.gov</a>

#### Key Deadlines

<b>Category 3: Research Area Individual Projects</b>	USWBSI EPS System Opens	<b>August 3, 2021</b>
	Deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>

#### PI Steps for Category 3 Submission Process

Individual Pre-proposals will be submitted using the [USWBSI's Electronic Pre-Proposal Submission \(EPS\) System](#). PIs are encouraged to review the form once it is available to familiarize yourself with all the required components. PIs will also be able to start the submission process, save and return as needed until the deadline for submission is reached. Requirements for this online submission tool must include and adhere to the following:

##### Principal Investigator Contact Information

- Last Name
- First Name
- Email Address
- Institution
- Department
- Address
- Work Phone

### Sponsored Programs Contact Information

- Last Name
- First Name
- Email Address

### Project Title of Proposed Research

The title of the project pre-proposal must be brief (**85-character maximum** including spaces and punctuation), yet represent the major thrust of the project. Because this title will be used to provide information to those who may not be familiar with the proposed project, highly technical words or phraseology should be avoided where possible. In addition, phrases such as “investigation of” or “research on” should not be used. Keep in mind titles should be **broad in scope**, allowing for **changes in project objectives annually** as needed if awarded.

### Research Category

Select the Research Area whose description and priorities your project is designed to address. Research Area Program Descriptions and Research Priorities can be accessed through the USWBSI’s Website at <https://scabusa.org/research> and are also provided starting on page 41.

### Project Type

Indicate if this is a new project or a continuing project that was previously or currently awarded.

### Project Duration

New this year (for FY22), PIs will have the option to select the duration of the project for either a 2-year or 4-year term. The USWBSI is encouraging longer term (4-year) projects to reduce the significant processing requirements for the USDA-ARS, USWBSI-NFO, University Sponsored Programs Offices and PIs to establish new agreements. Please note, the USWBSI has always awarded funding annually and will continue to do so, providing your project duration, if awarded, does not commit the USWBSI to the full-term budget. Annual performance reports and renewal review/approval will continue to be required for each year of the project. The submitted duration simply allows the USDA-ARS to establish the agreement with those terms in place, allowing for continual amendments for the duration of the term. If you have questions about determining the term length of your project please contact the USWBSI Networking and Facilitation Office for assistance, [nfo@scabusa.org](mailto:nfo@scabusa.org) or call 517.290.5023.



### PI and Co-Investigator Background Information – Upload Required

To assist peer reviewers in assessing the competence and experience of the proposed collaborators. The items listed below should be included for the PI and Co-Investigators who are expected to work on the project in a significant fashion (e.g. expectation of co-authorship on ensuing publications), whether or not funds are sought for this support. (**Note:** Accommodations may be requested if one of your Co-PIs is a PI on a USWBSI pre-proposal and is unable to provide their CPS form to you prior to the pre-proposal submission deadline; contact the USWBSI-NFO for assistance.) The PI will need to upload the following items for the PI and Co-Investigators:

- **Curriculum Vitae (CV) with Publication List**  
**Curriculum Vitae.** The CV should be limited to a presentation of academic and research credentials, e.g., educational, employment and professional history, and honors and awards. Unless pertinent to the project, do not include meetings attended, seminars, or personal data.  
**Publication List.** A chronological list of all publications in refereed journals during the past five years, including those in press, should be included with each project members CV, non-refereed technical publications that have relevance to the proposed project may be included.  
**NOTE:** The CV and Publication List should be uploaded as one PDF file and must not exceed four pages per scientist. CV/Pubs for collaborators or sub-contractors are not required.
- **Current and Pending Support (CPS) Form** Download the current CPS form from the FY22 RFP web page at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates). Other versions of Current and Pending Support forms will NOT be accepted. All PIs submitting a Pre-Proposal must also submit completed Current and Pending Support Forms listing other current public or private support to which key personnel identified in

the PRP have committed portions of their time, whether or not salary support for person(s) involved is included in the budget. Analogous information must be provided for any pending proposals that are being considered by, or that will be submitted in the near future to, other possible sponsors, including other USDA Programs or agencies, and the USWBSI. Concurrent submission of identical or similar proposals to the other possible sponsors will not prejudice the review or evaluation by the USWBSI for this purpose. However, a PRP that duplicates or overlaps substantially with a **proposal already reviewed and funded (or to be funded)** by another organization or agency will not be recommended under this program.

#### **Project Pre-Proposal Materials** – Upload Required

The following materials should be developed and uploaded as one PDF file in the order noted and adhering to the requirements as specified. Begin by downloading the ‘Project Pre-Proposal Form’ from [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates).

#### **Project Summary**

Fill in the Project Summary Page (limited to 2 pages), using Calibri or Times New Roman 12-point font, and must include the following:

- Project Title (same as what is included in the submission form)
- Project PI, Institution and Co-PI(s), Institution(s)
- Project Summary

The text for this portion of the project summary **should not exceed 400 words** and should focus on the following (**all four bullets below must be addressed**):

- Overall project goal(s)
- Project Objectives (list in numbered format) and Expected Outcome(s) for each objective
- Approaches that will be used to accomplish project goal(s) within the period of proposed work
- Statement of Mutual Interest (i.e. how will stakeholders/end-users benefit from this research)

Additionally, you should include these items in the Project Summary section (this will not be counted toward the 400-word count requirement).

- Abbreviated (but tentative) Project Schedule/Timeline for the full project duration (i.e. all years)
- Total Estimated Requested Amount for each year of the project

#### **Project Description**

The Project Description should provide a clear statement of the work to be undertaken and must include: research objectives for the **period of the proposed work** and expected significance; relation to longer-term goals of the PI's project; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to work in progress elsewhere.

The Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a clear description of experimental methods and procedures, and plans for preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and education products.

**Format:** Brevity will assist reviewers and USWBSI/NFO staff in dealing effectively with pre-proposals. **Therefore, the written text of the Project Description must be five pages or less (single spaced or equivalent); ten pages or less in total including figures and tables.** The Project Description should be formatted using Calibri or Times New Roman, 12 point or higher, black colored font with one-inch margins. Bold formatting should only be used for section headings or used minimally to emphasize importance or significance. Digital images inserted into the Project Description must only be included within the page limits (10 pages total). The **maximum size of images** to be included is 1200 x 1500 pixels, using 256 colors. Figures must be legible when printed on an 8.5" x 11" page (100% scale). Conformance to the format requirements will be strictly enforced.

### Project Description Content

The following specific content items should be included in your project description.

**Title.** Same as what is included in the submission form and on the Project Summary page.

**USWBSI Research Priority Alignment.** Relevance of the project to the goals of the U.S. Wheat and Barley Scab Initiative with reference to the applicable priorities listed in the FY22 Program Descriptions and Research Priorities (PD-RP) should be clearly stated. Research Priorities can viewed starting on page 41 and can also be found on their research page, which can be accessed at <https://scabusa.org/research>.

