Picture: Pixabay

The five regional BLOOM bioeconomy hubs have been busy with their outreach activities in the last months, raising awareness of bioeconomy research and innovation in Europe. Now we are all collectively facing a challenging situation, and Covid-19 is rapidly shifting our priorities, changing our daily lives and determining what is possible at the moment, and what is not. This crisis is also affecting the BLOOM project: we have cancelled many of our events and planned activities. Nevertheless, we are also adapting to the new circumstances, and offering some of our formats in an online version.

The BLOOM bioeconomy hubs will run a joint international webinar series in the coming months. Topics will range from wood and forest, bioplastics, agriculture and food, to strategies for implementation on a policy level (page 14).

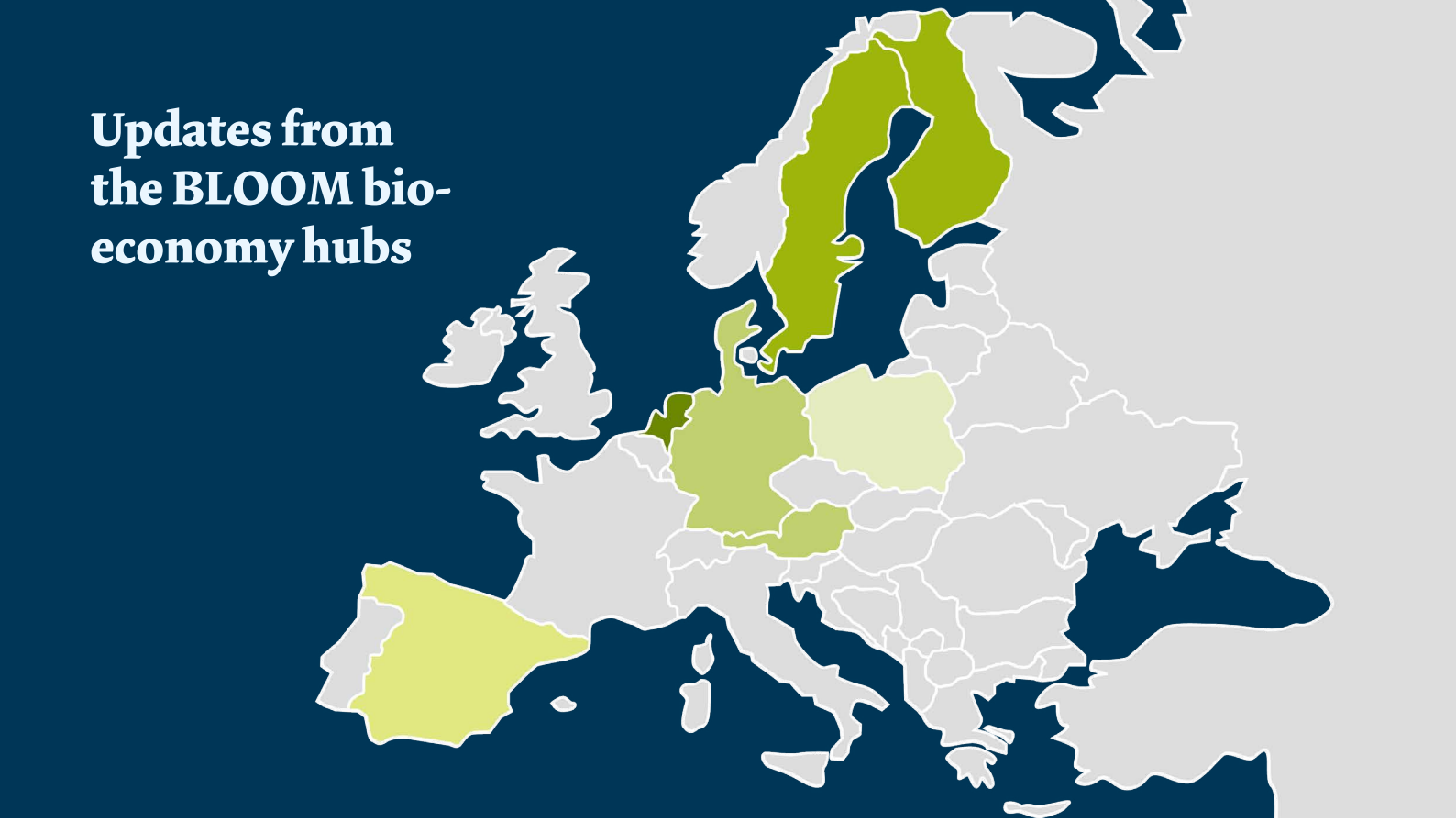
For teachers, we offer free learning material on our website, such as our BLOOM School Box, a collection of teaching resources that STEM educators can use to introduce the concept of bioeconomy in their teaching. Tell us how you are implementing the resources of the School Box and participate in the BLOOM Stories Competition, running until April 30 (page 14)!

It is impossible to foresee the magnitude of the impact of the current crisis on our economies. We hope that once this crisis is over, we will collectively be able to rebuild our economies in a more sustainable, biobased, circular and resilient way.

