



Northeast Agricultural and Biological Engineering Conference Newsletter

nabec.asabe.org

Volume 31,
Number 2
Spring 2020

Dates to Remember:

- Book early for your NABEC 2020 housing, deadline is June 25, 2020.
- June 14, 2020 is the deadline for NABEC early-bird conference registration.
- NABEC 2020: July 26 - 29, 2020
- ASABE 2020 AIM: July 12-15, Omaha, NE, USA
- CSBE-SCGAB 2020:
CANCELED due to COVID-19 Pandemic

Inside this issue:

NABEC 2020—registration, Tour, and Guest information	2
Travel Information	4
Lodging Information	5
Conference Events	6
2020 Student Competitions	9
2020 NABEC Young Engineer Award	10
2020 NABEC Distinguished Service Award	11
NABEC 2020-21 Planning Committee	12
NABEC 2020 Program (Tentative)	13

NABEC 2020

Where: Nittany Lion Inn, State College PA

When: July 26-29, 2020

Hosted By: Penn State University Department of Agricultural and Biological Engineering

Join us this year at the charming and historic Nittany Lion Inn in State College PA for NABEC 2020, the Northeast Agricultural and Biological Engineering Conference. Located directly on the Penn State main campus, Nittany Lion inn features luxurious accommodations and excellent meeting facilities all situated amidst the lovely grounds of the university. We have an outstanding conference planned for you, including excellent professional activities coupled with opportunities to savor the delights of the region with your friends and colleagues.



The recently renovated and expanded Agricultural Engineering Building will be one site of particular interest on campus, and we will be holding the poster session there specifically to give all attendees an opportunity to see the facility. Another on-campus point of interest is likely to be the Berkey Creamery, with its many flavors of remarkably rich ice cream produced using milk from the university farm. Are you a dendrophile (tree lover)? Penn State's campus and adjacent arboretum is a cornucopia of fascinating specimens, including some of the finest examples of American Elm in existence (<http://lorax.opp.psu.edu/>). Are you a golfer? The "Blue" and "White" golf courses just across the road from the Nittany Lion Inn can provide countless hours of entertainment chasing the little white ball.

The surrounding area, known locally as "Happy Valley", provides much of interest to the visitor. History buffs will find much of interest in the region, including the Christopher Columbus Chapel, the PA Military Museum, the Centre Furnace Mansion, and the Pasto Ag Museum. Those interested in scenic wonders should be sure to visit Penns Cave – America's only all-water cavern. Are you an outdoorsperson? If so, plan to take time for the short but steep walk up to the crown of Mount Nittany for its panoramic view of the town and valley. Myriad additional hiking and camping opportunities also await you in the nearby Rothrock State Forest. Are you more of the "sit and enjoy the afternoon" type? The town of State College, with its idyllic summer climate and varied cafes and restaurants, affords many opportunities for a fine meal and a bit of people watching. And don't overlook the nearby scenic town of Bellefonte, with its excellent Victorian era architecture. Given your interests, you may want to plan to come early or stay late (or both!).

In addition to the general technical sessions and graduate student oral and poster competitions, the conference will feature an address from Sue Nokes, president of ASABE, who will share with us her perspectives on the status and plans of the society. We are also honored to have, as a keynote speaker, Teri Ruch, the inaugural National Energy Engineer for USDA. We are excited to hear about her plans for energy programming at USDA, and the role that engineers can play. On Tuesday, we will hold a panel discussion on "Growing our Profession", in which we take a close look at the needs for Ag & Bio Engineering in the Northeast US and Eastern Canada, and compare that to our current ability to provide qualified graduates to meet those needs. It should be very interesting. On the theme of professional development, we are holding, for the first time, a Graduate Professional Development Session on Tuesday afternoon, in which Vijaya Raghaven of McGill University and Serena Bitzer of Hershey Foods share insights into building a successful career in our profession.

Please read through the additional articles in this newsletter for further details on the conference, including registration instructions and other useful information. We look forward to seeing you this summer in beautiful State College!



Registration Information

Please register for the conference, or as an accompanying person, online at <https://na.eventscloud.com/nabec20> by 11:45 PM on July 15, 2020. **However, all presenters must register by June 14, 2020 to guarantee a place in the program.** After July 15, 2020 please register onsite. *An additional \$50 will be charged to all full-day and \$25 will be charged to all one-day on-site registrations.*

Conference Registration Fees

By July 15, 2020

Full Registration (a)	US \$
Professional	\$200
Retired Professional	\$160
Student	\$140
One Day Registration (b)	
Professional	\$125
Retired Professional	\$110
Student	\$75

- (a) – Includes Sunday Evening Welcome Reception; Monday and Tuesday lunches and breaks.
 (b) – Includes lunch and breaks for the corresponding day.

Event Registration Fees (See following pages for description of these activities)

Event	US \$	
Sunday's Welcome Reception Additional Tickets for Guests, Accompanying Persons, One Day Registrants only	\$16	
Monday's Picnic	Regular	\$27
	Vegetarian	
	Child (ages 5-12)	\$13.50
Tuesday's Awards Banquet	Adult	\$50
	Child (ages 5-12)	\$25
Wednesday's Technical Tour (includes transportation and lunch)	Central PA Ag Tour	\$30
	Penn State Campus Tour	
Accompanying Persons Tours		
Monday – Amish Farm and Historic Bellefonte	\$0	
Tuesday – Palmer Art Museum and Creamery Tour	\$0	

Please contact Heather Smeltz at heather.smeltz@usda.gov with any questions or special requests.



Instructions for Online Registration

All prices are in US dollars. Lodging arrangements are made separately from meeting registration. Please follow the suggestions in the newsletter.

Online registration closes at 11:45 PM on July 15, 2020. Late registration (after July 15) is strongly discouraged but will be on-site.

All presenters must register by June 14th to guarantee a place in the program.

