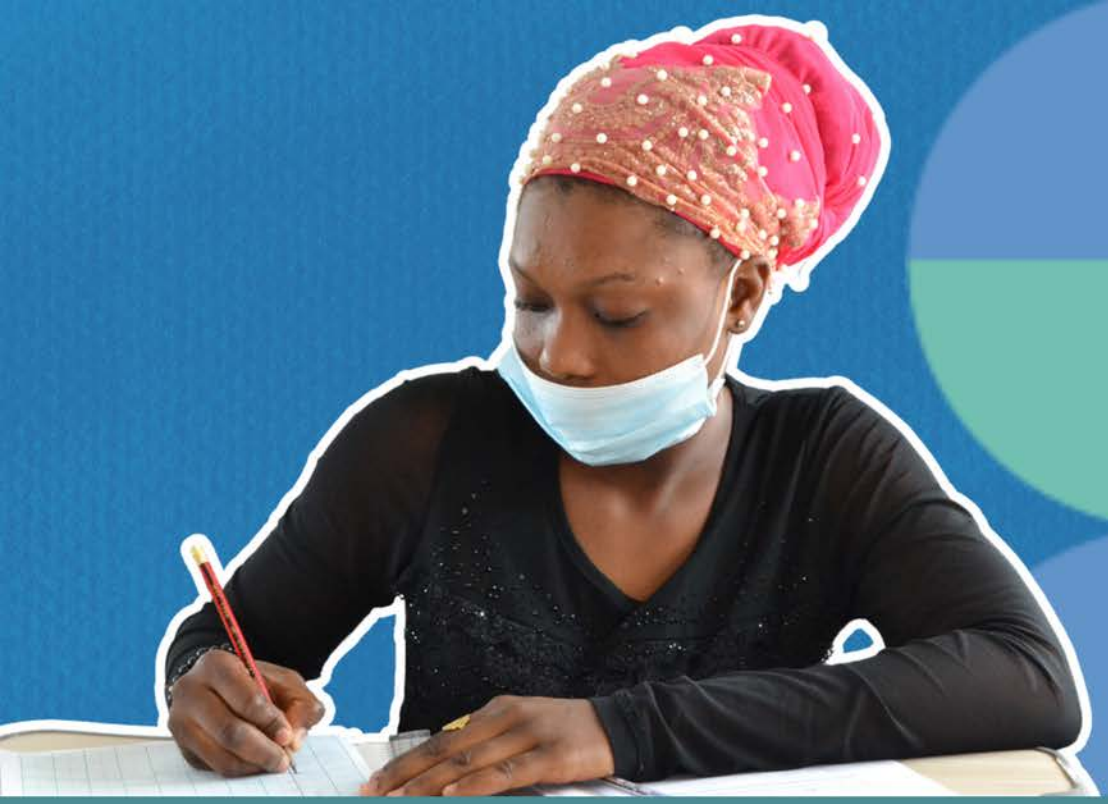
Seeding Labs Annual Report

2024

Seeding Labs



In this Report

Pictured on cover: A research scientist from the Brain Institute at the Universidade Federal do Rio Grande do Norte in Brazil

A Note from Seeding Labs CEO Melissa P. Wu, PhD

In today's world, we are facing more complex, more unique, and just plain more challenges. Globally, we are increasingly connected yet at the same time, increasingly isolated. We urgently need to invest in the capacity for all nations to drive solutions.

For the past 16 years, our global network of scientific leaders has helped shape brighter futures for the 7 billion people living in developing countries. Together, we increase **access to science** so local communities have the tools to solve their most pressing issues.

In 2024 alone, we fulfilled **15 shipments** and strengthened the scientific infrastructure in **8 developing countries**, putting over **1,600 high-quality instruments** in the hands of students and researchers.

But our impact goes far beyond numbers. So in this report, you will also find a real-life story on how increased access to equipment is helping solve a major problem in Uganda: livestock loss from tick infections.

Thank you to our community of supporters helping to strengthen so many communities around the world. Together we are increasing access to science and improving lives for millions of people. I hope reading this report inspires you to connect with us to further our transformational work.