We hope you will enjoy reading our newsletter and wish you all the best in this challenging time!

Content:

Updates from the BLOOM bio-economy hubs



Nordic Hub

Area: Wood based products
The Nordic hub (Sweden & Finland) aims to raise public awareness about the possibilities of forest products.

News from Finland and Sweden

Discussing bio-based in Finnish schools

What are bio-based products and what are the main interests or concerns that young people have about them? In the past couple of months, JAMK University of Applied Sciences has reached out to young people to engage in a dialogue about the possibilities and challenges of bio-based products. The JAMK team organized several dialogue sessions with local and international high school students and challenged them to think about what opportunities bio-based solutions might have, and whether they pose any threat.

In January, two sessions were organized for local high school students and their French student guests in Jyväskylä Lyseo Upper Secondary School and in JAMK Bioeconomy Institute in Saarijärvi. In February, another session was organized for "Innovations in Bioeconomy" course students in the Bioeconomy Institute in Saarijärvi. All in all, 76 people were reached.

In the sessions, young people were introduced to the

bioeconomy, after which they got to explore samples of different bio-based products and to engage in a dialogue around them in small groups. They were very enthusiastic to explore the materials and diverse discussions rose up. They were really interested in the new solutions and alternatives for fossil-based materials thus seeing a lot of opportunities and potential in them – mostly in tackling climate change and plastic problems. Some of the groups even started to innovate new applications of the materials! What really concerned them was the price. Most of the youngsters agreed that they'd be willing to pay a bit more for more sustainable product but it was difficult to define how much.

Also, it was discussed whether there will be enough bio-based resources to substitute fossil-based resources. As we were talking mainly about wood-based products, deforestation became a major issue but also the sufficiency of other bio-based resources was discussed. A benefit that the participants recognized with the bio-based raw materials is that they are dispersed spatially more evenly. On the contrary, most of the fossil-based raw materials tend to be concentrated in certain areas, which creates inequality between nations. So to say, bioeconomy has the potential to generate more equal societal systems and to improve local livelihoods!

The next *Discuss Bio-based in Schools* session will be organized for students in the Bioeconomy Institute in Saarijärvi in 19th of March 2020. As high school education in Finland is public, everyone interested in the topic is welcome to join the session!

Aino Voutilainen, JAMK University of Applied Sciences

Would you like to participate? Get in touch with the Nordic Hub:

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Vetenskap & Allmänhet, Sweden
Maria Hagardt: maria.hagardt@v-a.se
Lotta Tomasson: lotta@v-a.se

Dutch Hub

Area: Bio-chemicals and bio-plastics
The hub follows and promotes new cross-sectoral collaborations between chemical companies and the agro-industry

News from the Netherlands

Bioplastics from Sugar Beets – the Video

In March 2020 the video of our Dutch regional bioeconomy hub was published! In this movie we follow the valorisation process from sugar beets to the intermediate product of PLA (Poly Lactic Acid) and the 3D printing techniques to process PLA into different bioplastic products. In the Emmen region, various facilities and initiatives have been started for new biobased applications based on sugars extracted from plants. Emmen is specialized in the production of biobased yarns, for example for use in horticulture.

Watch the second episode of our bioeconomy video series by clicking on the image in the right column!

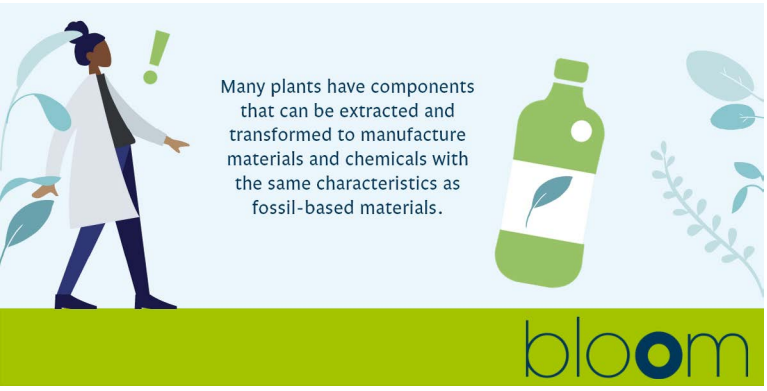
Sustainable Plastics & Materials Expo – Emmen

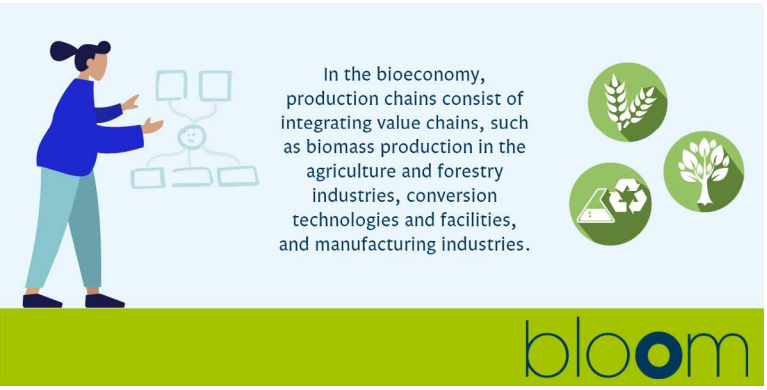
The Dutch hub will participate in the first Chemport Sustainable Plastics and Materials Expo, organized in the North of the Netherlands. The expo was originally planned for April, but will be postponed to November due to corona virus. This large, international event will take place in Emmen. The focus is on bio-based and circular economy. The expo focuses on two main objectives:

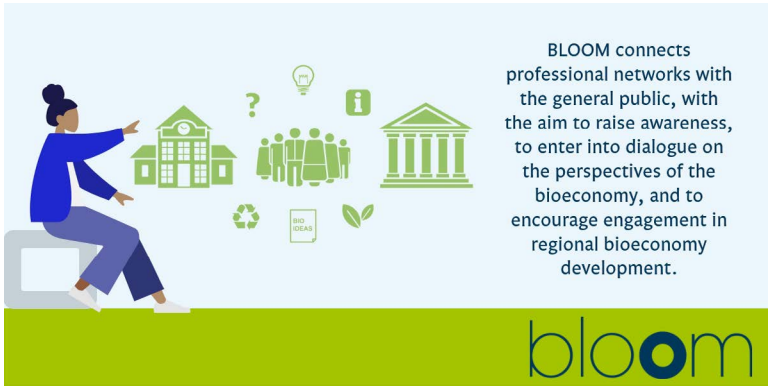
- Realizing business opportunities in circular & bio-based chemistry by creating new collaborations and interacting networks;
- Showing, stimulating and promoting the northern circular & bio-based chemical sector (Chemport Europe: Chemical Cluster Emmen & Chemical Cluster Delfzijl and the Circular Friesland Association).

Next to the conference and the Exhibition for professionals, there will be 2 domes set up, in the middle of the City Center of Emmen, to inform the general public

about the subject and the ambitions and developments of Emmen. BLOOM will be present in one of the domes and will present a Gallery Walk and the movie about Emmen. In the Gallery Walk BLOOM will inform people about the bioeconomy by using the Key Messages and the visuals made by the project team. We will also present the definition of the Bioeconomy and we will show the valorisation routes of 3 types of biomass: wood, sugars and fibres, by showing the intermediate products and the potential applications in a wide range of consumer products.







Examples of BLOOM bioeconomy key messages

Outreach activity: Masterclass

We will have our Masterclass on 8th or 15th June (to be confirmed) in Emmen. The target group is the tourist and recreation sector, to inform about the perspective of bioeconomy and to support them by exploring the possibility to use biobased alternatives. There will be a Bus tour along 3 sights:

- The visitor center of Staatsbosbeheer, the National organisation on forestry and nature management. There will be an introduction on biomass production and valorisation.
- The regional cultural heritage Center, masterclass by Harriëtte Bos (Wageningen Research) will present the perspectives of the bioeconomy and the BLOOM project
- A sustainable campsite; Masterclass of Jan Jager, NHL Stenden. The regional perspective of biobased economy and innovations

The bus will finish at NHL Stenden where a market place will be held. Different BLOOM outreach materials, like the gallery walk and the movie, will be shown. Four entrepreneurs will have a pitch with their ideas on bioeconomy

Remco Kranendonk, Wageningen University & Research

Would you like to participate? Get in touch with the Dutch Hub:

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Harriette Bos: harriette.bos@wur.nl

Spanish Hub

Area: Food and agriculture
The hub promotes networking between all the actors involved into the agri-food sector in the Mediterranean area.

News from Spain

BLOOM Outreach Activities and the BIOVOICES project

Spain has 26% of the world's surface area of olive trees and generates 38% of the global volume of olive oil. The olive tree is a crop deeply rooted in Spain as part of its historical and cultural tradition, but it is also a great economic booster, generating between 25 and 48 million euros (according to different consulted sources) of annual wages. Not only is it an essential part of the landscape, it is also a key environmental element since it contributes to the maintenance of the Mediterranean ecosystems and, therefore, of large areas in our country.

For this reason, BLOOM in collaboration of the BIOVOICES project, prepared a workshop based on the Civic Dialogue methodology, which helps to bring together the principal stakeholders interested in collaborating, innovating, promoting and selling different products coming from the olive tree. BIOVOICES is an EU funded project aiming at engaging all relevant stakeholder group's "voices" (policy makers, researchers, the business community and civil society) in order to address societal, environmental and economic challenges related to bio-based products and applications.

In the context of this collaboration, the expected outcomes of the workshop were:

- Enhance the value of clusters and their function to accelerate action plans in bioeconomy and projects in rural areas.
- Improve the Public-private collaboration in bioeconomy in order to create new value chains and broader markets for bio-based products.
- Create awareness about bioeconomy and bio-based products.
- Bringing information about bioeconomy to the rural sector, about the technological specificities of these products, the possible uses, and raising awareness that these bio-based products are equally secure and better for the environment than those that are in the fossil-based market.
- Identify ways to increase the awareness about bioeconomy and adoption of bio-based products.