**Introduction.** A clear statement of the goal(s) and supporting objectives or research questions of the proposed project should be included. The most significant published work in the field under consideration, including the work of key project personnel on the current application, should be reviewed. The current status of research in this field of science should also be described **including, but not limited to, any ongoing USWBSI-recommended work currently underway. Preliminary data pertinent to the proposed research may be included in this section.** Present and discuss published literature that is directly related to, and supports, the proposed research (research objectives, materials and methods).

**Rationale and Significance.** It is understood that head scab is a devastating disease. Acknowledgment of this fact should require no more than one sentence. Concisely present the rationale behind the proposed research; identify the gaps in the knowledge base that your pre-proposal is trying to fill. If applicable, please indicate if the research proposed here could lead to successful acquisition of grant funds from other agencies.

**Research Materials and Methods.** Specifically, this section must include:

- The hypotheses or questions being asked
- A description of the investigations and/or experiments proposed in the sequence in which the investigation or experiments are to be performed
- Techniques and methodologies to be used in carrying out the proposed project, including the feasibility of the techniques. (Describe in step by step fashion exactly what techniques, materials and methods will be used.)
- Results expected
- Means by which experimental data will be analyzed or interpreted
- Means of applying results or accomplishing technology transfer, where appropriate
- Pitfalls that may be encountered
- Limitations to proposed procedures
- A detailed (but tentative) schedule/timeline for conducting major steps involved in these investigations and/or experiments for Year 1 (in alignment with Year 1 Budget).

**NOTE:** Failure to address each of the issues in the bullet list will diminish the likelihood of the success of your pre-proposal being recommended for funding.

### References to Project Description

Reference information is required of references cited in the Project Description. PIs must follow accepted scholarly practices in providing citations for source materials. While there is no established page limitation for the references, this section must include bibliographic citations only, and must not be used to provide parenthetical information outside of the project description.

### Facilities and Equipment

All facilities and major items of equipment available for use or assignment to the proposed project during the requested period of support should be described. In addition, items of nonexpendable equipment necessary to conduct and successfully conclude the proposed project should be listed (including dollar

amounts), and, if funds are requested for their acquisition, justification should be included in the Budget Justification Worksheet.

### **Collaborative or Sub-contractual Arrangements**

If the nature of the proposed project requires collaboration or contractual arrangements with other research scientists, corporations, organizations, agencies, etc., the applicant must identify the collaborator(s) and provide a **detailed explanation of the nature** of the collaboration. Evidence in the form of a letter of intent (may be in the form of an e-mail) from all collaborators must be provided to assure reviewers that collaborators or sub-contractors involved have agreed to render the indicated services. **The letter of intent must include specific details describing the services the collaborator will provide.**

### **Budget Materials**

PIs will need to provide the following detailed budget documentation. New this year, an Excel template with built-in formulas, space for your justification narrative, and auto-generation of the Budget Summary page has been created. Double checking that all of your details transferred as intended and all totals match is advised.

### **Budget Type**

Select 'Single Budget' if award would be going to only one individual (i.e. PI). Select 'Multi-PI Budget' if award from ARS would be going to multiple individuals (i.e. separate agreements/awards). Please note, two templates for developing either a single or multi-PI Budget Justification Worksheet & Budget Summary are available, make sure to select the one that matches with your budget type.

### **Budget Request**

You will need to enter the final budget requested dollar amount for Year 1 of your project, as well as an estimated budget for the duration of the project term (depending on your selection of a 2-year or 4-year project). The full duration amount is just an estimate and can be a multiplication of first year for the term or if you anticipate adjustments we encourage the PI to adjust as expected. A detailed Budget Justification Worksheet & Budget Summary will not be required beyond the first year.

### **Budget Justification Worksheet & Budget Summary – Upload Required**

Utilizing one of the **Excel 'Budget Justification Worksheet & Budget Summary' Templates** (available at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates)), complete all the relevant sections and follow the instructions included in the file. Once finalized, upload the Excel Template into your submission. **NOTE: For all line item categories and subcategories where funds are requested, descriptive details must be provided** (in the blue segments of the template) that justify the amount being requested.

Make sure to select the appropriate template for your situation, template options include:

- **Budget Justification Worksheet & Budget Summary Template – Single PI version;** single PI/single project
- **Budget Justification Worksheet & Budget Summary Template – Multi-PI version;** for a pre-proposal with multiple PIs on a single project that will be awarded out to multiple PI institutions. The 'Multi-PI' version allows for up to five (5) different PIs to each have a separate budget justification worksheet that will transfer automatically into a single cumulative Budget Summary page. In such cases, if a 'Multi-PI' proposed research project is recommended for funding, the awards will go directly to the individuals' institutions from USDA-ARS. If your pre-proposal has more than five (5) Co-PIs, contact the USWBSI-NFO for instructions.

**Tuition Remission:** Tuition remission is **permitted** under USDA-ARS **research grant agreements** with any type of recipient organization (i.e. universities). However, for PI's currently funded under a Non-assistance Cooperative Agreement (NACA), tuition remission is **NOT** allowed.

**Indirect Cost (IDC) Limitation 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 project costs** to maximize total funding used for research.

As part of the 2018 Farm Bill - Agriculture Improvement Act of 2018 – signed into law (Public Law 115-334) on 12/20/18, a fixed Indirect Cost Limitation of 10% has been set for the USWBSI ([See Title VII, Subtitle C, Section 7303](#), page 332 of bill; page 336 of PDF). This is a limitation on the reimbursement of indirect costs and represents the maximum amount of grant dollars available to recover indirect costs. PIs must calculate the allowable IDC % per their institutions NICRA/F&A rate agreement to determine which calculation generates the lowest IDC amount for reimbursement, in accordance with the 10% limitation of Total Federal Funds Awarded. Universities may voluntarily elect to use a percentage below 10% for pre-proposals submitted to the USWBSI, however they **cannot charge a rate higher than 10%**. A formula is included in the template to determine the 10% limitation amount, PIs will need to enter their allowable NICRA/F&A rate for comparison, the lower amount will automatically carry forward.

**NOTE:** Indirect Costs are not applicable to ARS Scientists and PIs currently funded under Non-Assistance Cooperative Agreements (NACAs).

**Small Business Innovated Research (SBIR) Fee:** In the event your proposed research is recommended for funding, the SBIR Fee will be assessed prior to the award being made by USDA-ARS. The SBIR fee is mandated by Congress under [Public Law 112-81, Subtitle A, SEC. 5102 \(a\) \(1\) \(I\)](#) in support of the Small Business Act. The current rate for the SBIR fee is 3.2%.

This fee is charged only to projects that are funded through a research grant agreement or a NACA with USDA-ARS (i.e. not applicable to ARS PIs). When applicable, PIs are advised to incorporate the Small Business Innovated Research (SBIR) fee into their budget request. The formula to calculate the fee is included in the template.



