

**Contract No. R-024-033**  
**“Growing the Bioscience Industry in North Dakota”**  
Submitted by Bioscience Association of North Dakota (BioND)  
Principal Investigator: Bruce Gjovig/Richard Glynn

**PARTICIPANTS**

<b>Sponsor</b>	<b>Cost Share</b>
Bioscience Association of North Dakota	<u>\$ 33,000</u>
Subtotal Cash Cost Share	\$ 33,000
Donated Office Space	\$ 12,000
Volunteer Staff	<u>\$ 15,000</u>
Subtotal In-Kind Cost Share	\$ 27,000
North Dakota Industrial Commission	<u>\$60,000</u>
Total Project Cost	\$120,000

Project Schedule – 18 months	Project Deliverables:
Contract Date – June 1, 2015	Status Report: August 1, 2015 ✓
Start Date – January 1, 2015	Status Report: October 1, 2015 ✓
Completion Date – February 1, 2017*	Status Report: December 1, 2015 ✓
	Status Report: March 1, 2016 ✓
	Final Report: February 1, 2017* ✓

**OBJECTIVE/STATEMENT OF WORK:**

There are three main objectives of this project:

- To provide a voice for the bio industry, with a focus on biofuels and biomaterials utilizing new technologies.
- To provide networking and educational opportunities.
- To promote value-added market opportunities.

This will be accomplished by hiring an executive director to oversee projects. The group plans to be self-sustaining by the end of the 18 month project period by growing membership from 30 to 75 members.

If successful this project could help develop value-added industry opportunities in the state.

**STATUS:**

The contract has been signed.

**6/13/2016 - Bioscience Association of North Dakota submitted their status report for the time period of September 1, 2015 - May 31, 2016. A copy of the report is posted on the website. It states in part:**

Objective 1: Identify, recruit and hire the first Executive Director. Status: Our first Executive Director was Mr. Kevin Cooper but Mr. Cooper resigned in November of 2015. Subsequently a second Director was hired, Mr. Richard Glynn who took up his duties in December of 2015.

Objective 2: Member retention and recruitment. Status: This has been done. Informative material for member recruitment has been developed. A new logo has been development. Letters of introduction targeted for each membership group are available along with other additional material. A

new website has been created at ndbio.co and the Association is in the process of moving to ndbio.com and ndbio.org as soon as those domains are purchased and transferred. Monthly briefing materials are being developed and made available on the website. Creation of a sortable new member prospect database is in development. Membership is currently at 27 members.

Objective 3: Cost saving contracts: Contracts have been developed with Bio-Business Solutions and Fisher Scientific.

Objective 4: Bio-Industry Action Summits: Summits have been held - The 2015 event was held at NDSU on May 28, 2015. The 2016 event was held at NDSU on May 12, 2016. The Bioscience Association of North Dakota also hosted a summit on the "Safe and Accurate Food Labeling Act of 2015" in conjunction with the Bioscience Association's Annual Meeting.

Objective 5: Bio-project sponsorship. The Association has been working with a "Bioscience Company" that takes the antibodies from chicken eggs and uses them as a supplement in hog feed in order to prevent disease in hogs. Continuing to assess the State Study of Natural Gas Liquids/Ethanol and other Biochemical Derivatives for ideas for chemical industries in the state.

The Association has requested and it has been approved for a February 1, 2017 filing extension of their final report.

Final Report received. It states in part:

Objective 1: Identify, recruit and hire an Executive Director. This has been done.

Objective 2: Member retention and recruitment. Have expanded membership among ag growers, groups and associations interested in biomaterial, biofuels, and bioscience opportunities. Currently have 117 members in the association split between industries, ag groups, associations, educational groups and student groups interested or involved in biomaterial, biofuels, and bioscience opportunities. Every business, every association or individual is a dues paying member of the Bioscience Association of North Dakota.

Objective 3: Cost saving contracts: Contracts have been developed with Bio-Business Solutions and Fisher Scientific.

Objective 4: Bioscience Association participated in and co-hosted with NDSU BioIndustry Action Summits in the years 2015 and 2016 and is co-hosting the BioIndustry Action Summit in May of 2017 at NDSU.

Objective 5: Currently the Bioscience Association is supporting two biodevelopment opportunities. A) We have recently engaged with BioMass Solution to support the construction of the "Red River Biorefinery", an ethanol plant in Grand Forks, ND which will be one of the largest advanced ethanol and lowest cost cellulosic ethanol production facilities in the United States. To date there has been put in place a "Contingent land Agreement"; the initial Engineering Package is Completed;; Validation Testing has been Completed; a Site Survey has been performed;; Site Platting is in Process; Draft Term Sheet for Export Financing in Place (65% of the Project Cost). The Plant will employ 25 people directly but will have a major impact on transportation and other services in the Grand forks Area. B) We are further studying a project entitled "Increasing Soy Hull Value through Developing a Range of Industrial Applications", since soy hulls are more suitable for value-added industrial uses than for livestock feed. In prior and ongoing soybean council projects, researchers have been developing cellulose nanofibers from soy hulls via microfluidization and using the nanofibers to replace carbon black to reinforce vulcanized rubber. Built on the knowledge obtained from two projects, the proposal is to develop: (1) surface-carbonized soy hull cellulose nanofibers to reinforce rubber and other thermoset/thermoplastic polymers; (2) carbonized soy hull for liquid or gas filtration and absorption; (3) carbonized soy hull for electrodes and supercapacitors. The three objectives are closely related but different in degree of carbonization and surface treatment due to their different applications. The carbonization will be

conducted using facile hydrothermal treatment combined with high efficient microwave irradiation. The multiple new uses of soy hulls to be developed in this project are expected to increase their market value.

Final payment has been made and this contract is closed.

2/27/2017