The workshop counted about 20 participants representing the quadruple helix, having as its main conclusions:

- Increasing the participation of public administration in education about bioeconomy, being a point of reference in the use of bioproducts.
- Using success stories or the own bioproduct in order to understand the concept of bioeconomy.
- Doing more activities to disseminate the bioeconomy to young people (schools), planting the concept of sustainability, recycling, bioproducts, etc.
- Have specific places of purchase for first time users

Rocio Juste Ballesteros, ceiA3

Would you like to participate? Get in touch with the Spanish Hub:

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Rocio Juste Ballesteros: rjb.op@ceia3.es

Austrian & German Hub

Area: Innovative circular materials
This hub aims to better integrate stakeholders and increase the general understanding and interest for a bioeconomy.

News from Austria and Germany

Bioeconomy to touch: the interactive Gallery Walk and Science Espresso

Reducing our dependence on fossil-based production is the herculean task of our time. However, many examples exist which show that an economy can move towards a more renewable base of production.

On the 23rd and 24th of January 2020, the gallery walk of the Austrian and German hub offered a vivid opportunity to get in touch with real examples of bioeconomic action and to get in touch with the BLOOM objectives. In an interactive format, participants got in touch with real showcases – provided by pioneers of bioeconomy – followed by a discussion with leading experts and company representatives.

The gallery walk took place at the 6th Central European Biomass Conference in Graz, Austria. In an area near the conference, a fair for homebuilders was conducted in parallel. Therefore, the participants of the gallery walk ranged from visitors of the fair to conference-attendees. In total we were pleased to welcome over 100 participants from all stakeholder groups. Following the motto "*bioeconomy to touch*" over hundred participants – ranging from civil society, to public administration, industry, research and politics – could experience a great variety of innovative products.

Whether clothes, sinks and bathtubs, bio-plastic bags, soundproofing or wooden-bricks for solid construction – the potentialities of bioeconomy are manifold. The participants were able to experience the following innovations:

- Bioplastics – from raw material to end product: Agrana
- Insulation & soundproofing made from hemp: Capatect
- Wooden textiles – from raw material to end product: Lenzing (Tencel®)
- An innovative wood brick for solid buildings: Luxhome
- Sinks & bathtubs made of 100% waterproof solid wood composite: Woodio (Finland)

In addition, a science espresso with the title "*building with wood*" took place on the second day of the gallery walk. The expert Markus Stangl (Institute for Architectural Technology, Graz University of Technology), engaged with 18 participants within a vivid discussion.

We were especially honored by the visit of two Federal Ministers of Austria: Elisabeth Köstinger, Federal Minister for Agriculture, Regions and Tourism as well as Leonore Gewessler, Federal Minister for Climate Protection, Environment, Energy, Mobility, Innovation and Technology. These visits indicate the great importance of the bioeconomy for future sustainable development in Austria.

In addition to the experts and company representatives – some of whom were even personally on site – we would like to thank the organizer of the 6th Central European Biomass Conference, the Austrian Biomass Association, for the possibility to conduct the gallery walk at the conference.

More information can be found here.

Reaching the concrete: Two co-creation webinars

After four successful and content-rich co-creation workshops, we organized two co-creation webinars on the 6th of November 2019 and the 11th of December 2019. The aim was to refine content that was generated in the preceding workshops. The first webinar built on the idea of a TV discussion – with the general public as target group. In 50 minutes, 14 participants from all stakeholder groups refined the questions and topics for the discussion, who should discuss and which examples and showcases should be shown. Within the second webinar, nine participants refined two concepts of outreach-webinars. First, a webinar with its focus on textiles and the target group of (young) citizens (civil society in Austria) will be focused. The most important aspects of the topic "*Oil-free clothing - products & applications*" are to be shown within this webinar. Second, a webinar with a focus on wood & bioeconomy and the target group "*industry, administration, research*" (actors and companies in the wood cluster). The aim will be to show the diversity of wood.

We have now completed the whole co creation phase. The main learning for conducting co-creation webinars can be framed as "*the less the better*". Picking out one or two specific elements that should be developed further, with a maximum of 10 participants and a limit of 60 minutes, as it was the case in the second webinar, proved very efficient.

Upcoming event

TV Discussion: Jobs and economic boom in rural areas: can bioeconomy make it possible?
22.04.2020, 11:00-12:00, DORF TV, Linz.