**Submission Deadline:**

The Pre-Proposal must be submitted via the USWBSI EPS system by **September 21, 2021.**


**Submission Link:**

[Access the USWBSI EPS Pre-Proposal Submission Form](#)

**PI Required Items Checklist for the Category 3 Submission Process**

- Initiate Pre-Proposal Submission via the [USWBSI EPS System](#)
  - Use the [templates and forms](#) provided for required uploads
  - Prepare materials for submission upload per specifics outlined in instructions
    - PI Contact Information
    - Sponsored Programs Contact Information
    - Project Title (keep broad in scope, 85 character maximum)
    - Research Category
    - Project Type (note if new or continuing project)
    - Project Duration (new this year select either a 2-year or 4-year project)
    - PI and Co-Investigator Background Information (collect from your Co-PIs and upload)
      - CV(s)/Publication List(s)
      - Current & Pending Support Forms
    - Pre-Proposal Materials (upload as one PDF meeting requirements noted)
      - Project Summary (should not exceed 400 words)
      - Project Description (should not exceed five pages of text, 10 pages including tables and figures)
      - References to Project Description
      - Facilities and Equipment
      - Collaborative or Sub-contractual Agreements
        - Letters from Collaborators
    - Budget Materials
      - Budget Type
      - Budget Request
      - Budget Justification & Budget Summary Template(s) (prepare in Excel template and upload; justification narrative details required for all sections and subsections where funds are being requested; e-signature required on the Budget Summary page)
- NOTE:** Make sure to use appropriate template either Individual or Multi-PI

<b>Category 3: Research Area Individual Projects</b>	USWBSI EPS System Opens	<b>August 3, 2021</b>
	Deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>



**Pre-Proposal Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)

**Forms & Templates for Upload:** [All USWBSI FY22 RFP Forms & Templates to Prepare & Upload](#)





# **Category 4**

**Transformational Science Projects**

# Category 4 Instructions

## Transformational Science Projects

### Research Alignment

Does my proposed research belong in the Transformational Science Category? Yes, if the primary focus of your proposed research involves the following:

<b>Transformational Science (TSCI)</b>	The USWBSI is seeking <u>new research approaches to enrich its portfolio with novel concepts and new PIs</u> . If you have a concept for consideration make sure to submit to this new Transformational Science category.
--	---

### Category 4 Contact Information

Transformational Science Projects		
USWBSI NFO Director of Operations	Michelle Bjerkness	517.290.5023   <a href="mailto:nfo@scabusa.org">nfo@scabusa.org</a>

### Key Deadlines

Category 4: Transformational Science (TSCI)	<b>Step 1:</b> Letter of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2:</b> NFO notifies all PIs who submitted Letters of Intent whether their proposed research has been accepted for an FY22 Pre-Proposal	<b>July 29, 2021</b>
	USWBSI EPS System Opens	<b>August 3, 2021</b>
	<b>Step 3:</b> If accepted, deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	<b>PIs Notified of Awards</b>	<b>January 2022</b>

### PI Steps for Category 4 Submission Process

#### 1. Pre-Submission – Letter of Intent (LOI)

If you plan to participate in the Transformational Science Category, you must submit a Letter of Intent that adheres to the following:

- Proposed project title
- Name of PI and Co-PIs, along with titles and years of experience
- Indicate PI/Co-PIs level of involvement with USWBSI, **if any**
- Indicate the anticipated length (2-year or 4-year) and if this is a new or continuing project with USWBSI
- Identify the research area(s), if any (MGMT, FST, GDER, PBG, VDHR) with which your project aligns
- Synopsis that describes the following:
  - the problem being addressed
  - approaches for solving the problem and the rationale for using these approaches
  - unique aspects of this project that make it transformational
  - the outputs of the project and how those outputs will be used by researchers, extension educators, or stakeholders to accomplish the overall mission of the USWBSI
- Include a statement that demonstrates that the PI/Co-PI's are capable of carrying out the proposed research based on past research productivity and expertise in the relevant field(s) of research
- Projected total amount of budget request for Year 1 of project



**Submission Deadline:**  
**Submission Link:**

Letter of Intent form must be submitted online by **July 1, 2021**.  
[Category 4 Online Letter of Intent Forms](#)

### 3. Letters of Intent (LOI) Review & Notification

After Executive Committee review, the USWBSI Networking & Facilitation Office (NFO) will notify all PIs who submitted Letters of Intent whether their proposed research has been accepted for the FY22 Pre-Proposal by July 29, 2021. **NOTE:** If the reviewers determine your project doesn't meet the transformational science expectations, but is still deemed of interest to the USWBSI, you may be invited to submit an individual project pre-proposal following the instructions for Category 3 (page 26).

### 2. Pre-Proposal Submission Requirements

All PIs notified of acceptance to submit a pre-proposal must complete the online pre-proposal submission via the [USWBSI EPS System](#). PIs are encouraged to review the form once it is available to familiarize yourself with all the required components. PIs will also be able to start the submission process, save and return as needed until the deadline for submission is reached. Requirements for this online submission tool must include and adhere to the following:

#### Principal Investigator Contact Information

- Last Name
- First Name
- Email Address
- Institution
- Department
- Address
- Work Phone

#### Sponsored Programs Contact Information

- Last Name
- First Name
- Email Address

#### Project Title of Proposed Research

The title of the project pre-proposal must be brief (**85-character maximum** including spaces and punctuation), yet represent the major thrust of the project. Because this title will be used to provide information to those who may not be familiar with the proposed project, highly technical words or phraseology should be avoided where possible. In addition, phrases such as "investigation of" or "research on" should not be used. Keep in mind titles should be **broad in scope**, allowing for **changes in project objectives annually** as needed if awarded.

#### Research Category

Select Category 4 Transformational Science (TSCI)

#### Project Type

Indicate if this is a new project or a continuing project that was previously or currently awarded.

#### Project Duration

New this year (for FY22), PIs will have the option to select the duration of the project for either a 2-year or 4-year term. The USWBSI is encouraging longer term (4-year) projects to reduce the significant processing requirements for the USDA-ARS, USWBSI-NFO, University Sponsored Programs Offices and PIs to establish new agreements. Please note, the USWBSI has always awarded funding annually and will continue to do so, providing your project duration, if awarded, does not commit the USWBSI to the full-term budget. Annual performance reports and renewal review/approval will continue to be required for each year of the project. The submitted duration simply allows the USDA-ARS to establish the agreement with those terms in place, allowing for continual amendments for the duration of the term. If you have questions about determining the term length of your project please contact the USWBSI Networking and Facilitation Office for assistance, [nfo@scabusa.org](mailto:nfo@scabusa.org) or call 517.290.5023.

### **PI and Co-Investigator Background Information** – Upload Required

To assist peer reviewers in assessing the competence and experience of the proposed collaborators. The items listed below should be included for the PI and Co-Investigators who are expected to work on the project in a significant fashion (e.g. expectation of co-authorship on ensuing publications), whether or not funds are sought for this support. (**Note:** Accommodations may be requested if one of your Co-PIs is a PI on a USWBSI pre-proposal and is unable to provide their CPS form to you prior to the pre-proposal submission deadline; contact the USWBSI-NFO for assistance.) The PI will need to upload the following items for the PI and Co-Investigators:

- **Curriculum Vitae (CV) with Publication List**

**Curriculum Vitae.** The CV should be limited to a presentation of academic and research credentials, e.g., educational, employment and professional history, and honors and awards. Unless pertinent to the project, do not include meetings attended, seminars, or personal data.