Go to <https://na.eventscloud.com/nabec20>. Click the “New Registration”, and then selected registration option for the primary registrant and click “Continue”. Please fill out the form with the required information. If you selected to attend the full meeting, you will also be asked if you plan to attend the Sunday Welcome Reception. You will be asked if you are a vegetarian. Please make your selections and press “Continue”. You will have the options to add the Monday Picnic, Tuesday Banquet and Wednesday Technical tour for yourself and “Continue”. You will be asked if you are interested in attending any possible group activities on Wednesday night. You will then be asked if you are registering any other meeting attendees, including guests. If you are not registering anyone else, choose “No” and “Continue”. You will be in the payment screen. If you choose to add additional registrants, choose “Yes” and continue.

Registering a Guest At the bottom of the first registration screen choose “Guest” (immediately above the “Registration Another”). If you are bringing a guest(s) to the meeting, please add them through this link, entering their name, email address, and phone number. (Guests’ email addresses from registration will be used to gather interest in and to communicate options for the accompanying persons tours.)

Click “Next” to see the Sunday Welcome Reception, Accompanying Persons Tours, Picnic, Banquet, and Technical Tours options.

You will have to repeat the process for every guest that you want to add. After adding your guest(s), you will be brought to a screen where you can delete or edit registrations for everyone attending the meeting with you. Once all selections are the way you want them, select **Complete the Registration** to enter your payment information. Enter your credit card information and click “Finish.”

You should receive an emailed receipt confirming your registration and payment.

IF YOU ARE ATTENDING THE TECHNICAL CONFERENCE, YOU CANNOT ATTEND THE ACCOMPANYING PERSONS MONDAY AND TUESDAY TOURS AS THEY ARE CONCURRENT TO THE CONFERENCE.

Cancellation Policy

Registrations received by July 15th are used to make meal and other conference guarantees. We pay for those guaranteed numbers. Cancellation requests received by Heather Smeltz (heather.smeltz@usda.gov) and David Ross (dsross@umd.edu) by July 15th will be honored. Any cancellation requests received after that date will be reviewed and partial refunds will be considered based on commitments already made or resale of registration or tickets.



Travel Information

Air Transportation:

The State College / University Park airport provides convenient air service from most locations in the world, via daily service to Philadelphia, Washington Dulles and Chicago O'Hare airports, as well as weekly service to locations in Florida.

The Nittany Lion Inn provides airport transport for guests, call the front desk in advance (814-865-8500) to arrange a pickup. Rental cars and taxi service are also available.

Surface Transport:

Amtrak provides daily rail service to nearby Lewistown (31 mi) or Tyrone PA (32 mi). Uber or similar rideshare services may be the best way to get from the train station to State College.

You can also reach State College PA by bus (Greyhound, Trailways, Megabus).

Those wishing to drive themselves will find that State College PA, once referred to as being "centrally isolated", is now easily reached from most locations by well-maintained Interstate highways such as Interstate 80 (East-West), Interstate 99 (South) and US Highway 322 (Philadelphia and the Atlantic Seaboard).

Driving Directions:

From Points East or West:

Take I-80 in PA to Exit 161 (Bellefonte). Follow PA 26 S to I-99 S / US 220 S. Take Exit 74 for Innovation Park/ Penn State University. Stay in the left lane. This street will become Park Avenue. Turn left on Allen Street and then right on Fischer Road. The Parking Deck will be on your left, followed by the Nittany Lion Inn.

From Philadelphia:

Take the PA Turnpike/I-76 W to Exit 247 (Harrisburg East), and follow signs for Route 322 W. Take 322 W to State College, and take the Penn State University/Innovation Park exit. Turn right at the stoplight and follow Park Avenue. Turn left on Allen Street and then right on Fischer Road. The Parking Deck will be on your left, followed by the Nittany Lion Inn.

From Pittsburgh:

Take Route 22 E to Duncansville. Merge onto Route 220/I-99 N and go north for 24 miles. Take the Penn State University exit. Turn right at the end of the ramp and follow Park Avenue. Turn left on Allen Street and then right on Fischer Road. The Parking Deck will be on your left, followed by the Nittany Lion Inn.



Lodging Information

Our conference will be held at the Nittany Lion Inn, 200 West Park Avenue, State College, PA 16803. The inn is a historic and attractive hotel located directly on the campus of the Pennsylvania State University. Guests will find that the hotel is ideally situated for enjoying the scenic campus as well as strolling to downtown State College, in many respects the quintessential American College Town.

A block of rooms is available at the Nittany Lion Inn, and is being held until June 25th, at a rate of \$130.00 (US) per room per night. Please use group code NABE20 when making your reservation (call 1-800-233-7505 or visit www.pennstatehotels.com).

Check in is 4 PM and Check out is 11am.

Parking in the parking garage adjacent to the inn is complementary for overnight guests - be sure to have your parking stub validated at the front desk.

A light continental breakfast (bagels, pastries, yogurt, coffee) will be provided on Monday and Tuesday for all conference attendees. Those wishing a full meal are welcome to stroll to a downtown eatery or purchase breakfast from the "Dining Room at the Inn", which features a hearty breakfast buffet as well as a full breakfast menu.

Many other hotels are located in State College but involve transportation and travel time to reach the conference. A few possibilities include Stevens Motel (1275 N Atherton St, State College, PA 16803; 814-238-2438), Quality Inn (1274 N Atherton St, State College, PA 16803; 814-325-9083), and Rodeway Inn (1040 N Atherton St, State College, PA 16803; 814-238-6783), all which are just over 1 km from the conference site.

Local Arrangements Committee

NABEC 2020 is proudly arranged by following the local team members:

- Daniel Ciolkosz, PSU Department of Agricultural and Biological Engineering
- Eileen Fabian, PSU Department of Agricultural and Biological Engineering
- Robert Graves, PSU Department of Agricultural and Biological Engineering
- Long He, PSU Department of Agricultural and Biological Engineering
- Heather Preisendanz, PSU Department of Agricultural and Biological Engineering
- David Ross, University of Maryland
- Heather Smeltz, USDA NRCS



NABEC 2020 – Conference Events

Registration – Sunday, 2:00 PM – 6:30 PM

Sunday registration will be available from 2:00 PM until 6:30 PM in the Rotunda of the Nittany Lion Inn. Registration will also be open Monday and Tuesday morning before the conference.

