

BIC hosts first-ever European bio-based student challenge to develop innovative, sustainable products from bio-based raw materials

"Contribute to the sustainability of society by designing a bio-based product or process". This was the task set for five pioneering student teams participating in the first-ever European final of the BISC-E student competition. The teams presented their innovative projects to an audience of leading figures from the bio-based industry.

The Bio-based Innovation Student Challenge Europe (BISC-E) seeks to promote breakthrough innovation and careers in the bio-based sector through an annual competition between some of Europe's most promising university students (BSc & MSc). The competition was initiated in the Netherlands in 2017 by TKI-BBE, an entity to build, maintain and execute the Dutch national research and innovation agenda with the aim of bridging the knowledge gap between students and bio-based materials. Building on its success, the competition is now held on a national level in five European countries (Belgium, Denmark, Finland, the Netherlands, and Portugal). Gerlinde van Vilsteren of Wageningen University & Research is the BISC-E coordinator.



BIC hosted the inaugural European BISC-E final at its annual gathering of top bio-based industry experts in Berlin, Germany, where winners from five national contests competed. The students had a meet-and-greet with the BIC Programming Working Group on the evening before the final. The BISC-E Challenge was explained to the industry members, and student teams took advantage of the opportunity to make contact with BIC-

members.

On the day of the final, the innovative projects of the student teams were first assessed by an independent international jury, who decided on the top three. The jury members included: Kees de Gooijer (TKI Biobased Economy), Cody Mayoh (NovaUCD), George Sakellaris (BIOCON), and Manfred Kircher (CLIB).



The **Danish team Biokraut** presented a biochar-based paint which can be used with crop plants for weed control and to improve soil quality. The principle is not new, but nevertheless promising. The hurdle is to keep the paint on the crop for a longer period. With a business plan worked out, the team will now focus on field trials and binding.



The **Belgium team Sauveur** aims to prevent food waste by connecting supply and demand. They produce fruit syrup (cordial) based on food waste. The value chain and consumer marketing were very well thought out. The team had calculated the CO2 savings and profitability. The jury wanted to know more about the health advantages compared to (large) competitors in the syrup market and whether the story of food waste prevention would give them a marketing head start.

The **Finnish team Bark union** presented a full biorefinery concept for bark. Bark is now often burned or wasted. The team described the resourcing, biorefinery and marketing for different products, derived from bark: biocascading at its best. They calculated a 17% return on investment. The jury asked about the key component: which one is the most valuable? The tip was to find a new and unique element to anchor the business case.



The starting point for the **Portuguese team SciAlgae** is invasive algae, in view of the waste problem they cause on Portuguese beaches. The team initially investigated the opportunities of nanotechnology: using small things to solve big problems. However, they eventually decided on producing an anticellulite cream from the algae. They listed their competitors and indicated that the marine cosmetics market is growing quickly. The team is going to patent their formulation and develop it further for the Portuguese market. The jury was enthusiastic about the idea of using marine resources but foresaw some difficulties with this specific algae (*algae variety Sargasso*).

The **Dutch team Biosilence** devised a procedure which converted manure into soundproofing panels, with the bonus of reducing the need for mineral wool and replacing it with a major agricultural waste flow. The team presented their first prototype, called Bio-X, to the audience. The jury questioned whether using manure would be a marketing drawback. However, the team showed that the production costs versus silence reduction showed great potential for Bio-X. The blocks can be used for new buildings and also for refurbished houses. Comparison of BioX with competitors on heat isolation was also very positive. The product is more sustainable than isolation material Rockwool, which requires mining and a lot of energy.



The academic jury decided on a top three consisting of the Finnish, Dutch, and Belgium teams, these teams then pitched their projects to 70 BIC members. Following a vote by BIC's industry members, it was team Sauveur from Belgium which came out on top with their innovative solution to reduce food waste. The Biosilence team from the Netherlands were runners-up and Bark Union from Finland finished third. After the final, there was a walking lunch where all the student teams had the opportunity to present their ideas and product to BIC members and make connections with industry.





Afterwards, we asked the participating students about their experiences. They liked the fact that many leading companies of the bio-based industry were present, meeting the other teams, and the constructive feedback from the judges. Students were positive about the ability to make contact with BIC members at the evening event before the competition and during the walking lunch. All participating teams would recommend BISC-E to other students.

Quotes from students:

"It is worth spending your free time on an innovative idea that may move our society closer towards sustainability and a circular way of thinking"

"BISC-E is a good experience for designing and getting a grip of what it takes to develop a product in a challenging market. It helps to develop skills that can also be used in other projects. Furthermore, it puts you in contact with entrepreneurs who have the same passion for bio-based innovation"

