Agribiome Initiative Update

Funded in 2019, the Agribiome Initiative supported the hiring of two scientists and two research specialists in the Experiment Station. A third scientist was hired following the redirection of an open position in the department. One of the agribiome scientists is focused on livestock (Samat Amat) and the other two are focused on crops (Sam Banerjee and Barney Geddes). Table 1 provides details of the external funding generated by NDSU agribiome scientists since 2020.

Table 1. Details of externally funded agribiome projects since 2020.	
Projects externally funded	38
Projects led by the three initial agribiome scientists	29
Projects with collaborators from other AES units	21
Other AES units involved in agribiome research projects	Animal Sciences, SNRS, Plant Pathology, Plant Sciences, Carrington REC, Dickinson REC, Hettinger REC, and Williston REC
Total external research funding	$5.5 million
Federal	$2.2 million
Commodity/State	$2.0 million
Private Donor/Non-Profit	$1.3 million

Our goal for the Agribiome Inititive is to produce research outcomes that enhance crop and livestock production in North Dakota. While it takes time to translate research into field-ready solutions, some of our programs are further down that path than we expected at this early stage. The Geddes lab has been investigating new approaches to rhizobial inoculation of legume crops by considering the role of the plant variety and field soil type in rhizobium performance. They have isolated a library of 1,000 rhizobium strains from North Dakota, and have been using this collection to identify elite strains that can more effectively nodulate and fix nitrogen with North Dakota varieties in North Dakota soils. Plot trials to test newly identified rhizobia are being conducted at Research Extension Centers across the state in 2023 and 2024.

2025 Requests

Our unit has two requests for consideration by the board as it plans for the 2025 legislative session.

Priority #1: Agribiome Extension Specialist position.

Priority #2: Research Specialist position to support biotech core lab.

Priority #1: Agribiome Extension Specialist Position

As our agribiome research programs advance towards solutions that can benefit crop and livestock operations in North Dakota, an Agribiome Extension Specialist is needed to drive the translation of science into practical applications. An Extension Specialist also will help producers make sense of the rapidly growing and increasingly complicated microbial biologicals market. Currently, more than 1,200 companies produce biostimulants, inoculants, biofertilizers, biopesticides, probiotics and other biologicals to enhance crop and livestock production. Our producers need to know which are worth the investment, which are not, and which show promise but need more data.

Priority #2: Research Specialist for Biotech Core Lab

Our previous request to SBARE was for support to establish a biotech core lab facility. Specifically, we asked for support to purchase equipment for the facility. We established the biotech core lab in June 2022 and redirected a research specialist position in the department to serve as director of the facility. We have purchased several major pieces of equipment over the past 18 months and made them available through the facility. The biotech core lab aims to provide the tools, technical expertise, and space for scientists across agriculture to do biotechnology research. Since the facility opened, we have helped scientists from several units including Agricultural and Biosystems Engineering, Plant Sciences, Plant Pathology, and Microbiological Sciences. Written testimony from some of the users of the facility is included separately. High demand for the facility has required us to temporarily redirect a second research specialist position to provide full-time support, but that Research Specialist will eventually be needed to support a faculty position in Microbiological Sciences. We are therefore requesting a Research Specialist position that will be dedicated to supporting the biotech core lab.