**Publication List.** A chronological list of all publications in refereed journals during the past five years, including those in press, should be included with each project members CV, non-refereed technical publications that have relevance to the proposed project may be included.

**NOTE:** The CV and Publication List should be uploaded as one PDF file and must not exceed four pages per scientist. CV/Pubs for collaborators or sub-contractors are not required.

- **Current and Pending Support (CPS) Form.** Download the current CPS form from the FY22 RFP web page at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates). Other versions of Current and Pending Support forms will NOT be accepted. All PIs submitting a Pre-Proposal must also submit completed Current and Pending Support Forms listing other current public or private support to which key personnel identified in the PRP have committed portions of their time, whether or not salary support for person(s) involved is included in the budget. Analogous information must be provided for any pending proposals that are being considered by, or that will be submitted in the near future to, other possible sponsors, including other USDA Programs or agencies, and the USWBSI. Concurrent submission of identical or similar proposals to the other possible sponsors will not prejudice the review or evaluation by the USWBSI for this purpose. However, a PRP that duplicates or overlaps substantially with a **proposal already reviewed and funded (or to be funded)** by another organization or agency will not be recommended under this program.

### **Project Pre-Proposal Materials** – Upload Required

The following materials should be developed and uploaded as one PDF file in the order noted and adhering to the requirements as specified. Begin by downloading the 'Project Pre-Proposal Form' from [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates).

#### **Project Summary**

Fill in the Project Summary Page (limited to 2 pages), using Calibri or Times New Roman 12-point font, and must include the following:

- Project Title (same as what is included in the submission form)
- Project PI, Institution and Co-PI(s), Institution(s)
- Project Summary

The text for this portion of the project summary **should not exceed 400 words** and should focus on the following (**all four bullets below must be addressed**):

- Overall project goal(s)
- Unique aspects of this project that make it transformational
- Project Objectives (list in numbered format) and Expected Outcome(s) for each objective
- Approaches that will be used to accomplish project goal(s) within the period of proposed work
- Statement of Mutual Interest (i.e. how will stakeholders/end-users benefit from this research)

Additionally, you should include these items in the Project Summary section (this will not be counted toward the 400-word count requirement).

- Abbreviated (but tentative) Project Schedule/Timeline for the full project duration (i.e. all years)
- Total Estimated Requested Amount for each year of the project

### Project Description

The Project Description should provide a clear statement of the work to be undertaken and must include: research objectives for the **period of the proposed work** and expected significance; relation to longer-term goals of the PI's project; and relation to the present state of knowledge in the field, to work in progress by the PI under other support and to work in progress elsewhere.

The Project Description should outline the general plan of work, including the broad design of activities to be undertaken, and, where appropriate, provide a **clear description** of experimental methods and procedures, and plans for preservation, documentation, and sharing of data, samples, physical collections, curriculum materials and other related research and education products.

**Format:** Brevity will assist reviewers and USWBSI/NFO staff in dealing effectively with pre-proposals. **Therefore, the written text of the Project Description must be five pages or less (single spaced or equivalent); ten pages or less in total including figures and tables.** The Project Description should be formatted using Calibri or Times New Roman, 12 point or higher, black colored font with one-inch margins. Bold formatting should only be used for section headings or used minimally to emphasize importance or significance. Digital images inserted into the Project Description must only be included within the page limits (10 pages total). The **maximum size of images** to be included is 1200 x 1500 pixels, using 256 colors. Figures must be legible when printed on an 8.5" x 11" page (100% scale). Conformance to the format requirements will be strictly enforced.

### Project Description Content

The following specific content items should be included in your project description.

**Title.** Same as what is included in the submission form and on the Project Summary page.

**USWBSI Research Priority Alignment.** Relevance of the project to the goals of the U.S. Wheat and Barley Scab Initiative with reference to specific FY22 Research Priorities that the proposed research is addressing, **if any**, should be clearly stated. Research Priorities can be viewed starting on page 41 and can also be found on their research page, which can be accessed at <https://scabusa.org/research>.

**Introduction.** A clear statement of the goal(s) and supporting objectives or research questions of the proposed project should be included. The most significant published work in the field under consideration, including the work of key project personnel on the current application, should be reviewed. The current status of research in this field of science should also be described **including, but not limited to, any ongoing USWBSI-recommended work currently underway. Preliminary data pertinent to the proposed research may be included in this section.** Present and discuss published literature that is directly related to, and supports, the proposed research (research objectives, materials and methods).

**Rationale and Significance.** It is understood that head scab is a devastating disease. **Acknowledgment of this fact should require no more than one sentence.** Concisely present the rationale behind the proposed research; identify the gaps in the knowledge base that your pre-proposal is trying to fill. If applicable, please indicate if the research proposed here could lead to successful acquisition of grant funds from other agencies.

**Research Materials and Methods.** Specifically, this section must include:

- The hypotheses or questions being asked
- A description of the investigations and/or experiments proposed **in the sequence** in which the investigation or experiments are to be performed
- Techniques and methodologies to be used in carrying out the proposed project, including the feasibility of the techniques. **(Describe in step by step fashion exactly what techniques, materials and methods will be used.)**

- Results expected
- Means by which experimental data will be analyzed or interpreted
- Means of applying results or accomplishing technology transfer, where appropriate
- Pitfalls that may be encountered
- Limitations to proposed procedures
- A detailed (but tentative) schedule/timeline for conducting major steps involved in these investigations and/or experiments for Year 1 (in alignment with Year 1 Budget).

**NOTE:** Failure to address each of the issues in the bullet list will diminish the likelihood of the success of your pre-proposal being recommended for funding.

### References to Project Description

Reference information is required of references cited in the Project Description. PIs must follow accepted scholarly practices in providing citations for source materials. While there is no established page limitation for the references, this section must include bibliographic citations only, and must not be used to provide parenthetical information outside of the project description.

### Facilities and Equipment

All facilities and major items of equipment available for use or assignment to the proposed project during the requested period of support should be described. In addition, items of nonexpendable equipment necessary to conduct and successfully conclude the proposed project should be listed (including dollar amounts), and, if funds are requested for their acquisition, justification should be included in the Budget Justification Worksheet.

### Collaborative or Sub-contractual Arrangements

If the nature of the proposed project requires collaboration or contractual arrangements with other research scientists, corporations, organizations, agencies, etc., the applicant must identify the collaborator(s) and provide a **detailed explanation of the nature** of the collaboration. Evidence in the form of a letter of intent (may be in the form of an e-mail) from all collaborators must be provided to assure reviewers that collaborators or sub-contractors involved have agreed to render the indicated services. **The letter of intent must include specific details describing the services the collaborator will provide.**

### Budget Materials

PIs will need to provide the following detailed budget documentation. New this year, an Excel template with built-in formulas, space for your justification narrative, and auto-generation of the Budget Summary page has been created. Double checking that all of your details transferred as intended and all totals match is advised.