With gratitude,

Melissa

Melissa P. Wu, PhD
CEO, Seeding Labs

Who We Are

Our 2024 Board of Directors

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What We Do

We increase access to resources for science in developing countries.

We put the tools of modern science into the hands of scientists in developing countries so that they can **teach, learn, innovate, and lead**.

Our flagship program, **Instrumental Access**, does this effectively by sourcing surplus laboratory equipment and using it to build up capacity for teaching and research at universities and research institutes in developing countries.

Our Development Impact

Workforce development: Our programs support effective, hands-on training in the sciences so that graduates can shape a brighter and healthier future for their communities.

Evidence-based solutions: With access to the resources they need, scientists in developing countries can contribute solutions to the problems that matter most to their communities.

Sustainable scientific institutions: Investing in stronger scientific institutions sets the foundation for nations to establish research ecosystems that are sustainable.

Our Global Impact

In 2024, we:

- Shipped **1,638** scientific instruments
- Increased opportunities for skills-based lab training for an estimated **31,805** students
- Delivered Instrumental Access shipments that strengthen scientific infrastructure in **8** developing countries

Since 2008, we have increased access to equipment for:

- **3,580** staff and faculty members
- **219,233** undergraduate and graduate students
- **42** developing countries

Our 2024 Instrumental Access Partner Institutions

East Asia and Pacific

Onom Foundation, Mongolia

Middle East and North Africa

University of Balamand, Lebanon
Departments of Biomedical Sciences and Biology

South Asia

Sylhet Agricultural University, Bangladesh
Department of Dairy Science

Sub-Saharan Africa

University of Health and Allied Sciences, Ghana
Institute of Traditional and Alternative Medicine

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Great Zimbabwe University, Zimbabwe
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Department of Medical Laboratory Sciences

Afe Babalola University, Nigeria
Department of Pharmacology and Therapeutics

University of Medical Sciences, Nigeria
Department of Microbial Pathology

Lupane State University, Zimbabwe
Applied Biotechnology

Impact in Action

Capacity for on-site vaccine production in place for livestock researchers in Uganda

In Uganda, a rapidly growing country in East Africa, livestock plays an important role in everyday life. Nearly 60% of households depend on livestock for their income. So any threat to the livestock population is a major threat to the people in Uganda.

Which is why ticks are on the minds of so many people there. Tick-borne pathogens are common sources of livestock deaths and are frequently responsible for devastating losses for Ugandan farmers. In fact, the UN estimated that over 50% of these farmers' annual costs go toward managing ticks and tick-borne diseases.

Ugandan farmers struggle to control the pests because the most common method is relatively ineffective at deterring the tick species that are most common in Uganda.

Those species—the brown ear ticks, blue ticks, bont ticks, and red ticks—have developed resistance to that method, which involves the chemical acaricide. An ineffective deterrent means more ticks; even a relatively small number of ticks can cause deadly infections and lead to financially-devastating livestock deaths.

Solutions Through Research

The National Livestock Resources Research Institute (NaLIRRI) exists to solve problems like these. An agency of the Ugandan government, NaLIRRI uses scientific research to find efficient solutions that will improve livestock productivity in Uganda. With ticks causing this much damage to the sector, finding a way to protect livestock is a top priority for the Institute.

Pictured above: Members of the Biosciences Department at the Animal Diseases Diagnostics Laboratory at the National Livestock Resources Research Institute (NaLIRRI) in Tororo, Uganda

Researchers at NaLIRRI were confident that the answer was to develop a vaccine because vaccines have been effective at controlling acaricide-resistant tick populations in many other parts of the world.

Specifically, they focused on creating a vaccine based on the protein subolesin that could specifically target Ugandan tick species.

They are currently running vaccine trials to determine the most effective mix of subolesin and other vaccine components, and this requires them to produce large volumes of purified proteins. It also requires specialized equipment that they did not have access to.

The components of NaLIRRI's tick vaccine needed to be purified to 95%, a level requiring chromatography equipment that was out of reach. They had to spend precious time and money to have samples sent to Spain for purification.