NABEC Planning Committee Meeting – Sunday, 3:30 PM

The NABEC Planning Committee will hold a meeting in the Penn State Room at the Nittany Lion Inn from 3:30 PM – 5:30 PM.

Sunday Welcome Reception – 6:30 PM

(Included with NABEC Conference registration for Members and Students. Guest ticket \$16.00)

Sunday evening from 6:30 – 8:30 PM. Meet and greet colleagues, friends and families at the Nittany Lion Inn with light food and cash bar service.

Technical Sessions and Business Meeting – Monday and Tuesday

Held in the ballroom of the Nittany Lion Inn, except for the poster session, which will be held in the nearby Agricultural Engineering Building. The conference will feature keynote speakers, technical oral paper and poster sessions. A business meeting will also be held. See the preliminary program in this newsletter for more details on the conference schedule and for more information on keynote speakers.

Monday Picnic – Sunset Park - 6:00 PM (Separate ticket)

Adult (Regular or Vegetarian) - \$27.00, Child (ages 5 to 12) - \$13.50, Child below 5 is free.

The NABEC 2019 Monday evening activity will be held at Sunset Park, a charming local park within walking distance of campus. Located in the College Heights district, the park features picnic pavilions amongst a lovely grove of oaks, a ballfield for softball or frisbee, and children's play equipment.

Tuesday Awards Banquet – Reception with cash bar - 6:00 PM; Banquet - 7:00 PM

(Separate ticket) Adult – \$50.00; Child (5 to 12) - \$25.00, Child below 5 is free.

The Awards Banquet will take place in the Boardroom of the Nittany Lion Inn. There will be a full service bar and reception before the banquet. An awards program will follow the meal.

The banquet dinner will feature a sumptuous buffet inspired by the cuisines of Italy:

Classic Cacciatore - Chicken Thighs Slowly Cooked with Italian Sausage and Peppers in a Rich Tomato Sauce

Red Wine Beef Roast with a Savory Onion, Italian Red Wine, and Fresh Thyme Gravy

Seasonal Vegetable Lasagna

Roasted Herb and Parmesan Red Potatoes

Italian Salad Bar with Salad Greens, Tomato, Cucumber, Black Olives, Sliced Pepperoncini, Red Onion, Shredded Cheese, Croutons and Italian Vinaigrette, Ranch, and White Balsamic Vinaigrette Dressings

Tiramisu



NABEC 2020 – Conference Events (Continued)

Technical Tour Wednesday, July 29, 2020

Two technical tour options are available to attendees: the "Central PA Ag Tour" and the "Campus Research Tour".

Central PA Ag Tour:

This technical tour will start from the Nittany Lion Inn at 8:00 AM, where we board our vans and set off for our first stop where switchgrass and pollinator field trials are being conducted as part of a project to investigate opportunities to increase sustainability and profitability of field crop designs. After that we will travel to "Sugar Valley" and the "Shrack Farms Dairy" where we will tour their progressive dairy facilities, including the onsite anaerobic digester and other innovative systems. From there, we will proceed to the charming hamlet of Mifflinburg for lunch at the Carriage Corner restaurant. Following the meal we will visit Timberhaven Log and Timber Homes view their manufacturing operations. As time permits, we will make one final stop at the Mifflinburg Buggy Museum, where the design and construction of horse-drawn conveyance is featured. Our return trip to State College will take us through scenic Penns Valley, known for its productive agriculture, excellent fishing, and thriving Amish communities.

We'll be back to the Nittany Lion Inn by 5 PM.

Campus Research Tour

This tour will start slightly later - 9:00am, and will begin with a stroll to the Agricultural Engineering Building where we will tour the many research facilities of the newly remodeled and expanded building. This will include the CSL Behring Shared Fermentation Facility, the Ag Safety lab, Ag Mechanization lab, Bioprocessing, Biomaterials, Robotics, Natural Resources, and other facilities. We will then proceed to the Penn State Arboretum for a box lunch amongst the well pruned vegetation. The afternoon tour will include the Mushroom Test Demonstration Facility, Living Filter, Student Farm and biomass plots, university stormwater management features, and the "living machine" bioprocessing demo and test site. A quick return to the Nittany Lion Inn will bring us back to our starting point.

Accompanying persons tours – Monday and Tuesday (Not for conference attendees)

The accompanying persons tour will consist of a series of fun outings that take in several local attractions whilst the conventioners "do their thing". Monday will feature a trip to a local Amish farm that produces cheese on site, followed by an afternoon strolling around scenic and historic Bellefonte. Tuesday will consist of a trip to the Palmer Art Museum on campus, followed by a creamery tour (pending confirmation).

Monday evening activity – BBQ Picnic and more:

The NABEC 2020 Monday evening activity will be a BBQ picnic held at Sunset Park (850 McKee Street, State College PA 16803). The park is close enough to walk from the Nittany Lion Inn, but parking is also available onsite. The park is an attractive, semi-wooded town park that features picnic pavilions, a ballfield and playground equipment for young children. Our catered "Summer Grill BBQ" meal will include "Firehouse Chicken"- chargrilled chicken split quarters, basted with a secret family recipe, char-grilled Angus steak burgers with lettuce, tomato, onion & condiments with Kaiser Roll (veggie burgers for vegetarians on request), salad, fruit, and baked beans for side dishes and sweet tea.

The musically inclined are encouraged to bring your instruments for an informal jam session, playing all of your NABEC favorites. Softball, Kickball or Frisbee are all possibilities as well, depending on the whims of the crowd. After you are finished with your picnicking fun, those of you who are desirous of a "sweet finish" are encouraged to stroll back to campus to visit the Penn State Creamery, known throughout the world for its remarkably rich and tasty ice cream.