#### Budget Type

Select 'Single Budget' if award would be going to only one individual (i.e. PI). Select 'Multi-PI Budget' if award from ARS would be going to multiple individuals (i.e. separate agreements/awards). Please note, two templates for developing either a single or multi-PI Budget Justification Worksheet & Budget Summary are available, make sure to select the one that matches with your budget type.

#### Budget Request

You will need to enter the final budget requested dollar amount for Year 1 of your project, as well as an estimated budget for the duration of the project term (depending on your selection of a 2-year or 4-year project). The full duration amount is just an estimate and can be a multiplication of first year for the term or if you anticipate adjustments we encourage the PI to adjust as expected. A detailed Budget Justification Worksheet & Budget Summary will not be required beyond the first year.



#### Budget Justification Worksheet & Budget Summary – Upload Required

Utilizing one of the **Excel 'Budget Justification Worksheet & Budget Summary' Templates** (available at [https://scabusa.org/research\\_rfp-fy22/forms\\_templates](https://scabusa.org/research_rfp-fy22/forms_templates)), complete all the relevant sections and follow the instructions included in the file. Once finalized, upload the Excel Template into your submission. **NOTE:** For

all line item categories and subcategories where funds are requested, **descriptive details must be provided** (in the blue segments of the template) that justify the amount being requested.

Make sure to select the appropriate template for your situation, template options include:

- **Budget Justification Worksheet & Budget Summary Template – Single PI version;** single PI/single project
- **Budget Justification Worksheet & Budget Summary Template – Multi-PI version;** for a pre-proposal with multiple PIs on a single project that will be awarded out to multiple PI institutions. The ‘Multi-PI’ version allows for up to five (5) different PIs to each have a separate budget justification worksheet that will transfer automatically into a single cumulative Budget Summary page. In such cases, if a ‘Multi-PI’ proposed research project is recommended for funding, the awards will go directly to the individuals’ institutions from USDA-ARS. If your pre-proposal has more than five (5) Co-PIs, contact the USWBSI-NFO for instructions.

**Tuition Remission:** Tuition remission is **permitted** under USDA-ARS **grant agreements** with any type of recipient organization (i.e. universities). However, for PI’s currently funded under a Non-assistance Cooperative Agreement (NACA), tuition remission is NOT allowed.

**Indirect Cost (IDC) Limitation 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 project costs** to maximize total funding used for research.

As part of the 2018 Farm Bill - Agriculture Improvement Act of 2018 – signed into law (Public Law 115-334) on 12/20/18, a fixed Indirect Cost Limitation of 10% has been set for the USWBSI ([See Title VII, Subtitle C, Section 7303](#), page 332 of bill; page 336 of PDF). This is a limitation on the reimbursement of indirect costs and represents the maximum amount of grant dollars available to recover indirect costs. PIs must calculate the allowable IDC % per their institutions NICRA/F&A rate agreement to determine which calculation generates the lowest IDC amount for reimbursement, in accordance with the 10% limitation of Total Federal Funds Awarded. Universities may voluntarily elect to use a percentage below 10% for pre-proposals submitted to the USWBSI, however they **cannot charge a rate higher than 10%**. A formula is included in the template to determine the 10% limitation amount, PIs will need to enter their allowable NICRA/F&A rate for comparison, the lower amount will automatically carry forward.

**NOTE:** Indirect Costs are not applicable to ARS Scientists and PIs currently funded under Non-Assistance Cooperative Agreements (NACAs).

**Small Business Innovated Research (SBIR) Fee:** In the event your proposed research is recommended for funding, the SBIR Fee will be assessed prior to the award being made by USDA-ARS. The SBIR fee is mandated by Congress under [Public Law 112-81, Subtitle A, SEC. 5102 \(a\) \(1\) \(I\)](#) in support of the Small Business Act. The current rate for the SBIR fee is 3.2%.

This fee is charged only to projects that are funded through a grant agreement or a NACA with USDA-ARS (i.e. not applicable to ARS PIs). When applicable, PIs are advised to incorporate the Small Business Innovated Research (SBIR) fee into their budget request. The formula to calculate the fee is included in the template.



**Submission Deadline:** The Pre-Proposal must be submitted via the USWBSI EPS system by **September 21, 2021.**


**Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)

**PI Required Items Checklist for Category 4 Submission Process**

- Submit Letter of Intent online form, requires approval before proceeding to Pre-Proposal Submission Process
- If approved, initiate Pre-Proposal Submission at the [USWBSI EPS System](#)
- Use the [templates and forms](#) provided for required uploads
- Prepare materials for submission upload per specifics outlined in instructions
  - PI Contact Information
  - Sponsored Programs Contact Information
  - Project Title (keep broad in scope, 85 character maximum)
  - Research Category
  - Project Type (note if new or continuing project)
  - Project Duration (new this year select either a 2-year or 4-year project)
  - PI and Co-Investigator Background Information (collect from your Co-PIs and upload)
    - CV(s)/Publication List(s)
    - Current & Pending Support Forms
  - Pre-Proposal Materials (upload as one PDF meeting requirements noted)
    - Project Summary (should not exceed 400 words)
    - Project Description (should not exceed 5 pages of text, 10 pages with tables/figures)
    - References to Project Description
    - Facilities and Equipment
    - Collaborative or Sub-contractual Agreements
      - Letters from Collaborators
  - Budget Materials
    - Budget Type
    - Budget Request
    - Budget Justification Worksheet & Budget Summary Template(s) (prepare in Excel template and upload; justification narrative details required for all sections and subsections where funds are being requested; e-signature required on the Budget Summary page)

**NOTE:** Make sure to use appropriate template either Individual or Multi-PI

<b>Category 4: Transformational Science (TSCI)</b>	<b>Step 1:</b> Letters of Intent (LOI) online form submitted by PIs	<b>July 1, 2021</b>
	<b>Step 2:</b> Notification by NFO if accepted	<b>July 29, 2021</b>
	USWBSI EPS System Opens	<b>August 3, 2021</b>
	<b>Step 3:</b> If accepted, deadline for PIs to submit FY22 Pre-Proposal(s) and supporting documents via EPS System	<b>September 21, 2021</b>
	Pre-Proposal Review and Funding Determinations	<b>Oct-Dec 2021</b>
	PIs Notified of Awards	<b>January 2022</b>



**Letter of Intent Submission Link:** [Category 4 Online Letter of Intent Form](#)

**Pre-Proposal Submission Link:** [Access the USWBSI EPS Pre-Proposal Submission Form](#)

**Forms & Templates for Upload:** [All USWBSI FY22 RFP Forms & Templates to Prepare & Upload](#)



## FY22 Research Category Program Descriptions and Research Priorities (PD-RP)

The U.S. Wheat & Barley Scab Initiative is guided by a Steering Committee that includes producers, farm organizations, food processors (i.e. millers, pasta manufacturers, maltsters and brewers), scientists (from Land Grant universities, USDA, and private companies), and consumer groups. Each year, the Steering Committee submits to the USDA-ARS a comprehensive and optimized research plan designed to achieve the Initiative's goals. That plan is the USWBSI's recommendation for how the USDA-ARS can most effectively employ the funds appropriated by the U.S. Congress for collaborative scab research. The following are the program descriptions and FY22 research priorities for the USWBSI Research Categories.