Guests:

- Max Hieglsberger, Agrarian State Councilor of Upper Austria
- Mag. DI Dr. Fritz Gattermayer, board member of AGRANA AG
- Dipl.-Ing. Dr. Martin Greimel, Head of the Center for Bioeconomy at the University of Natural Resources and Life Sciences, Vienna
- Dr. Tanja Spennlingwimmer, Head of Investor & Location Management, Business Upper Austria
- Representative of the group "young citizens" (pupil of BLOOM school "BHAK und BHAS Wien 10", contacted, waiting for the final answer)

Host: Gottfried Mayer, Ecosocial Forum Austria & Europe. The discussion will be conducted in German and broadcasted on: www.dorftv.at

Gottfried Mayer, Ecosocial Forum Austria & Europe

BLOOM Testimonials

Making the bioeconomy graspable – A conversation with Veronika Hebenstreit, president of the board of the Ecosocial Students Forum

On 25th September 2019, students and young farmers from Austria took off to the Netherlands, where they were able to dive deeper into the fields of bioeconomy and circular economy and to engage in workshops, seminars and hands-on experiences. The young people visited scientific institutions, companies and organizations, but the tour started in earnest on the train already, where a workshop and a lively discussion was held about how to integrate bioeconomy in everyday life. The BLOOM communications team interviewed Veronika Hebenstreit, who is the president of the board of the Ecosocial Students Forum, to learn more about her experience and thoughts on the bioeconomy.

How has your understanding of bioeconomy evolved through your involvement in an activity organized by BLOOM?

Before the study trip, I had heard the word bioeconomy, but I didn't know exactly what it was. During the workshop on the train to the Netherlands, we realized that we all had a certain understanding of the word and know different aspects of it, and that bioeconomy actually encompasses all of what we knew, which is basically anything you can make from biomass.

It was very helpful to see real examples of the implementation of the bioeconomy, combined with hands-on experiences. At the University of Wageningen we learned more about bioplastics. I was already aware that bioplastics exist, but I didn't know anything about the background and their advantages and disadvantages. During the study trip, it was very interesting to see very diverse examples of how the bioeconomy can be implemented. We also visited the World Horti Center, a glasshouse center and a very technological example of bioeconomy implementation. It was interesting to

learn more about the efficiency of glasshouses, and at the same time for us it was very distant from nature, and so we had mixed feelings about it. Our visit to Rotterzwam, a company that cultivates edible mushrooms on coffee grounds, was quite different. The solutions implemented there are more natural and simple, and follow the principles of the circular economy. The company rethinks waste and recycling management and tries to find ways to make every tiny step in the production process more circular. Our visit there was very experiential, since we could make our own bags with coffee grounds and mushroom substrates and take them home with us. So now we are all growing our own oyster mushrooms, and we are still connected as a group, exchanging about the progress of our mushroom cultivation.

How do you feel the implementation of the bioeconomy should evolve?

One of my main insights from the study trip is that bioeconomy can be a great solution for more sustainability, but it doesn't have to be. It depends on how it is implemented. During the study trip, we discussed the question in which direction it should evolve a lot, especially because of the size and scope of everything contained in the word "bioeconomy". For me, the circular aspect plays a very central role. It only makes sense to make products based on natural resources if the design of their whole life-cycle is circular. For instance, whether the product is compostable or not. Bioplastic doesn't make sense for me if I still have the plastic at the end and don't know what to do with it when I don't need it anymore. For a bioeconomy to really be sustainable, it has to be based on the principles of the circular economy.

Has the BLOOM study trip motivated you to engage more in the bioeconomy?

The study trip has awakened more interest in the topic of bioeconomy. After the trip, two other students and I participated in another event on bioeconomy at our university. Thanks to the background information we now have, we could actively participate in the discussions during the event. I think some of us could imagine potentially working in the field of bioeconomy in the future, since we are studying Environmental and Bioresource Management or Agriculture – two fields that are closely linked to bioeconomy. I think we would be more open to this possibility, because now we know what bioeconomy actually is and what possibilities there are. We really enjoyed the study trip, and have started to think about planning a study trip each year!

Interview made by Sarah Friederich, GEN Europe

Would you like to participate? Get in touch with the Austrian & German Hub:

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Wissenschaftsladen Bonn, Germany
Norbert Steinhaus: norbert.steinhaus@wilabonn.de

Polish Hub

Area: Food and agriculture
The main objective of the Polish hub is to increase interest in bioeconomy studies and education.

News from Poland

Raising awareness on the bioeconomy in outreach activities for students and pupils

In mid January a group of young BLOOMers had a chance to visit the Polagra Premiery International Agricultural Fair. Equipped with knowledge about bioeconomy and its significance from the farmers point of view, students went to Poznań to learn more about the latest technologies in the service of sustainable agriculture. This was possible thanks to Claas Polska Sp z o.o. I Claas Academy, which creates and teaches the use of precision agricultural machinery that minimizes the use of synthetic fertilizers and pesticides. Precision agriculture is a farming management concept based on observing, measuring and responding to inter and intra-field variability in crops. The goal of precision agriculture research is to define a decision support system for whole farm management with the goal of optimizing returns on inputs while preserving resources.

For two days BLOOMers took part in a bioplastic creation workshops led by dr Maciej Guzik from the Polish Academy of Sciences, Institute of Catalysis and Surface Chemistry in Krakow. They learned about different production methods and types of biopolymers, but most importantly, they created bioplastics themselves. Pseudomonas species - commonly found in the environment - are used to create this type of polymer.