NABEC 2020 – Conference Events (Continued)

Family Activity Opportunities:

While we don't have a formal program for kids, families with younger ones will find a wide array of fun opportunities in the area from which to choose. Several of the possibilities include:

- Discovery Space children's science center (<https://discoveryspace.org/>)
- Children's Garden at the Arboretum (<https://arboretum.psu.edu/venue/childhoods-gate-childrens-garden/>)
- Frost Entomology Museum (<https://ento.psu.edu/facilities/frost>)
- Penn State All Sports Museum (<https://gopsusports.com/sports/2018/8/8/all-sports-museum-psu-all-sports-museum-html.aspx>)
- Shaver's Creek Nature Center and Raptor Center (<https://www.shaverscreek.org/>)
- Nearby State Parks: Black Moshannon and Bald Eagle (<https://www.dcnr.pa.gov/StateParks/Pages/default.aspx>)
- Delgrosso's Amusement Park and Water Park (<https://www.mydelgrossopark.com>)
- Way Fruit Farm (<https://www.wayfruitfarm.com>)
- Millbrook Marsh Nature Center

Competitions



2020 NABEC UNDERGRADUATE STUDENT PAPER AND DESIGN COMPETITIONS

Are you teaching upper level courses that involve student projects? If so, the annual NABEC undergraduate student paper and design competitions are an excellent opportunity to enhance the impact of your students' work. Individuals or teams may enter either competition. Entries for the paper competition should focus on technical topics of interest to the agricultural and biological engineering community and can, for example, be based on substantial class term projects, independent studies, or undergraduate research projects. Projects entered in the design competition must involve engineering design of a system, component, or process for applications in agriculture, forestry, engineering or related fields. Design competition entries have frequently been, but need not be, limited to the product of senior design projects.

The **deadline** for the NABEC undergraduate student paper and design competitions is **5:00 PM, May 15, 2020**. Electronic submittal of all entries, preferably in PDF format, is required. **Cash prizes** to first, second, and third place entries are awarded for both competitions and **travel expenses will be reimbursed** for first place winners to present at the 2020 NABEC meeting. Entries must include summer addresses/contact information for the students. For full details, see the NABEC website: <http://nabec.asabe.org/awards--competitions.html>.

Please encourage your students to enter the competitions. Also, please, consider volunteering your services as a reviewer! You will not be asked to review more than a few entries, and the review process is uncomplicated. You'll be pleasantly surprised by the quality of the entries and your efforts will be greatly appreciated. Contact the Student Paper and Design Competition Committee Chair.

Satyanarayan Dev, PhD

Assistant Professor

850-296-4336

sdev@fsu.edu

Deadline for undergraduate competition entries is 5:00 PM, May 15, 2020.

2020 NABEC GRADUATE STUDENT COMPETITIONS

Graduate students in agricultural and biological engineering (or related programs) were invited to participate in the NABEC Graduate Student Competition by submitting an abstract proposal for either an oral or a poster paper presentation by the announced deadline. Competition is for 1) Best Graduate Student Oral Presentation and 2) Best Graduate Student Poster Presentation, as judged by panels. Awards are given to the top three winners in each category, including a certificate and a cash award. Entrants must be current or recently graduated graduate students, and must have submitted the abstract proposals using the NABEC Call for Abstract Proposals Form. Evaluation will be based on established criteria that include both content and presentation. Further information is available at the NABEC web site (<http://www.nabec.asabe.org>).

THIS CONTEST IS CLOSED TO NEW ENTRANTS AS DEADLINE HAS PASSED.



NABEC Young Engineer of the Year

If you know a young engineer (industry, government, or academia) that deserves recognition due to his/her contribution to the profession, please consider nominating them.

Each year NABEC offers an award for **Young Engineer of the Year**. This award honors NABEC members for outstanding contributions to the advancement of the Agricultural/Biological Engineering Profession. Awards are made on the basis of nominations submitted by colleagues. The award consists of an engraved plaque presented in person at the NABEC Annual Awards Banquet.

Further information is available on the NABEC web site (<http://www.nabec.asabe.org>).

Questions concerning the competition may be directed to:

Heather L. Smeltz

USDA-NRCS, Pennsylvania
359 East Park Road, Suite 2
Harrisburg, PA 17111
Phone: (717) 237-2214
heather.smeltz@usda.gov

Nominations Closed!

Deadline was March 15, 2020

1979 Norm Collins	1980 Fred Wheaton	1981 William Ritter
1982 No Award	1983 David Ross	1984 Andrew Higgins
1985 Michael Walter	1986 Abdel Ghaly	1987 Barry Frey
1988 Herschel A. Elliott	1989 James Garthe	1990 Unknown
1991 Richard Jennings	1992 Ronald Pitt	1993 Gene Giacomelli
1994 Chandra Madramootoo	1995 Paul Heinemann	1996 Wayne Bogovich
1997 Dennis Buckmaster	1998 Timothy Royer	1999 Cristina Ratti
2000 Joseph Irudayaraj	2001 Terry Lynn Ruch	2002 Michael Ngadi
2003 Ali Demirci	2004 Hubert Montas	2005 Jennifer Becker
2006 Valérie Orsat	2007 David Tilley	2008 Jeffrey Catchmark
2009 Su-Ling Brooks	2010 Andrew Wedel	2011 Devon Davis
2012 Mark Lefsrud	2013 Timothy Rennie	2014 Heather Smeltz
2015 Suresh Neethirajan	2016 Jan Adamowski	2017 Stephanie Lansing
2018 Marie-Josée Dumont	2019 Ajay Shah	



NABEC 2020 Distinguished Service Award

And for those who gave great service to NABEC? They won't be forgotten!!!

A special award is presented annually to individuals who have contributed outstanding service to NABEC. The award shall consist of a plaque with appropriate inscription and will be presented at the NABEC Annual Awards Banquet. Nominations may be held over for two years. The criteria for the award are: contribute as an officer, local arrangements, program committee, tour arrangements or other significant effort to NABEC; support NABEC by encouraging colleague participation; professional activities in the Northeastern US / Eastern Canada area.