### Research Areas

FHB Management (MGMT)

Food Safety and Toxicology (FST)

Gene Discovery and Engineering Resistance (GDER)

Pathogen Biology and Genetics (PBG)

Variety Development and Host Resistance (VDHR) (includes the three Nursery Coordinated Projects)

### Commodity-based Coordinated Projects

Barley Coordinated Project (BAR-CP)

Durum Coordinated Project (DUR-CP)

Hard Winter Wheat Coordinated Project (HWW-CP)

## FHB Management (MGMT)

### Program Description

The FHB Management (MGMT) research area supports research to develop effective and economical disease management practices that reduce FHB severity and mycotoxins in small grain crops to meet the immediate and long-term needs of the wheat and barley industries.

This research area involves:

- tillage practices, crop sequences, and other cultural practices targeting *Fusarium*-infested residues;
- fungicides and biocontrol agents with demonstrated field efficacy, and their application technologies;
- the refinement and deployment of disease prediction and forecasting models, and disease management decision tools; and
- studies of pathogen survival, inoculum production, dispersal, infection, colonization, mycotoxin production, fungicide sensitivity, and factors accounting for unacceptable levels of mycotoxins in symptomatic or asymptomatic grain.

**NOTE:** Priority will be given to multi-PI, collaborative, integrated pre-proposals that address the research priorities listed below. Project pre-proposals pertaining to integrated management (IM) studies will be developed as a multi-PI, collaborative, integrated proposal. The Coordinator for the Integrated Management Coordinated Project (IM-CP) is listed on page 18 of the FY22 RFP.

### FY22 Research Priorities derived from the Action Plan Goals

1. Develop integrated management strategies for FHB and mycotoxins that are robust to conditions experienced in production fields of wheat and barley.
2. Develop and validate the next generation of management tools, forecasting models, and fungicide application technologies for FHB and mycotoxin control.
3. Enhance communication and end user education/outreach.

4. Investigate how genotypic and phenotypic diversity in populations of FHB-causing *Fusarium*, and *Fusarium* species complexes, influences the management of FHB. Priority aspects of pathogen diversity include fungicide sensitivity, mycotoxin profiles, and ability to cause severe disease on widely used sources of genetic resistance in wheat and barley. (Collaborative Goal with PBG)
5. Document how cropping system factors (climate, residue management, crop rotation) influence both the frequencies of *Fusarium* species causing FHB within an area and the risk of severe disease. (Collaborative Goal with PBG)

## Food Safety and Toxicology (FST)

### Program Description

The Food Safety and Toxicology (FST) research area supports research on food safety and food processing issues related to the presence of *Fusarium* spp. mycotoxins in wheat and barley grain. Practical outcomes of research in this area include: 1) analytical tools that can be used by small grain producers, elevators, millers, and processors, to rapidly and reliably identify mycotoxin-contaminated grain; 2) develop appropriate strategies to deal with contaminated grain; and 3) diagnostic data on *Fusarium* spp. mycotoxins required for development of FHB resistant/tolerant varieties of wheat and barley.

### FY22 Research Priorities derived from Action Plan Goals

1. Provide analytical support for DON/trichothecene quantitation for the Initiative's stakeholders.
2. Support research on DON/trichothecene safety that is needed by producers, grain processors, researchers, risk assessors, and regulators.

## Gene Discovery and Engineering Resistance (GDER)

### Program Description

The Gene Discovery and Engineering Resistance (GDER) research area (RA) places its primary focus on understanding mechanisms of resistance to *Fusarium* head blight (FHB) and identification of wheat and barley gene variants that can be deployed to increase FHB resistance and/or reduce DON accumulation. The GDER RA also supports utilization of gene editing and transgenic strategies as methodologies to better understand resistance mechanisms with the goal to improve FHB resistance. However, GDER places priority on strategies that can be deployed without transgenesis; gene discovery and transformation of non-cereal systems will be supported only for the purpose of rapidly screening potential anti-*Fusarium* genes.

### FY22 Research Priorities derived from Action Plan Goals

1. Identify native and induced wheat and barley gene variants that improve FHB resistance and/or reduce DON accumulation.
2. Develop assays that can be used to rapidly validate candidate wheat and barley genes for resistance or susceptibility to FHB and/or reduced DON accumulation.
3. Utilize new technologies to develop effective FHB resistance and/or reduced DON accumulation.

## Pathogen Biology and Genetics (PBG)

### Program Description

Research in this area includes studies that address mycotoxin biosynthesis *in vivo* or *in planta*, host/parasite interactions, and host resistance mechanisms that target the pathogen. Research in PBG should complement and be linked to whole plant research that will lead to disease control and/or toxin reduction strategies.

### FY22 Research Priorities derived from Action Plan Goals

1. Identify important genes, proteins or small molecules produced during the plant-fungal interaction that may be used to develop FHB resistance or to reduce DON contamination in barley and wheat.
2. Develop new understanding about molecular regulators (transcriptome, proteome, metabolome, epigenetic factors) of fungal development (e.g., asexual and sexual development, growth and development, infection structures) during initial infection that may be utilized to boost FHB resistance. This would include mechanisms controlling fungal secretion (ER, Golgi, endosomes, exosomes), and regulators which may be targeted to prevent FHB disease and toxin contaminations in wheat and barley.
3. Develop an improved understanding of plant-pathogen interactions in relation to abiotic factors, and identify genes or genetic variants that contribute to pathogen adaptation to wheat and barley agroecosystems. Identify molecular mechanisms of fungal adaptation to abiotic and biotic factors influencing FHB and toxin production.
4. Develop novel RNAi based strategies targeting critical genes for fungal growth, pathogenesis, and/or mycotoxin biosynthesis to control FHB and mycotoxin contamination.
5. Identify epiphytic or endophytic microbes or microbial communities or viruses that may be useful for development of effective biological control practices for FHB.
6. Investigate how genotypic and phenotypic diversity in populations of FHB-causing *Fusarium*, including diversity of *Fusarium* species complexes, influences the management of FHB. Priority aspects of pathogen diversity include fungicide sensitivity, mycotoxin profiles, and ability to cause severe disease on widely used sources of genetic resistance in wheat and barley. (Collaborative Goal with MGMT)
7. Document how cropping system factors (climate, residue management, crop rotation) influence both the frequencies of *Fusarium* species causing FHB within an area and the risk of severe disease. (Collaborative Goal with MGMT)

## Variety Development and Host Resistance (VDHR)

### Program Description

The VDHR research area for spring wheat and soft winter wheat will be organized around participation in the Uniform Nurseries. States will be aligned as follows: Uniform Regional Scab Nursery for Spring Wheat Parents (SPR-CP) ID, MN, MT, ND, and SD; Uniform Northern Winter Wheat FHB Screening Nursery (NWWCP) - KY, IL, IN, MI, MO, NY, and OH; Uniform Southern Soft Red Winter Wheat FHB Screening Nursery (SWW-CP) - AR, GA, LA, MD, NC, SC, TX, and VA. VDHR research will be commodity-based in the case of barley, durum and hard winter wheat coordinated projects.

