

Final Report: Students at 2020 National Biodiesel Conference & Expo

In 2020, the National Biodiesel Board and Biodiesel Alliance project successfully executed another student program for members of the Next Generation Scientists for Biodiesel to attend the National Biodiesel Conference and Expo.



MEMBERS OF THE CLASS OF 2020

In all, about 25 students attended the event, with 14 of them receiving travel scholarships and waived registration. The United Soybean Board funded travel expenses for the four NGSB co-chairs, NBB provided travel scholarships for 8 students and the National Biodiesel Foundation provided two scholarships. Two students also received additional funds from their schools, leveraging resources. The scholarship recipients were:

- Olivia Sterling/Loyola University Chicago, Environmental Science
- Andreas Backhaus/Yale University, Chemical and Environmental Engineering
- John Cramsey/Iowa State University, Chemical Engineering
- Zenith Tandukar/University of Minnesota, Plant Breeding and Genetics
- Shankar Sharma/Goldengate International College (Nepal), Environmental Science
- Muhammad Aamir Bashir/University of Idaho, Biological Engineering
- Jenny Frank/SUNY ESF, Sustainable Energy
- Mina Kubra/University of South Florida
- Alicia Vrabec/Loyola University Chicago, Environmental Science
- Owen Lang/Loyola University Chicago, Environmental Science and Environmental Policy
- Sam Kramer/Iowa State University, Chemical Engineering

- Shyam Paudel/Missouri Univ. of Science and Technology (Chemical & Biochemical Engineering)
- Jennifer Greenstein/North Carolina State University (Microbiology)
- Kayla Tilton/National University (Master of Public Health)

In addition, the Kansas Soybean Commission selected another 10 students from The University of Kansas, Kansas State University and Seward County Community College to attend, and paid for their travel and registration, in effect doubling the size of the scholarship program.



KANSAS STUDENTS AND STAFF

Scholars attended a **pre-conference Biodiesel 101 session**, which included a sustainability presentation. NBB Director of Sustainability Don Scott and project leader Jenna Higgins Rose also led a welcome orientation meeting for the students. The students once again showed strong engagement throughout the conference, with several of them presenting their research during a well-attended **breakout session**. **About 8 students also presented their research in a poster session**. Most of the students attended a **mentoring science mixer** once again with experienced biodiesel scientists, a networking and mentoring highlight of the event. Florida Power & Light included students in a private tour of their vehicles at the Tampa Convention Center, including their mobile command unit, powered by biodiesel.

Listen to audio of the student session and see photo highlights on the [conference blog](#).

Survey Results

In February, the KCE/NBB team **surveyed** members of the Next Generation Scientists for Biodiesel who attended the National Biodiesel Conference and Expo on scholarship.

Of the students who responded to the survey, 100 percent rated their experience a 4 or 5 out of 5.

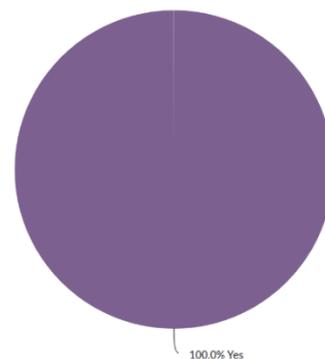
Also, 100 percent of respondents answered “yes” to the question, “**Did the biodiesel conference increase your support of the use of biodiesel and Bioheat?**”

About 80 percent answered yes to the question, “**As a result of attending the conference, do you see an opportunity where you could propose a pathway to increase the use of biodiesel?**”

Answers given included the following:

1. Genetically modifying seed to increase oil content.
2. Develop new processes for energy-efficient and economically sustainable production of biodiesel.
3. Develop technology to convert glycerin to useable chemicals.
4. Increase the emotional connections! Make people feel like the use of biodiesel will affect their everyday lives.
5. My research pertaining to biodiesel consumption for Class 8 heavy-duty trucks depicts the benefits of using biodiesel over battery-electric vehicles. After speaking with several industry professionals and academics at this conference I identified ways to build on my current research.