Questions concerning the competition may be directed to:

Heather L. Smeltz

USDA-NRCS, Pennsylvania
359 East Park Road, Suite 2
Harrisburg, PA 17111
Phone: (717) 237-2214

**The nomination deadline has been extended to
May 30, 2020.**

Past recipients of the Distinguished Service Award:

1996 Eric Norris	1996 William Roberts	1997 Mark Singley
1998 None	1999 Jacob (Jack) Pos	2000 None
2001 Richard Peterson	2001 Robert Aldrich	2002 Abdel Ghaly
2002 Arthur Johnson	2003 David Ross	2003 William Ritter
2004 Paul Heinemann	2005 Bill Bowers	2006 Julie Cayley
2006 Vijaya Raghavan	2007 F. Spencer Givens III	2008 Kenneth Lomax
2009 Robert Kok	2009 Wayne Bogovich	2010 Stanley Weeks
2011 Cristina Ratti	2012 Glen Warner	2013 Ali Demirci
2013 John Ogilvie	2014 Robert Thompson	2015 Michael Ngadi
2016 None	2017 Bruce DuMond	2018 Heather Smeltz
2019 Anastasia Chirside		

NABEC 2019-2020 Committees

<u>Chair</u> Daniel Ciolkosz Penn State University 222 Ag Engineering Bldg University Park, PA 16802 (814) 863-3484 dec109@psu.edu	<u>Chair-Elect (Honors/Awards)</u> Heather Smeltz USDA-NRCS 359 East Park Drive, Suite 2, Harrisburg, PA 17111 (717) 237-2214 heather.smeltz@usda.gov	<u>1st Vice -Chair (Program)</u> Daniel Baumert USDA NRCS 967 Illinois Avenue, Suite #3 Bangor, ME 04401 (207) 990-9555 dan.baumert@usda.gov	<u>2nd Vice -Chair (Newsletter)</u> Balunkeswar Nayak University of Maine 109 Hitchner Hall Orono, ME 04469 (207) 581-1687 balunkeswar.nayak@maine.edu
<u>Secretary</u> Joshua Faulkner UVM 264 Jeffords Hall Burlington, VT 05405 802-656-3495 joshua.faulkner@uvm.edu	<u>Secretary -Elect</u> Ajay Shah Ohio State University 110 FABE Wooster, OH 44691 330-263-3858 shah.971@osu.edu	<u>Treasurer</u> David Ross University of Maryland Environmental Sci. and Tech. College Park, MD 20742-2315 (301) 498-2234 dsross@umd.edu	<u>Past Chair</u> Jan Adamowski Dept of Bioresource Eng McGill University, QC, Ca (514) 398-7786 jan.adamowski@mcgill.ca

Other Members of the Planning Committee

<u>District I Representative</u> Paula Steiner USDA NRCS - 521 N Okemos Rd Mason, MI 48854 (517) 883-6145 paula.steiner@gmail.com	<u>Meetings Council Rep.</u> Hong Li University of Delaware 531 South College Ave Newark, DE 19716-2140 (302) 831-1652 hli@udel.edu	<u>Publications Council Rep.</u> Satyanarayan Dev Biological Systems Engg., Florida A&M University 850-296-4336 satyanarayan.dev@famou.edu	<u>MDC Rep.</u> Oghan Mba Department of Bioresource Engineering McGill University, QC, Canada oghan.mba@mail.mcgill.ca
<u>Standards Council Rep.</u> Jude Liu Penn State University 227 Ag. Engineering Bldg. Uni- versity Park, PA 16802 (814) 863-6844 jliu@psu.edu	<u>Undergrad Competitions</u> Satyanarayan Dev Biological Systems Engg., Florida A&M University 850-296-4336 satyanarayan.dev@famou.edu	<u>Webmaster & Newsletter Editor</u> Satyanarayan Dev Biological Systems Engg., Florida A&M University 850-296-4336 satyanarayan.dev@famou.edu	<u>Parliamentarian</u> Robert Thompson USDA-NRCS 356 Mountain View Drive Col- chester, VT 05446 (802) 951-6796 ext. 232 Bob.thompson@usda.gov
<u>Historian</u> William (Bill) Ritter University of Delaware 531 S. College Ave. Newark, DE 19716-2140 (302) 831-2468 writter@udel.edu	<u>Program Committee (chair)</u> Daniel Ciolkosz Penn State University 306 Ag Engineering Bldg University Park, PA 16802 dec109@psu.edu	<u>Program Committee</u> Eileen Fabian Penn State University 248 Ag Engineering Bldg University Park, PA 16802 fabian@psu.edu	<u>Program Committee</u> Heather Preisendanz Penn State University 252 Ag Engineering Bldg University Park, PA 16802 Heg12@psu.edu
<u>Program Committee</u> Robert Graves Penn State University 307 Ag Engineering Bldg University Park, PA 16802 Reg2@psu.edu	<u>Program Committee</u> Long He Penn State University Musselman Bldg Rm 223 Biglerville PA 17037 Luh378@psu.edu	<u>Program Committee</u> Cibin Raj Penn State University 247 Ag Engineering Bldg University Park, PA 16802 craj@psu.edu	<u>Program Committee</u> David Ross University of Maryland Env Sci. and Tech. College Park, MD 20742-2315 dsross@umd.edu
<u>Program Committee & Registration Coordinator</u> Heather Smeltz USDA – NRCS 359 East Park Drive, Suite 2, Har- risburg, PA 17111 (717) 237-2214 heather.smeltz@usda.gov			

NABEC 2020 Preliminary Program Summary

Sunday, July 26, 2020

14:00 - 18:30	Registration
15:30 – 17:30	NABEC Planning Meeting
18:30	Evening Welcome Reception