Each Uniform nursery will be coordinated by a regional committee. Nurseries will be conducted in collaboration with a pathologist wherever possible and a subset of promising entries may be grown at multiple locations in Integrated Management Trials. The nurseries will also be evaluated for milling and baking quality, and haplotyped at the USDA regional genotyping labs. The most promising lines may be entered in the nurseries for a second year of testing at the lines originator's request. Collaborators will submit candidate parents for crossing, and pre-breeding populations derived from these crosses/populations will be shared. Mapping of new resistance sources will be accomplished through joint phenotyping of populations. All collaborators will screen varieties and breeding lines entered into statewide performance trials for FHB resistance and provide this information to growers.

### FY22 Research Priorities derived from Action Plan Goals

1. Increase and document the number of released varieties from public programs with improved FHB resistance, high grain yield and grain quality that are tested in statewide variety trials and available to farmers, to reduce DON in the US grain supply.
2. Increase efficiency of coordinated project breeding programs to develop and release FHB resistant varieties.
  - Enhance cooperation and coordination of research among programs. For example, phenotypic data should be uploaded to the T3 database, and early generation populations could be shared among programs. Sharing of DHs funded by the Initiative is another example of cooperation. A coordinated genomic selection program also has the potential to increase efficiency.

- Develop more robust quantitative scoring techniques to reduce reliance on subjective visual scores and increase consistency across research programs.
3. Evaluate and implement modern breeding technologies to further enhance short term and long-term improvement of FHB resistance, and to efficiently introgress effective resistance genes into breeding germplasm.
    - Enhance selection efficiency through technologies such as genomic selection, marker-assisted selection, doubled haploid production and/or high throughput phenotyping.
    - The utilization of speed breeding techniques where feasible has the potential to increase efficiency.

## Barley Coordinated Project (BAR-CP)

### Project Description

Minimizing the impact of Fusarium head blight (FHB) on barley production in the U.S. requires a multi-dimensional coordinated research effort with focused outputs. The Barley Coordinated Project (CP) seeks to combine existing lines of productive research with new avenues of investigation to develop a set of tools and disease management strategies that will minimize disease risk and mycotoxin contamination to producers and end-users of barley. This toolbox will be developed in coordination with other research areas (see below) and will consist of: 1) varieties with enhanced levels of resistance to FHB, lower levels of mycotoxins, superior agronomic performance, and good end-use quality; 2) chemical and biological formulations, application procedures, and a disease forecasting model that maximize efficacy; 3) a set of best management practices that incorporate our current understanding of the tools available to combat this disease; and 4) New tools developed through emerging technology and understanding of the disease to reduce the impact of FHB on barley.

### FY22 Research Priorities derived from Action Plan Goals

The Barley CP is organized around four of the Research Areas (RA) outlined in the USWBSI Action Plan. A set of 14 objectives are established within these four RAs that the CP will address either directly or indirectly via coordination with these other RAs.

1. Variety Development and Host Resistance (VDHR)
  - Objective 1. Increase and document the number of released barley varieties from public programs with improved FHB resistance, high grain yield and grain quality that are tested in statewide variety trials and available to farmers, to reduce DON in the US grain supply.
  - Objective 2. Increase efficiency of coordinated barley breeding programs to develop and release FHB resistant varieties. This includes added resources to T3 database and increased efficiency on scoring barley for resistance.
  - Objective 3. Evaluate and implement modern breeding technologies to further enhance short term and long-term improvement of FHB resistance in barley, and to efficiently introgress effective resistance genes into barley germplasm. This includes enhanced selection efficiency through technologies such as genomic selection, marker-assisted selection, doubled haploid production and/or high throughput phenotyping and utilization of speed breeding techniques.
2. Gene Discovery and Engineering Resistance (GDER)
  - Objective 4. Identify native and induced barley gene variants that improve FHB resistance and/or reduce DON accumulation.
  - Objective 5. Develop assays that can be used to rapidly validate candidate barley genes for resistance or susceptibility to FHB and/or reduced DON accumulation.
  - Objective 6. Utilize new technologies to develop effective FHB resistance and/or reduced DON accumulation in barley.
3. Pathogen Biology and Genetics (PBG)
  - Objective 7. Identify important genes, proteins or small molecules produced during the barley-fungal interaction that may be used to develop FHB resistance or to reduce DON contamination in barley

- Objective 8. Develop new understanding about molecular regulators (transcriptome, proteome, metabolome, epigenetic factors) of fungal development (e.g., asexual and sexual development, growth and development, infection structures) during initial infection that may be utilized to boost FHB resistance. This would include mechanisms controlling fungal secretion (ER, Golgi, endosomes, exosomes), and regulators which may be targeted to prevent FHB disease and toxin contaminations in barley.
  - Objective 9. Develop an improved understanding of plant-pathogen interactions in relation to abiotic factors, and identify genes or genetic variants that contribute to pathogen adaptation to barley agroecosystems.
  - Objective 10. Develop novel RNAi based strategies targeting critical genes for fungal growth, pathogenesis, and/or mycotoxin biosynthesis to control FHB and mycotoxin contamination in barley.
  - Objective 11. Identify epiphytic or endophytic microbes or microbial communities or viruses that may be useful for development of effective biological control practices for FHB in barley.
  - Objective 12. Investigate how genotypic and phenotypic diversity in populations of FHB-causing *Fusarium*, including diversity of *Fusarium* species complexes, influences the management of FHB. Priority aspects of pathogen diversity include fungicide sensitivity, mycotoxin profiles, and ability to cause severe disease on widely used sources of genetic resistance in barley.
4. FHB Management (MGMT)
- Objective 13. Develop integrated management strategies for FHB and mycotoxins that are robust to conditions experienced in production fields of barley.
  - Objective 14. Develop and validate the next generation of management tools, forecasting models, and fungicide application technologies for FHB and mycotoxin control in barley.

## Durum Coordinated Project (DUR-CP)

### Project Description

The Durum Coordinated Project (DUR-CP) has been created under the direction of the USWBSI to accomplish the initiative action plans. The DUR-CP's main objective is to develop FHB resistant durum wheat germplasm (lines/cultivars) with low DON levels, good agronomic traits, and good quality traits that will serve the producers, the domestic pasta industry, and the international export market. Reducing the impact of FHB requires a multidisciplinary effort and therefore the CP includes plant breeders, pathologists, geneticists, agronomists and other researchers working in the area of disease management. The CP also includes stakeholders such as millers and pasta manufacturers.

