CABBI Progress in 2017-18

The Center for Advanced Bioenergy and Bioproducts Innovation (CABBI) was announced in Fall 2017 by the U.S. Department of Energy (DOE) as the nation's fourth Bioenergy Research Center (BRC). Originally awarded $104 million over five years, the Center's funding eventually increased to $115M. It officially started Dec. 1, 2017, and iSEE personnel spent much of the first six months setting up administrative groups and policies, such as:

- The Executive Committee, composed of Director Evan H. DeLucia; the Associate Directors for Science & Technology; Research & Development; and Operations; one Leader and two Deputy Leaders in each of the three scientific themes (Feedstock Production, Conversion, and Sustainability); and the Science Integration Committee Chair.
- The Science Integration Committee (SInC), made up of the Chair, the Deputy Director for R&D, and one representative of each theme. The goals of SInC are 1) to ensure effective communication and integration among themes, Illinois researchers, external partners, and other BRCs; 2) to evaluate existing integration efforts within the CABBI research; and 3) to identify new opportunities.
- A Strategic Advisory Board (SAB), chaired by DeLucia and made up of representatives from the other BRCs as well as academic, government, and industry experts in bioenergy and bioproduct thematic areas of feedstocks, conversion, and sustainability. This Board will convene annually to objectively evaluate the Center's research progress, guide future scientific directions, and ensure that CABBI projects remain in alignment with CABBI, DOE, and stakeholder priorities. Read more at https://cabbi.bio/strategic-advisory-board/.
- A Program Manager, Research Coordinators, and a Theme Secretary were hired to help each scientific theme with logistics, space, meetings, reporting, publishing, and more. A Lab Manager was hired to oversee work at the Carl R. Woese Institute for Genomic Biology (IGB).

- Annual objectives were submitted to DOE, and internally CABBI has a list of Key Results under each objective, so progress can be tracked. Each key result links to one of the 59 PIs. Also, the themes were split into 18 sub-groups, all working on specific objectives.
- Postdoc mentoring plans were established, and CABBI has orientation sessions for all new hires.
- An Industrial Affiliates Program is still under development. The program is a joint effort between the Integrated Bioprocessing Research Laboratory (IBRL) and CABBI to engage industry in cutting-edge bioprocessing technologies and to provide the necessary means to de-risk new intellectual property for efficient and successful transitions to commercialization.

On the research front, more than 60 postdocs and graduate students have been hired to support the 59 PIs on CABBI. Many of the Illinois-based scientists have moved into lab space at IGB and have already begun their work on feedstocks, conversion, and sustainability. In addition, at the end of May, 800+ genotypes of bioenergy sorghum were planted on the Energy Farm in Urbana, and four Texas A&M lines in Iowa.

In the Sustainability theme, trials have begun, and models are being updated and recalibrated to incoming data for compatibility with economic modeling. Continual coordination of sampling is underway for our bioenergy crops. Feedstock theme researchers are meeting regularly to share information about each scientist's capabilities and to formulate plans for improving the bioenergy value of Miscanthus, sorghum, and sugarcane by incorporating new genetic traits and modifying existing traits. This process incorporates work in the lab, computer modeling, and field trials. The Conversion theme team meets regularly to discuss each researcher's strengths and a plan for optimizing the production of biofuels and bioproducts through automation and modeling.

Through early June 2018, CABBI researchers have published six papers (read more at https://cabbi.bio/news/research-publications/).

To help communicate its achievements, CABBI has developed a website (https://cabbi.bio) and a Twitter account (@CABBIbio), and has set up Slack as a messaging and document sharing system as well as Zoom for teleconferencing. A CABBI overview brochure and presentation were created, and templates for CABBI presentations, posters, etc., have been established.

In addition, a monthly CABBI Colloquium began in June 2018 as a way for postdoctoral researchers to communicate what they are doing in the lab – and to connect with other researchers and tie their work into the big pictures of their own and other CABBI themes, and even to the BRC program. Read more at https://cabbi.bio/news/cabbi-colloquia/.

CABBI has begun outreach efforts as well, including participation in the International Genetically Engineered Machine (iGEM) Foundation competition at MIT, and plans to participate in Genome Day 2018.

Other CABBI events include a February kickoff meeting, attended by Congressional and University of Illinois dignitaries -- after which CABBI scientists met to discuss near- and long-term goals and to break into subtheme research groups. In July 2018, CABBI's annual retreat will continue those discussions.