Monday, July 27, 2020

7:30	Registration Open			
7:30 – 9:00	Continental Breakfast			
8:30 – 8:45	Welcome and Housekeeping – Dan Ciolkosz , NABEC 2020 Chair			
8:45 – 9:00	Steve Loerch , Associate Dean, College of Agriculture Sciences, Penn State University			
9:00 – 9:15	Sue Nokes , President, ASABE			
9:15 – 9:50	Terri Ruch , USDA/NRCS, National Energy Engineer			
9:50 – 10:10	Coffee Break			
10:10 -12:00	Technical Session IA and IB – Graduate Student Oral Competition (concurrent sessions)			
10:10	20-001	Development of Nano-Based Smart Delivery System of Ethyl Formate for Extending Shelf-Life of Fresh Produce Amr Zaitoon , Univer. of Guelph	20-064	Monitoring performance of green stormwater infrastructures in accumulating environmentally available metals transported by stormwater Bishwodeep Adhikari , The Pennsylvania State University
10:20	20-002	Perennials for environmental quality and profit Steph Herbstritt , Penn State U.	20-013	Image-Based Measurements of Fruit Count and Size for Apple Orchard Yield Estimation Omeed Mirbod , Penn State U.
10:30	20-003	Optimization of nitrogen sources to produce cellulase and xylanase enzymes in Distillers Dried Grains with Solubles-based medium Attia Iram , Penn State U.	20-014	Grading Mushroom in the Growing Bed Using Faster R-CNN Cheng-Hao Lee , Penn State U.
10:40	20-004	Cotreatment Enhanced Anaerobic Digestion of Switchgrass Andrew May , Penn State U.	20-015	A Systems Perspective in optimizing Nutrient transformations in Aerobic Biofilters In Tilapia-Lettuce Recirculating Aquaponics Systems Natalia Zappernick , Ohio St. U.

10:50	20-005	Preparation of bio-based adhesives with polysaccharides polyelectrolytes complexes Wei-Shu Lin , Penn State U.	20-016	Determination of the efficacy of fungal bioreactors to remove E. coli from aqueous dairy manure through assessment of growth support materials and flow regimes Sivaranjani Palani , U. Delaware
11:00	20-006	Development of a 3R Pruning End-Effector for a Cartesian Manipulator for Pruning Apple Trees Azlan Zahid , Penn State U.	20-017	Improved Canopy Estimation for Greenhouse Spray Applications Uchit Nair , Ohio State Univer.
11:10	20-007	Monitoring Per- and Polyflouroalkyl Substances (PFAS) at the Pennsylvania State Living Filter Heather Preisendanz , Penn S. U.	20-018	Flowering Stage Classification and Temperature Monitoring for Frost Damage Management in Apple Orchard Using UAV-based RGB and Thermal Cameras Wenan Yuan , Penn State Univer.
11:20	20-008	Optimization of process parameters for plasma activated water (PAW) production Sellam Perinban , McGill Univer.	20-019	Evaluating nutrient removal of a woodchip bioreactor treatment system receiving silage bunker runoff Jillian Sarazen , U. of Vermont
11:30	20-009	Effect of different drying technologies on drying parameters and the quality of hops: a comparative study. Philip Addo Wiredu , McGill U.	20-020	Evaluating the Role of Deep Neural Network for Corn Counting using UAV based Imagery Sandeep Venkatesh , Ohio St. U.
11:40	20-063	Catalytic transfer hydrogenolysis of biomass to produce value-added lignin Aditi Arya , Pennsylvania State University	20-021	Air borne sensing platform for greenhouses Aditya Raj , Ohio State Univer.
11:50	20-011	A Drone Imaging Application to Monitor Black Cherry Flowering and Regeneration in Allegheny Forest in Pennsylvania Tyler Reimer , Penn State Univer.	20-022	Techno-economic analysis of pennycress oil extraction and conversion to jet fuel at the commercial scale in Ohio Seyed Hashem Mousavi-Avval Ohio State University
12:00 – 13:00	Lunch			
13:00 15:00	Technical Session II – Oral Presentations			
13:00	20-023	What the New Pennsylvania Probable Maximum Precipitation Study means for PA NRCS Dams Heather Smeltz , USDA/NRCS, Pennsylvania		
13:10	20-024	An Update On The Chesapeake Bay TMDL William Ritter , University of Delaware		

13:20	20-025	Promoting Professional Engineering Licensure Mobility through Recognition of International Credentials in the U.S. Carmine C. Balascio , University of Delaware
13:30	20-026	A national assessment of the environmental footprints of beef and dairy production C. Alan Rotz , USDA, Agricultural Research Service
13:40	20-027	Consciousness in Animals Arthur T. Johnson , University of Maryland
13:50	20-028	Applying Agronomic Practices to Ephemeral Gullies Timothy Peters , Natural Resources Conservation Service
14:00	20-029	Two-Dimensional Tree Canopy Opens Opportunities for Mechanical/Robotic Orchard Operations Long He , The Pennsylvania State University
14:10	20-030	House and Latrine Construction in Haiti Robert Thompson , USDA - Natural Resources Conservation Service
14:20	20-031	What is next: Protecting Drinking Water in the rural Township of Tiny, Severn Sound Julie Cayley , Severn Sound Environmental Association (SSEA)
14:30	20-032	Incorporating the transport of hormones from agricultural landscapes as a new module into the Soil and Water Assessment Tool (SWAT). Lidiia Iavorivska , Pennsylvania State University
14:40 – 15:00	Move to Ag Engineering Building for Poster Session, Coffee Available There	
15:00 – 17:00	Technical Session III General Posters (Gen), Graduate Student Poster Competition (Grad) and Undergraduate Research Posters (UG)	
Grad	20-035	Salt and Nitrogen amendment for the cellulase and xylanase production using Distilled Dried Grains with Solubles-based medium as the Feedstock Attia Iram , Penn State University
Grad	20-036	Study of pullulan additives and a novel co-culturing fermentation for bacterial cellulose nanocomposite production Hetian Hu , The Pennsylvania State University
Grad	20-037	Optimal food processing techniques for reducing Canadian mustard (<i>Brassica juncea</i> L.) allergens Reza Sarhangpour Kafrani , Pennsylvania State University
Grad	20-038	Evaluation and modelling of peroxidase inactivation kinetics using piezo-steam heating techniques Regina Basumatary , McGill University
Grad	20-039	Adsorption of pharmaceuticals from aqueous solutions using biochar derived from cotton gin waste and guayule bagasse Marlene Carla Ndoun , Pennsylvania State University
Grad	20-040	Establishing specimen preparation and DART-MS protocols for plastic substrate and leachate analysis James S Pflumm , Penn State University
Grad	20-041	Exploring the characterization of solids in a recirculating aquaponics system Natalia Zappernick , The Ohio State University
Grad	20-042	Modeling the effects of Agricultural Conservation Practices on Greenhouse Gas Emissions and Crop Yield from Corn-Soybean Systems Garrett Steinbeck , Ohio State University