### FY22 Research Priorities derived from Action Plan Goals for VDHR

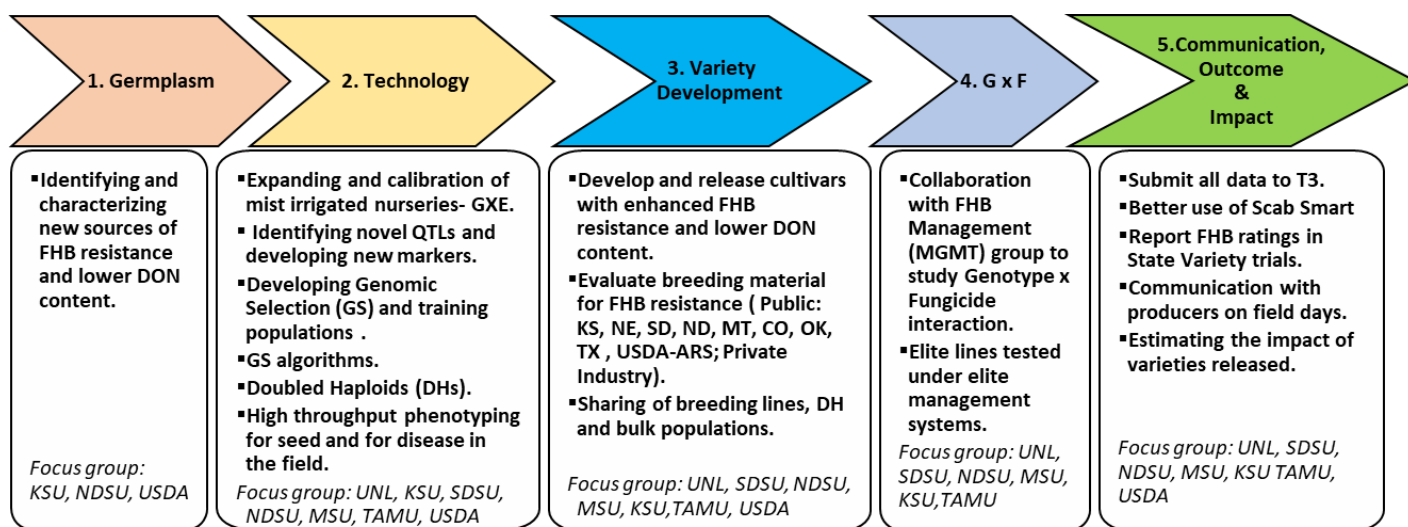
1. Search for novel sources of resistance to FHB in durum and its relatives.
2. Identify, map, and validate FHB resistance QTL in the newly identified sources of resistance and develop user-friendly molecular markers to assist selection in durum breeding and germplasm development.
3. Incorporate FHB resistance QTL from diploid, tetraploid and hexaploid wheat accessions into adapted durum backgrounds and develop elite durum germplasm with the assistance of molecular markers in selection.
4. Develop durum varieties with enhanced level of FHB resistance and reduced DON accumulation.
5. Investigate genetic mechanism of suppressors and enhancers affecting FHB resistance expression in durum wheat.
6. Evaluate chemical management strategies that reduce FHB and/or DON in durum.
7. Develop and promote best integrated management strategies to reduce FHB and/or DON in durum wheat.

## Hard Winter Wheat Coordinated Project (HWW-CP)

### Project Description

The HWW-CP is an efficient coordinated project that will measure its success by reducing DON in the hard winter wheat grain supply to the food grade level acceptable in the European Union (EU). This level is currently lower than

the US standard. Because half of our grain is exported and the majority of it shipped to the EU, the risk is that it can be sourced from high scab areas within the HWW region (e.g. the Eastern Great Plains). As the popularity of whole grain products increases, our goal is to ensure that the DON concentration in these products is also below established thresholds. Based upon the timelines expected for success in reducing DON, the HWW-CP includes the scientific activities of plant breeders, pathologists, geneticists and supporting research programs. We coordinate with disease management efforts because we realize that in addition to improved varieties, improved management will optimize project success (as measured by reducing DON) within expected timelines. HWW-CP germplasm and information are publicly available and made available to other participating researchers in other research areas of the USWBSI. The HWW-CP remains focused on reducing DON levels as quickly as possible and by using the most efficacious methods to do so (breeding and management). Membership in the HWW-CP includes all researchers currently funded within the CP, individuals designated as representatives from other research areas of the USWBSI, all interested FHB researchers who may or may not be funded by the USWBSI, stakeholders representing members from groups that fund our research (e.g. the KS, NE, SD, ND, TX, and MT Wheat Commissions), and members of groups that are key to our industry and who non-monetarily support HWW-CP research. These are “independent” stakeholders, such as major mills and bakeries, private wheat breeders, and chemical company representatives.



**Fig. 1** Flowchart of HWW-CP activities

**FY22 Research Priorities derived from Action Plan Goals**

The HWW-CP is organized around two of the research areas – Variety Development and Host Resistance (VDHR) and FHB Management (MGMT) as outlined in the USWBSI Action Plan. Three major objectives and associated research activities have been established within this CP. In addition, the HWW-CP works closely with other USWBSI Research Areas (RAs) to support the stated goal of reducing DON levels specified by the EU. Specifically, the HWW-CP works most closely with the MGMT RA.

- Increase and document the number of varieties with improved FHB resistance and high grain yield and grain quality that are tested in statewide variety trials and available to farmers, to reduce DON in the US grain supply.
  - Increase efficiency of coordinated project breeding programs to develop and release FHB resistant varieties. Enhance cooperation and coordination of research among USWBSI supported programs. For example, phenotypic data should be uploaded to the T3 database, and early generation populations would be shared among programs.
  - Characterize genotype x fungicide "specific" treatment responses for enhancing FHB resistance and the reduction of DON so information can be given to the MGMT group to help them optimize their program using advanced breeding lines and new varieties. Management practices need to use the most resistant varieties to develop the best systems with the lowest DON concentrations.
  - Test and evaluate regional germplasm to include breeding lines from the public (including programs which are not part of the CP, but develop lines which may be grown within the scab prone regions of the CP) and

- private breeding programs as well as irrigated field nurseries representative of all FHB environments throughout the region.
2. Evaluate and implement new breeding technologies and germplasm to further enhance short-term and long-term improvement of FHB resistance and to efficiently introgress effective resistance genes into breeding germplasm.
    - Create new genetic resources and efficiently introgress resistance genes into breeding germplasm for long-term improvement in FHB resistance. Example: New sources of FHB resistance should be introgressed into winter backgrounds and rapidly tested in mist nurseries to quantify their level of resistance.
    - Enhance selection efficiency through technologies such as genomic selection, marker-assisted selection, doubled haploid production leading to pyramiding of major and minor genes for FHB resistance.
    - Develop high throughput phenotyping technologies to increase selection accuracy for FHB resistance in the field, greenhouse, and seed lab (Disease severity, incidence, *Fusarium* Damaged Kernels (FDK))
  3. Enhance communication and coordination to increase the impact of our research beyond the region.
    - Enhance communication and end-user education/outreach relating to resistant varieties and effective management practices and have end-use stakeholder representatives on the HWW-CP.
    - Enhance cooperation with other RAs by having HWW-CP representatives on MGMT and GDER RAs.
    - *Associated coordination activities:*
    - Coordinate efforts among RA groups on FHB management in hybrid wheat and the CRISPR-CAS9 system for improved FHB resistance.