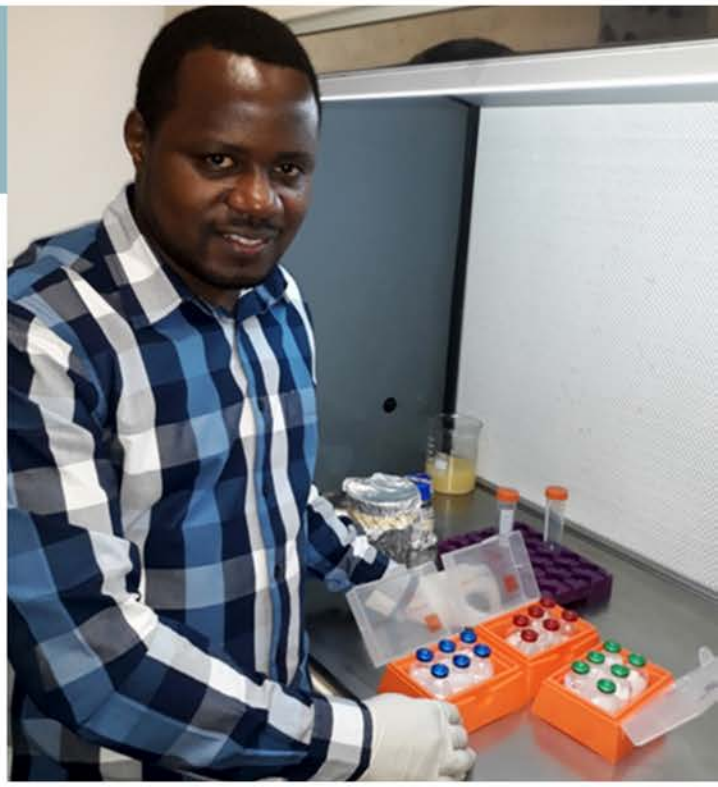
The whole process was expensive and unsustainable. NaLIRRI needed its own equipment so they could begin producing the vaccine on-site in Uganda.

Meeting a Need With Essential Equipment

For 15 years, Seeding Labs has perfected a solution to this particular problem: we work with our ever-expanding network to make scientific connections across the globe.

As a 2022 Instrumental Access awardee, we already knew and had worked with researchers at NaLIRRI. We were invested in their success and in the future needs of the Institute.

At the same time, we had existing connections to corporations that could supply the piece needed to begin vaccine production. As a result of our longstanding relationship with Cytiva, we were able to secure an AKTA Purifier 100, the exact piece of equipment the institute needed. It is slated to arrive later this year with vaccine production beginning shortly after.



Paul Kasaija, PhD, one of the lead scientists manufacturing the tick vaccine

The benefits of producing this vaccine for ticks could be tremendous for Uganda's development. The country's population is expected to double in the next thirty years, meaning consumption of their livestock will almost triple. A vaccine designed to target Uganda-specific ticks would be an incredible asset to keep livestock safe and reduce losses.

It may take some time before livestock in Uganda are vaccinated and free of ticks. But the prospect of a vaccine is much more likely now that NaLIRRI has the right equipment to manufacture it on-site in Uganda.

Financials

Years ending December 31, 2021, 2022, and 2023

PUBLIC SUPPORT AND REVENUE	2021	2022	2023
Contributions and grants	$1,998,703	$4,987,699	$2,191,143
Program services	$897,386	$721,747	$650,205
Total public support and revenue	**$2,907,900**	**$5,710,275**	**$2,853,182**
EXPENSES			
Program services	$2,059,872	$2,015,080	$1,807,336
General expenses	$469,037	$286,725	$1,006,039
Fundraising	$169,320	$313,402	$218,687
Total expenses	**$2,698,229**	**$2,615,207**	**$3,032,062**
NET ASSETS			
Equipment inventory	$2,287,139	$4,806,384	$4,678,914
Cash, buildings, other	$978,892	$1,100,984	$1,026,391
	$3,266,031	**$5,907,368**	**$5,705,305**

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www.seedinglabs.org

@SeedingLabs

617-500-3014

Pictured above: Gustavo Salianas, PhD, from the Department of Biological Sciences at the Universidad de la República in Montevideo, Uruguay