Grad	20-043	Assessment of Soil Carbon Content and Greenhouse Gas Emission from Corn-Soybean System Under Climate Change Scenarios Using DeNitrification and DeComposition (DNDC) Model Garrett Steinbeck , Ohio State University
Grad	20-044	Determination of the efficacy of fungal bioreactors to remove E. coli from aqueous dairy manure through assessment of growth support materials and flow regimes Sivaranjani Palani , University of Delaware
Grad	20-045	Identifying sweet spots for green stormwater infrastructure interventions in Pennsylvania urban communities Rouhangiz Yavari Bajehbaj , Penn State University
Grad	20-046	Life cycle environmental impacts of jet fuel production from pennycress in Ohio Seyed Hashem Mousavi-Avval , The Ohio State University
Grad	20-047	Integrated Simulation Modeling of Supply Chain Impacts from Genetic Improvements in Switchgrass Haley Stauffer , Penn State University
Grad	20-048	Regeneration of BioSorbents for Oil or Water Contamination Aditi Arya , Pennsylvania State University
Grad	20-049	Integrating Smart Farming Technologies for Research and Production Agricultural Practices at the University of Maryland Eastern Shore Travis Ford , University of Maryland Eastern Shore
Grad	20-050	TECHNO-ECONOMIC ANALYSIS FOR ASSESSING THE ASSOCIATED WITH DEBARKING OF BIOENERGY CROP: SHRUB WILLOW Azadwinder S. Chahal , The Pennsylvania State University
Grad	20-051	Gap filling of nitrous oxide emissions with classical machine learning algorithms Uttam Ghimire , University of Guelph
Grad	20-052	Smart Agriculture using Autonomous Robots Jesu Raj Pandya , University of Maryland Eastern Shore
Grad	20-053	Evaluating the impact of a constructed floodplain wetland on water quality in an urban stream Liyan Fan , Penn State University
Grad	20-054	Sodium Alginate Edible Coating to Extend the Shelflife of Strawberry Fruit Cuts Ghaidaa Alharaty , McGill University
Grad	20-055	Impact of thermal processing conditions on fate of allergens in yellow mustard sauce Simran Kaur Jawanda , McGill University
Grad	20-056	Evaluation of the fate of allergens (beta-conglycinin and glycinin) in soy milk subjected to intense thermal processing Akshaya Ravindran , McGill University
Grad	20-057	Comparison of static and conveyer pulsed ultraviolet light systems for microbial reduction on chicken thighs Joshua Cassar , The Pennsylvania State University
Grad	20-058	Predicting the impact of intermittent milling on biogas productivity from switchgrass-based poultry litter Matthew McVey , Penn State University

Grad	20-059	Encapsulation of Saffron in Gelatin by Freeze-drying Techniques and Study the Kinetics of Bioactive Compounds Degradation During Storage Fatemeh Golpira , McGill University
Grad	20-060	Modifying precipitation intensity-duration-frequency curves to design climate change-resilient stormwater systems Marali Kalra , Penn State University
Grad	20-061	Simulation-based impact assessment of land applied manure nutrient-loss due to landscape environmental vulnerabilities Gourab Saha , Pennsylvania State University
Grad	20-062	A Methodology for Calculating the Fiber Footprint of a Large Organization: A Case Study of Penn State University Nathaniel Elser , Penn State University
Grad*	20-010	Design and Experiments of Mushroom Robotic Picking End-effector Mingsen Huang , Penn State U.
Grad*	20-012	An Internet of Things based Irrigation System in Fruit Orchards with Fuzzy Logical Decision Making System Xiaohu Jiang , Penn State Univer.
Grad*	20-065	Assessing the Spatial and Temporal Distribution of Cover Cropping Practices in the Western Lake Erie Basin using Remote Sensing Kushal KC , The Ohio State University
Grad*	20-066	Evaluating the Impacts of Cover Crop Adoption on Water Quality and Crop Productivity in the Western Lake Erie Basin Kushal KC , The Ohio State University
Grad*	20-067	Micro-CT Based Path Planning for Autonomous Robotic Extraction of Crab Meat Mohamed Ali , University of Maryland
Grad*	20-068	A Data-driven study on climate change impacts on crop yield in the southeastern US T Nguyen Hai , Penn State University
Grad*	20-069	Development of an Image Processing based Algorithm for Intelligent Sprayer Performance Analysis Md Sultan Mahmud , Pennsylvania State University
Grad*	20-070	IoT-based precision irrigation for vegetables in greenhouse with LoRaWAN technology Haozhe Zhang , The Pennsylvania State University
Grad*	20-071	Quantifying the effects of trade throughout the Chesapeake Bay on its nitrogen balance Paniz Mohammadpour , Penn State University
Grad*	20-072	Pulsed ultraviolet light processing for microbial reduction of table and fertile shell eggs Joshua Cassar , The Pennsylvania State University
Grad*	20-073	Effect of Torrefaction and Alkaline Pretreatment on Glucose Yield of Wheat Straw Jaya Tripathi , Penn State
Grad*	20-074	Combining Nutrient Accounting Tools with Input-Output Life Cycle Assessment for estimating Nitrogen and Phosphorus flows in the US economy Zia Uddin Md Chowdhury , The Pennsylvania State University