The complicated process, in a nutshell, begins with creating the ideal living conditions for bacteria on a suitable medium. Then they are transferred to edible oil (it can be fresh or used, depending on the intended use) and start its fermentation. Stressing bacteria, for example by limiting their nutrients, results in their specific behavior - the oil they process accumulates in their cells in the form of tiny granules. Next, you only need to use the appropriate solvent - alcohol or ammonia, which releases bioplastic from bacterial cells.

Any forms can be formed from the resulting mass. The use of this material looks particularly promising in medicine, creating dressings for big wounds, skeletal reconstruction elements, cardiac surgery elements etc.

3 forms of biopolymers

It seems like networking in the bioeconomy is starting to work. After the October event at the Ekosfera organic food market, two private schools came to us and asked to organize an information meeting on the bioeconomy for teachers and pupils interested in the subject. The specifics of work in both schools were a bit different - the morning event was intended for children aged 10-14, in the afternoon we were dealing with young adults aged 15 and older. All participants learned what bioeconomy is, how it fits into the assumptions of sustainable development, and why the world needs it, what biomass is, where to find it and what can be done with it. Younger students, apart from the presentation, could touch, smell and even taste different bioeconomy products. The older group was more focused on information exchange.

The event was conducted by participants of previous workshops: *Ambassadors of bioeconomy: A series of workshops directed to young-ambitious*, so they actually became the Ambassadors of bioeconomy knowledge for the first time.

BLOOM Testimonials

Getting involved in bioeconomy research – A conversation with Mohammed Hindash, masters student at University of Agriculture in Krakow

The Polish bioeconomy hub, with one of the BLOOM partner institutions – the University of Agriculture in Krakow – has implemented a series of co-creation workshops and outreach activities on bioeconomy in the past months. The BLOOM communications team interviewed Mohammed Hindash, a masters student at University of Agriculture, to learn more about his experience and thoughts on the bioeconomy.

How did you get into contact with the BLOOM project? What kind of activities have you been involved in?

I'm doing my masters at the University of Agriculture in Krakow and my professor, Prof. Malgorzata Pink, is also involved in the BLOOM project. I found out about the project and bioeconomy in one of her classes on the topic of organic agriculture.

In October 2019 I participated in a study trip to Austria organized by BLOOM, where we went to visit an organic, biodynamic wine producer in Pamhagen, Burgenland. On the farm, Michael Andert presented us with his methods of work in the vineyard, including plant protection means based on herbal infusion, ways of selecting plants and herbs so that they form a natural protection for each other, and also his natural fertilization methods. The end result is that he doesn't need to use any pesticides; he just needs to cut the branches of the vine. The farm is an example of a closed loop, there are no resources wasted, as all the biomass there is useful and its value is understood. For me it was very interesting to see that. The practical experience was very important, it is different to hear about a concept only theoretically than actually seeing it put into practice. This experience has influenced me and made me more aware of natural alternatives that exist. It has also influenced my consumer choices: now whenever I buy wine, I buy organic wine.

I also participated in a workshop on bioplastics organized by BLOOM. During the workshop, different kinds of plastic were explained and showcased. We learned about the different steps to produce bioplastics through a fermentation process. During the workshop, we prepared our own fermenter with bacteria samples. I think workshops like this are really needed, because they make the concepts more understandable and tangible, and it is possible to understand the different steps through experience.

How has BLOOM motivated you to engage more in the bioeconomy?

Thanks to Prof. Malgorzata Pink and my coordinator Prof. Anna Gorcyza, last summer I got the opportunity to do an internship at the Institute of Catalysis and Surface Chemistry at the Polish Academy of Science with Dr. Maciej Guzik. He is doing research on bioplastics production. His research concerns obtaining biopolymers from fermented fatty acids extracted from edible oil. During my internship I had the chance to work on this topic, and I really enjoyed it. Originally, I wanted to focus my master thesis on the topic of bio-

energy production from biomass waste, which is another topic in the realm of circular bioeconomy. But when I learned about bioplastics, I decided to dedicate my thesis to this topic. The thesis is evolving around the topic of using green catalysts to separate vegetable oil to make fatty acids, and these fatty acids are later used as a food source for bacteria in a fermentation process, which then produces bioplastics. It is really interesting. I have an energy engineering background – I studied Renewable Energy Engineering in Jordan, and I have always been interested in the question of how to replace fossil resources in processes. My motivation in dedicating my thesis to the topic of bioplastics production is to find out more on how to replace conventional plastics with bioplastics. I would like to contribute to combating the use of fossil-based plastics and making bioplastics a competitive product. I hope that at some point, renewable biomass will be the main source of plastics production.

How has your understanding of bioeconomy evolved? How do you think bioeconomy should be implemented?

I didn't really know the term circular bioeconomy before. During my studies of Renewable Energy Engineering, I learned a lot about sustainable energy production. It also included aspects of recycling and reducing waste, so it was somehow related, but the concept of circular bioeconomy was not introduced. I didn't hear about it until I came here and took the course with Professor Malgorzata Pink.