2. Did the Biodiesel Conference increase your support of the use of biodiesel and Bioheat?



Value	Percent	Responses
Yes	100.0%	11

Soybeans as a Sustainable Feedstock

The survey and a requested essay from students also asked what they learned about **soybean oil as a sustainable feedstock**. Answers included the following:

“The conference has definitely changed my views towards biodiesel for the better, and introduced a new perspective as to how soybeans can be a sustainable feedstock due to its higher rate of energy return relative to the fossil energy needed to produce it, which is significantly higher than that of petroleum diesel.”

-Zenith Tandukar/University of Minnesota

“Soybeans play a much larger role in the production of biodiesel than I could have ever possibly imagined. I didn’t realize that one of soybeans’ biggest uses is their protein production. After the industries extract the proteins, all the oil that is sent off as waste is converted into biodiesel. This makes soybeans a very valuable product in our industry.” *-John Cramsey/Iowa State University*

“I realized how significant the soybean industry is for the development and growth of biodiesel production. Since we operate our lab in an urban setting, we do not discuss the breadth of the biodiesel industry, so it never crossed my mind that some states like Kansas and Iowa are such large producers of the feedstock. I learned that soybeans are used because they are a sturdy crop that is similar to corn, making it a great crop to grow in the Midwest. The soybean meal is also important for animal feed, making this a practical option since not much goes to waste.”

-Olivia Sterling/Loyola University Chicago



Zenith Tandukar/University of Minnesota, Plant Breeding and Genetics, gave a well-received presentation about his research on pennycress – something that could benefit soybean farmers. Pennycress as a cover crop holds great potential for soybean farmers, because if farmers can grow it successfully between cash crop growing seasons, it could provide significant soil health benefits. Most cover crops do not have cash value, but pennycress could, if the oil can be used for biodiesel production.

Essay Comments from Students

“Thank you for this generous travel award, which enabled me to attend the National Biodiesel Conference 2020. It was an excellent experience for me as a young researcher to present my research at such a massive venue with a very diverse audience. I have learned a lot from this experience.”

- Aamir Bashir/University of Idaho



“My experience at the biodiesel conference was nothing short of extraordinary...after attending this conference, my opinion that biodiesel is going to be around for a very long time was solidified. People these days want renewable fuels that work for our current infrastructure, rather than breaking the bank buying all electric cars.”

-John Cramsey/Iowa State University

“My trip to the 2020 National Biodiesel Conference has been an incredible experience that has greatly influenced my view of biodiesel as well as my part in the future of the industry.”

-Alicia Vrabec/Loyola University Chicago

“The National Biodiesel Conference & Expo was an excellent opportunity to get a glimpse of the biodiesel industry. I highly recommend applying for the Next Generation Scientists for Biodiesel scholarship to any student interested in working in the field of biodiesel or biofuels in general! It was exciting to see NBB's coordination between farmers, biodiesel plants, technology providers, vehicle companies, and regulatory agencies to establish a predictable and successful path of biodiesel.”

-Andreas Backhaus/Yale University



“My presentation and poster received much attention from industry professionals and academics. The audience feedback and constructive criticism helped inform me of the issues impacting biodiesel producers. Additionally, I now understand the ways in which my research can bridge gaps between industry and academia.”

-Jenny Frank/SUNY ESF



Future Webinar Suggestions

- “Panel of people who run biodiesel plants, perhaps at different scales or using different feedstocks or different catalysts like enzymes.”
- “The Next Generation Scientists Presentation Panel was the most interesting session for me. I enjoyed hearing from Don Scott in the talks that he took part in.”
- “I really enjoyed the natural disasters talk.” (Florida Power & Light) – 2 comments
- “I liked learning more about the diesel industry as a whole, and how it compares to the electric cars industry.”
- Rachel Burton would be a great person for future NGSB webinars on the entrepreneurial side, along with Don Scott focusing on the sustainability side. – 2 comments
- “The Long View: Getting to a Carbon Neutral Future and Outlook for State Provincial Carbon Markets.”
- “More panel discussions on heating oil.”

Next Generation Scientists for Biodiesel is a National Biodiesel Board program intended to foster professional relationships between budding and established scientists, share accurate information, and increase collaboration with academia and the biodiesel industry.