Grad*	20-075	Monitor Endocrine Disrupting Compounds in the Susquehanna River Basin in 2018 and 2019 Through Citizen Science Kathryn Hayden , Penn State
Grad*	20-076	Quantifying water quality benefits of weather forecasting based manure application timing strategies in the Susquehanna River Basin Arghajeet Saha , The Pennsylvania State University
Grad*	20-077	Measurement and Characterization of Temperature and Pressure in the Pelletization Process Yiming Li, Pennsylvania State University
Gen	20-092	Design and Optimization of Heating System for Automated Frost Protection in Apple Orchards Quinn Holland , Penn State University
Gen	20-078	Successful Treatment of Poultry Processing Wastewater in a Low-cost Sand Bioreactor System. Karen Mancl , The Ohio State University
Gen	20-079	Opportunities and Barriers to Energy Extension in Maryland Drew Schiavone , University of Maryland
Gen	20-080	Biochar and Hydrogel Combination Improves Green Pepper Fruit Quality Joba Purkaystha , McGill University, Canada
Gen	20-081	Study on Apple Tree Fire Blight Based on NDVI Index of Drone Multispectral Image Jianzhao Feng , Penn State Fruit Research and Extension Center
Gen	20-082	Influence of high pressure processing on aquafaba rheological properties and starch crystallinity Prof. Hosahalli S. Ramaswamy , McGill University
Gen	20-083	Arduino based ammonia gas generator for poultry health research Dan Hofstetter , Penn State University
Gen	20-084	Energy savings analysis of roof solar panel installation on Krishnan Residence in Newark, Delaware Palaniappa Krishnan , University of Delaware
Gen	20-085	Structural analysis of preexisting on farm grain bin structures for retrofitting lifeline technology Michael Dyer , Penn State
Gen	20-086	Dairy Farm Before and After Mark Buckwalter , USDA-NRCS
Gen	20-087	PA NRCS EWP- Pennsylvania Gets it Done Peter Vanderstappen , USDA NRCS
* Excess Graduate Student Oral Competition suggested to be Graduate Student Poster Competition		
18:00	Picnic/BBQ	
Tuesday, July 28, 2020		
7:30	Registration Open	
7:30 – 9:00	Continental Breakfast	
8:00	Welcome and Housekeeping – Dan Ciolkosz , NABEC 2020 Chair	
8:15	Undergraduate Design Team Presentation	
9:00 – 10:30	Technical Session IV – Oral Presentations	

9:00	20-088	The EPA Water Reuse Action Plan (WRAP) Dr. Anastasia E M Chirside , University of Delaware
9:10	20-089	A review of 3D lidar point cloud registration for mapping of plant properties in indoor greenhouse environment Gaoshoutong Si , The Ohio State University
9:20	20-090	The Bay of Fundy Aquatic Connectivity Restoration Project Daniel J. Baumert , USDA/Natural Resources Conservation Service
9:30	20-091	Prediction of the Effect of Dead Biomass Harvest on Water Quality in the Apalachicola National Forest Area Satyanarayan Dev , Florida A & M University
9:40	20-033	Development of the Field-based Imaging Unit for Maize roots architecture phenotyping Xiaomeng Shi , Penn State University
9:50	20-093	Industrial Hemp Planting, Harvesting and Decorticating Jude Liu , Penn State University
10:00	20-094	Reallocating Crop Rotation Patterns Maintains Crop Yield and Improves Water Quality Fei Jiang , Pennsylvania State University
10:10	20-095	Troubleshooting with Time-Lapse Cameras John T Tyson , Penn State
10:20	20-096	Systems analysis for the development of biorenewables Juliana Vasco-Correa , Penn State University
10:30 – 10:50	Coffee Break	
10:50 – 12:00	Panel Discussion: Growing Our Profession	
	Facilitator: TBD Panelist: Sue Nokes , President, ASABE Panelist: Peter Vanderstappen , USDA NRCS Panelist: TBD	
12:00 – 13:00	Lunch	
13:00 -14:20	Technical Session V – Oral Presentations	
13:00	20-097	Socio-hydrological modeling Jan Franklin Adamowski , McGill University
13:10	20-098	Phosphorus recovery and reuse from anaerobically digested dairy manure using dissolved air flotation Katherine K. Porterfield , University of Vermont
13:20	20-099	Cage-Free egg production ventilation modeling Eileen Fabian , Penn State University
13:40	20-100	Digesters for Small and Medium Farms: Recent Installations and Future Prospects Alex DePillis , Vermont Agency of Agriculture
13:40	20-101	Magouilles: Scheming the FOSS FPGA in Bioengineering Hubert Montas , University of Maryland at College Park
13:50	20-102	From Wastewater to Groundwater: Understanding the Biogeochemical Filtering of Pharmaceuticals in a Spray-Irrigation System Heather E. Preisendanz , Penn State University

14:00	20-103	The State Of The Recycling Industry In The U.S. William Ritter , University of Delaware
14:10	20-034	Efficient wood-burning stoves in Guatemala Glenn S. Warner , Univ. of Connecticut
14:20 – 14:35	Coffee Break	
14:35 – 15:45	Technical Session VI – Oral Presentations	
14:35	20-105	Why I chose to be a licensed engineer Heather L. Smeltz, P.E. , USDA-NRCS, Pennsylvania
14:45	20-106	My continued career in utilizing science and engineering principles in sports talk radio and TV media Daniel J. Baumert , USDA/Natural Resources Conservation Service, Maine
14:55	20-107	Playing with Dirt: Gamified Exam Preparation in and out of the Classroom Michael L Mashtare Jr , Purdue University
15:05	20-108	Electric fence to protect beehives from black bears Wayne Bogovich , Bogovich Apiaries & Honey Products
15:15	20-104	Pawpaws on SweetAire Farm Art Johnson , SweetAire Farm
15:30 – 17:00	NABEC Business Meeting	
15:30 – 17:00	Graduate Student Professional Development Session	
18:00	Reception and Awards Banquet	
Wednesday, July 29, 2020		
8:30	Technical Tours	