In my opinion, for a circular bioeconomy to be really sustainable, a focus on organic agriculture is important. By limiting the use of pesticides and other chemicals, or even banning certain chemicals, so many negative side effects could be reduced. For this change to happen, it is important to raise awareness on viable alternatives, also in the education system, so that people can see that other ways are possible. We need to educate as much as we can on the advantages of a circular bioeconomy and limit the use of chemicals so much that at some point we won't need them anymore in the same way as we do now. By then we would have a really sustainable system.

Interview made by Sarah Friederich, GEN Europe

Would you like to participate? Get in touch with the Polish Hub:

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Copernicus Science Centre, Warsaw, Poland
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Picture: Engin_Akyurt on Pixabay

BLOOM Joint International Webinar series in the making

The BLOOM bioeconomy hubs will run a joint international webinar series in the coming months. Topics will range from wood and forest, bioplastics, agriculture and food, to strategies for implementation on a policy level, as well as a webinar on "*Bioeconomy & me*". The webinars will each be hosted by one of the five regional bioeconomy hubs. Participants will virtually travel through each of the BLOOM hubs' regions, gathering insights into regional experiences, topics of interest and developments, as well as getting the opportunity to connect across borders. Stay tuned, dates will be announced soon!

Upcoming events

Would you like to participate? Join our regional bioeconomy hubs and BLOOM project partners in one of our upcoming events! Get in touch with the hubs to find out more.

22.04.2020	TV Discussion: Jobs and economic boom in rural areas: can bioeconomy make it possible? > More information on page 8	Austria, online	Austrian & German Hub
28.05.2020	Forest Bioeconomy Webinar, 11-12 CET	online	Nordic & Dutch Hubs
08. or 15.06.2020 (*TBC*)	Bioeconomy Master Class with Harriëtte Bos (Wageningen Research) and Jan Jager (NHL Stenden) > More information on page 5	Emmen, Netherlands	Dutch Hub
10.09.2020	Bioplastics Webinar, 11-12 CET	online	Nordic & Dutch Hubs
17. - 18.11.2020	BLOOM at the Chemport Sustainable Plastics and Materials Expo > More information on page 4	Emmen, Netherlands	Dutch Hub

Updates from the BLOOM school network

BLOOM, partner of the biggest STEM campaign around the world!

Paving the way for a better, more equitable and more innovative landscape in STEM education: this is the challenge that BLOOM and other projects, organizations, schools and stakeholders have decided to take up by joining the 2020 STEM Discovery Campaign!

Led by Scientix, the community for science education in Europe, this international initiative invites partners and participants to promote careers and studies in the field by organising and supporting STEM-related activities!

Organized in the framework of the STEM Discovery Campaign, the BLOOM Stories Competition challenges teachers to find innovative ways to raise awareness about bioeconomy by using the materials available in the BLOOM School Box! From February to April 30, 2020, participants can join the competition in four different categories of submission:

1. Teaching bioeconomy in primary schools (individual work);
2. Teaching with bioeconomy in secondary schools' STEM classes (individual work);
3. Integrating STEM teaching with bioeconomy (teams of two STEM teachers of different subjects);
4. Integrating STEAM teaching with bioeconomy (teams of up to three teachers of different subjects, including at least one STEM teacher and at least one non-STEM teacher)

The winners of each category will be rewarded for their most innovative classroom implementation by being invited to a teacher training workshop in Brussels, with travel, accommodation and meals covered! As for the finalist entries, they will have the opportunity to be published on the School Network page of the BLOOM project!

About the STEM Discovery Campaign

With almost 1000 activities organised in 2019, the STEM Discovery Campaign aims to bring visibility to STEM initiatives organised at national and European level. But most importantly, the campaign gives the opportunity to practitioners to show and share their best stories on how Innovative Trends in Education can make STEM topics and career more accessible for more students!

Kicked off on the 1st of February, this year's edition already counts 35 partners and 11 competitions organized all over Europe! The topics are numerous: from using bioeconomy as a way of raising students' awareness of society's big issues, to encouraging scientific understanding of real-world problems, there is a competition for all teachers of all subjects!

Curious to know more? Take a look at STEM Discovery Campaign activities' and actions' map and read all about participants' activities on the STEM Discovery Campaign blog!

The Campaign in Times of Covid-19

In order to contribute to the collective efforts aiming at curbing the widespread of Covid-19, all partners of the 2020 STEM Discovery encourage everyone to consider, whenever possible, **organising online events** such as: learning scenario implementations, webinars, chats, discussion boards, quizzes etc.

As many countries close schools and some of them look more into online teaching, we would like to support all educators in finding out new, engaging ways of involving students in online activities.

The team behind the 2020 STEM Discovery Campaign and associated competitions will do its best to support teachers and schools in this challenging situation. We will provide regular updates with useful tips on how to work online and lists of online tools you can use to bring your classroom into the virtual environment!

