

ARSX2024

Safeguarding Sources Challenge:
The Quest to Sustain Genetic Diversity

Today's Workshop

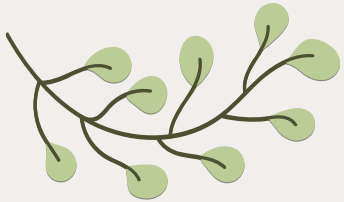
35 mins	1. Understand the goals of ARSX2024 and how your project can fit within them 2. Explain your idea in simple terms 3. Understand the problem that you are solving 4. Gain insight into the evaluation criteria 5. Review the submission form
10 mins	Break
15 mins	6. Hear from past ARSX awardees
30 mins	7. ARSX office hours / open Q&A

ARSX2024 Challenge Overview

The theme for ARSX2024 is ***Safeguarding Sources: The Quest to Sustain Genetic Diversity.***

This year, we are exploring **innovation across disciplines** to offer an opportunity for fresh ideas and revolutionary approaches to **sustain and enhance the genetic diversity of plants, animals, and microbes.**

Your expertise, whether in biotech, artificial intelligence, ecology, or data analytics, has the power to shape the future of agriculture through our four pivotal subcategories



Challenge Structure

Phase 1

The ARSX challenge is Open on HeroX! Submit your proposals by **June 24th!**

Phase 2

Up to 10 Phase 1 finalist will participate in a 6 week an innovation forum to refine their original ideas through **August and September.**

Pitch Event

In **September**, all 10 finalists will be brought onsite at X to give their final solution pitched.

Win $100,000

Pitches will determine the 3 final winners of ARSX 2024, each receiving **$100,000!** This event will be in person, in **September**.

ARSX2024 Subcategories

Advanced Collection Techniques: Tackle the challenge of accessing and securing a diverse genetic repository from a plethora of environments.
Examples:

- Leverage drone technology
- Remote sensing
- AI-driven discovery tools

Innovative Characterization Methods: Confront the challenge of identifying and cataloging traits from genetically diverse populations under changing environmental conditions.
Examples:

- Cutting-edge genomics
- Phenotyping robots
- Machine learning algorithms to characterize with unprecedented accuracy and speed.

Sophisticated Management Systems: Address the complexities of genetic resource management.
Examples:

- Software development and data science
- Blockchain for traceability
- AI for data management, and cloud computing to create dynamic databases

Revolutionary Preservation Techniques: Address the challenge of preserving genetic integrity over extended periods.
Examples:

- Materials science
- Cryopreservation
- Synthetic biology
- Nanotechnology

Your Solution

On your worksheet:

1. Write down your proposed solution in 1-2 sentences.

   → Would your neighbor down the street know what you are talking about?

Download the worksheet:

bit.ly/ARSX24Worksheet

Your Solution

On your worksheet:

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1. Write down your proposed solution in 1-2 sentences.

2. Write down your research question *OR* the problem are you solving for?

- ❏ **Feasible:** considering available resources, time constraints, etc.
- ❏ **Interesting:** captures the researcher's and the wider ARS community's attention and curiosity
- ❏ **Novel:** exploring new perspectives, approaches, or methodologies
- ❏ **Ethical:** speaks for itself
- ❏ **Relevant:** Relevance can lead to real, visible changes in society

Analyze Your Solution

Rose	Thorn	Bud
List out the positives	List out the negatives	List out things with potential to explore further

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Consider:

- How does your solution align to the goal of ARSX 2024?
- To the sub-categories?
- How is your team assembled? Breadth and depth?
- Do you leverage any cross-disciplinary innovations?
- How does your solution compare to the existing approaches?
- What risks underlie your approach?

Phase 1 Judging Criteria

Potential Impact

The potential impact of the proposed idea to revolutionize germplasm and gene pools through cross-disciplinary innovations enhancing biodiversity and resilience in agricultural ecosystems.

Novelty

The proposed idea creatively addresses the problem and is substantially different from other currently used approaches.

Feasibility

The proposed idea is:

- Well-considered, with key risks and mitigation strategies identified
- Technically feasible, supported by scientific rationale
- Practical, and could eventually be widely adopted
- Demonstrates critical path thinking

ARSX Review Process

Each entry will be evaluated by external reviewers, including:

- Entrepreneurs
- Early-Mid Career Scientists
- Mid-Senior Career Scientists

A short list of entries will be provided to the Final Review Board

The Final Review Board is comprised of ARS leadership and will review the shortlisted entries and select up to 10 to advance.

Phase 1 Judging Criteria

Potential Impact

The potential impact of the proposed idea to revolutionize germplasm and gene pools through cross-disciplinary innovations enhancing biodiversity and resilience in agricultural ecosystems.

1. Clearly articulate the need
2. Justify why your solution is relevant
3. Connect your solution's impact to the challenge topic and sub-categories
4. Examine the breadth of impact
5. Explore market & adoption considerations
6. Quantify & provide evidence

Phase 1 Judging Criteria

Novelty

The proposed idea creatively addresses the problem and is substantially different from other currently used approaches.

1. Highlight unique aspects
2. Demonstrate unexplored areas
3. Provide comparative analysis
4. Innovation in execution
5. Novel application of existing technologies

Phase 1 Judging Criteria

Feasibility

The proposed idea is:

- Well-considered, with key risks and mitigation strategies identified
- Technically feasible, supported by scientific rationale
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1. Risk analysis and mitigation strategies
2. Technical feasibility and supporting data
3. Clear milestones and timelines
4. Team expertise and resources
5. Practical application and adoption
6. Scalability



Next Steps

Check out
www.HeroX.com/ARSX2024
for full details, and to get started!

Questions? Reach out to ARSX@usda.gov

Visit Axon+/ARSX page to learn more about past awardees.