On the BLOOM bioeconomy website, we offer free learning material, such as our repository, a searchable tool of bioeconomy and circular economy information and educational content, videos, virtual experiments, etc. Also free and available for all teachers, the BLOOM School Box is a collection of teaching resources which STEM educators can use to introduce the concept of bioeconomy. If you are looking for more online teaching and learning resources, you can also explore the Scientix Resource Repository for more ideas!

Despite the situation being unusual and challenging for educational institutions, we are convinced that now is the time to learn more about adapting schools to an online environment, testing new tools and developing digital skills of both teachers and pupils.

We are looking forward to reading your stories!

Join the BLOOM Stories Competition

Help us disseminate

The BLOOM School Box

The BLOOM School Box is a collection of bioeconomy related teaching resources which educators can use to introduce the concept of bioeconomy in their classrooms as a trigger to raise student interest in science subjects and their awareness of important societal challenges.

The basis of the BLOOM School Box are five innovative learning scenarios, created and tested in classrooms by the 20 BLOOM expert teachers. These Future Classroom Scenarios were developed using the Future Classroom Toolkit methodology. Six additional bioeconomy teaching resources were selected to be included following the "Teach bioeconomy!" competition.

BLOOM connects professional networks with the general public, with the aim to raise awareness, to enter into dialogue on the perspectives of the bioeconomy, and to encourage engagement in regional bioeconomy development.

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The BLOOM Bioeconomy Key Messages: a Call to Action!

In the past months, BLOOM has been working on developing a set of key messages for different aspects of the bioeconomy, sustainable development goals and climate change in an easy to understand and accessible way. The key messages serve the purpose of our main mission: to boost people's awareness of and knowledge of bioeconomy.

As we want to take our mission a step further, we decided to share the Key Messages with the public and launch a very special Social Media Campaign at the same time, calling our Community to action and giving it the visibility it deserves.

Among BLOOM's Community we have researchers, teachers, students, scientists, communication experts: they all have a key message to inspire the world! As much as we love to keep in touch with the specialists of the field, we want to reach out to the people who still don't know that Bioeconomy is a response to key environmental challenges the world is facing already today.

That's why we thought of the Key Messages Campaign and these easy steps to join it:

- Follow BLOOM Bioeconomy's social media account
- Share all our posts with the #biomessage hashtag
- Tag 3 friends who need to know about the #bioeconomy

We will select 10 winners and give the chance to share a video or picture of YOUR #biomessage that will be re-posted on our social media channels.

Because everyone's message matters!

We can all contribute to the ecologically responsible and socially just bioeconomy.

Gaia Tarani, GEN Europe

Picture: Pixabay

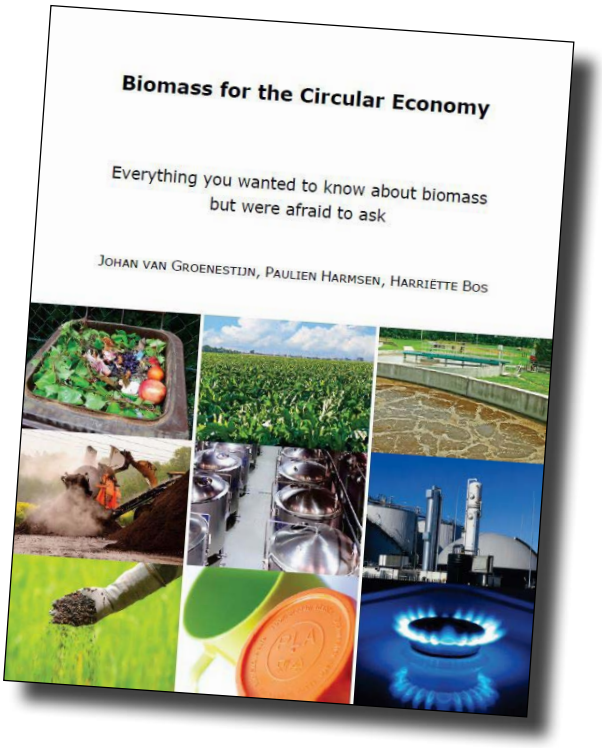
BLOOM information and outreach materials

We are continuously developing information and outreach materials on bioeconomy and on the approach of the BLOOM project. Find our newest materials below: the second episode of our video series on bioeconomy, a new podcast with an interview with Johan Sanders, professor at Wageningen University, and our newest publication on "Biomass for the Circular Economy".

How can we produce bioplastics from sugar beets and other biomass? We visited Emmen and Wageningen in the Netherlands to learn about the biobased material PLA and why it could be a good solution to transform our value chains to biobased production. Find out more about in the „Bioplastics from Sugar Beets" video!

Listen to our newest bioeconomy podcast: a conversation with Johan Sanders, professor at Wageningen University and expert for plant production chains.

Biomass for the Circular Economy – Everything you wanted to know about biomass but were afraid to ask. Download the booklet we published in collaboration with Wageningen University & Research and TKI BBE biobased in een circulaire economie.



Stay updated how BLOOM is engaging EU citizens and civil society in the bioeconomy via the project website and social media:

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 773983.